INTERACTIVE INTERNAL TRAINING FOR TEACHERS

FORMAÇÃO INTERNA INTERATIVA PARA PROFESSORES

FORMACIÓN INTERNA INTERACTIVA PARA PROFESORES

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ABSTRACT: Schooling is a conservative system that must respond fast to the challenges of modern life. New challenges are: the need to develop children’s self-reliance in learning during the transition from primary to secondary school, to help children build an individual study path, to organize education in inclusive settings. How to help teachers master new competencies, what internal training should be like – these are the questions the present study provides answers to. The presented concept describes an experiment in identifying and solving professional problems of teachers in secondary schools of the Russian Federation.


RESUMO: A escolaridade é um sistema conservador que deve responder rapidamente aos desafios da vida moderna. Os novos desafios são: a necessidade de desenvolver a autossuficiência das crianças na aprendizagem durante a transição da escola primária para a secundária, para ajudar as crianças a construir um caminho de estudo individual, para organizar a educação em ambientes inclusivos. Como ajudar os professores a dominar novas competências, como deve ser o treinamento interno - essas são as perguntas para as quais o presente estudo fornece respostas. O conceito apresentado descreve uma experiência na identificação e solução de problemas profissionais de professores em escolas secundárias da Federação Russa.


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RESUMEN: La escolarización es un sistema conservador que debe responder rápidamente a los desafíos de la vida moderna. Los nuevos desafíos son: la necesidad de desarrollar la autosuficiencia de los niños en el aprendizaje durante la transición de la escuela primaria a la secundaria, ayudar a los niños a construir un camino de estudio individual, organizar la educación en entornos inclusivos. Cómo ayudar a los profesores a dominar nuevas competencias, cómo debería ser la formación interna: estas son las preguntas a las que da respuesta el presente estudio. El concepto presentado describe un experimento para identificar y resolver problemas profesionales de profesores en escuelas secundarias de la Federación de Rusia.


Introduction

The school authorities are faced with the necessity of provision for upgrading the skills of teachers within educational framework conditions without interrupting teaching and learning process when the school is placed before new challenges of time.

The paper aims at analyzing and generalizing algorithms, describing interactive forms of methodological work with teachers in general education schools, which allow teachers to master the competencies claimed in society and qualitatively change the learning process in school.

The study was carried out in three educational institutions of the Perm Territory: schools in the city of Berezniki and the city of Perm. The study engaged 113 primary school teachers and subject teachers at ascertaining stage, ensuring the formation of educational independence of schoolchildren at the stage of transition from primary to secondary schools, of whom 12 teachers were engaged in organizational and methodological work to establish conditions for increasing the effectiveness of the process; 38 primary school teachers, among them 23 teachers entering a tutoring position to help children build an individual educational path; as well as parents of students (183 people); 47 teachers working in inclusive classrooms.

Educational organizations were selected that had encountered similar problems but continued to train teachers in the logic of the traditional information model (control groups).

Methods

In order to determine the validity of the study, a diagnostic and reflexive complex, targeted at assessment and self-assessment of the formedness of competencies essential for
solving problems, has been developed and implemented (BULAT, 2013; BLOOM, 1986; EVANS, 2003).

To determine the readiness of teachers to form students’ learning independence at the stage of transition from primary to secondary schools, two methods have been used. At the initial stage, teachers were offered an author’s questionnaire (S. V. Kosikova) to seek for understanding of the essence of student’s learning independence and the teacher's willingness to get involved in the work to minimize difficulties in the manifestation of student’s learning independence.

The questions included into the questionnaire are: what proportion of primary school-leaving students, according to the respondent, have formed “educational independence” and what skills do they demonstrate; Does the respondent consider the joint work of all members of teaching staff to solve the problem of developing student’s learning independence required; In what forms do school teachers for primary and secondary interact to implement continuity at the transitional stage of general education?

The answers made it possible to determine the teachers’ readiness to be included into innovative activities on the issue concerned.

At the final stage of the educational research, the readiness of teachers for the continued development of student’s learning independence at the transitional stage of general education was investigated based on self-assessment with the use of diagnostic card Assessment of the Teacher’s Readiness to Participate in Innovative Activities (SLASTENIN; PODYMOVA, 2007), modified through indicating the topic of the work being carried out.

To identify the readiness of teachers to introduce transformations in their own activities, the following methods have been used: testing and questioning.

Two diagnostic sections have been also carried out in the study on the formation of a tutor position among teachers. The methods used are: the self-diagnosis questionnaire My Position (PIGAREVA, 2016); a map of teachers’ self-evaluation in revealing key tutor competences within professional field generated by N. G. Pigareva, following the material by Y. A. Izotova (IZOTOVA, 2014).

Since the same methods as those at the formative stage of the study were used to measure the personal and professional characteristics of teachers, the results of the ascertaining and formative stages of the study were verified by methods of mathematical statistics for processing nonparametric criteria: Fisher’s angular transformation criterion (MCNEMAR TEST); McNemar signed rank test; Wilcoxon’s signed rank test (FAQ on Wilcoxon rank sum test); Spearman’s rank correlation coefficient (SLASTENIN; PODYMOVA, 2007).
Graphical methods for analyzing test data were used when processing the results of diagnostic sections (GALPERIN, 2007).

**Results and Discussion**

The main tool for the development of the competencies of teachers was their mainstreaming into professional research. The teachers analyzed the problems identified in children’s skills, the children’s cognitive development needs and the opportunities offered at school for their satisfaction. After identifying contradictions, the teachers designed an educational program for the internal training of a group of teachers or developed individual educational programs with the assistance of training services of the school.

Interactive training received greatest attention in the learning process: brainstorming, situation-based problems solution in mixed groups (elementary school teachers and subject teachers at primary schools), adoption of a “formula” (of independent learning), a “student’s portrait” building, elaboration of an “algorithm of training exercises”, development of school regulations, business game, debate, “basket of ideas” technique, defense of an individual research project.

The pedagogical experiment has shown positive dynamics in the development of all components of pedagogical competence among teachers (meaningful changes are recorded).

Let us provide concrete examples.

Example 1. *In order to identify the teachers’ ideas of the student’s academic independence and their expectations for this result illustration at the stage of transition from the elementary level to the basic level of general education*, 113 questionnaires have been completed by elementary school teachers and subject teachers of gymnasium № 31 in Perm secondary schools № 11 and № 14 of the city of Berezniki, Perm region. The information obtained allows for the conclusion that teachers create the conditions for a student to evince his or her independence in learning at different levels of education in accordance with their ideas of learning outcomes, which is fully consistent with neither the requirements of the Federal State Educational Standard of the Russian Federation, nor modern ideas of pedagogy about independent learning as an educational concept.

The survey conducted has sharply outlined the existing problems in implementing the work on continuous development of students’ independence in learning process at the transitional stage of general education in general education schools of the Perm Territory, namely: 1) ignorance of the peculiarities of the age period, 2) absence in most educational
Interactive internal training for teachers

institutions of joint work of teachers of related levels of education, effective in solving the issue of continuity in the continuous development of the student’s personality. The data obtained evidence the urgency of the problem.

To solve the above tasks at school № 14 in the city of Berezники, the management program Continuous Development of Students’ Independence in their Learning was developed. Its implementation implied 4 stages: initial, preparatory, basic, final.

In the first training session of the course the teachers were offered to discuss the following questions: What is continuity and succession of education? Is there a necessity of changing the initial conditions required to ensure succession in the educational organization? In the form of a group training workshop, elementary and secondary school educators jointly formulated a single goal in working with children.

In the second training session, having united in mixed groups (elementary school teachers and subject teachers), the teachers analyzed and discussed the information on to the developed algorithm: 1) studying and comprehending the scientific article The Essence of Students’ Independence in Learning and the Levels of Its Development (the transition “theory-practice”); 2) elaborating “a formula for the students’ educational independence” with the inclusion of components of this integrative quality of components; 3) building up a student’s portrait at the stage of his or her transition from the elementary to the main level of general education (the transition “practice-theory”).

Summing up the session, the teachers were in general agreement that a student should be expected to demonstrate learning independence at the middle level of its development before the transition period of general education.

In the third training session, the teachers had to develop an algorithm for conducting a learning session that meets the logic of the technological approach (the transition “theory-practice”).

After a discussion on selected issues of the problem identified, a business game on building a lesson was conducted. All participants in the game agreed that regardless of the level of general education they teach at, a single structure of the learning session should be used in the construction of educational process in the logic of the technological approach (the transition “practice-theory”).

The fourth training session took the form of debates Groups with Mixed Age: Pros and Cons. The organizers offered pedagogical information based on the analysis of which teachers could independently reveal benefits and implications of applying the method of teaching in groups with mixed age (COLLENTINE, 2000) and use them as arguments during...
the debates. Following the session, a decision was to adjust the work program in the Russian language for grade 5 with the inclusion of “mixed age training” together with initial school students (the transition “theory-practice”).

The fifth training session of the course was aimed at teachers’ adopting the existing methods to evaluate learning independence of students and/or its components (BOUD, 2000).

Having experienced and compared several diagnostic methods, the teachers chose which of them were better to use. The Basket of Ideas technology was also used: teachers were grouped according to “academic subject”, regardless of the level of general education. They made a selection of subject tasks to conduct the Diagnostics to Identify the Degree of Development of Educational and Organizational Skills. This activity contributed to the project development of a package of diagnostic tools to assess students’ learning independence at the transitional stage of general education.

The purpose of the final sixth training session was the teachers’ preparedness for individual development of pedagogical projects Development of Students’ Independence in Educational Activities. In groups, the teachers devised the blueprints of a pedagogical project which later could be used as a basis for the individual development of pedagogical projects.

Then, at the preparatory stage of implementation of the management program Continuous Development of Students’ Independence in Learning, project groups were created to elaborate regulatory documentation (study programs for academic subjects, a package of diagnostic methods) and their own teaching activities. The main stage ensured all plans to be implemented, and the final stage – the Program’s results to be analyzed and assessed.

At the end of the short-term course Let Us Teach a School Student to Learn, we employed a modified method Assessing a Teacher’s Readiness to Participate in Innovative Activities. This method is teachers’ self-assessment of the manifestation of readiness indicators according to the diagnostic assessment checklist. Modification of the method consisted in the fact that the statements formulated to assess the cognitive and activity indicators of teachers’ readiness, we partially altered taking into account the research topic.

According to the findings, 7 teachers out of 12 teachers are completely ready for the implementation of educational conditions to help school students in their learning independence in practical work, and 4 teachers have demonstrated average readiness, while 2 teachers of the basic school are not ready to participate in experimental work since they have shown low and initial levels of readiness. The results of monitoring the readiness of teachers are presented in Figure 1.
Figure 1 – Levels of Teachers’ Readiness for Experimental Work

![Figure 1](image1.png)

Source: Devised by the author

Figure 2 shows the results of assessing the cognitive, personal, motivational and activity components of readiness, they are as follows: the motivational component of readiness is fixed at 74%, the cognitive and activity components of readiness are 76% and 81%, respectively, the teachers have shown the highest result (84%) with a self-assessment of the personal component of readiness, which is indicative of a high efficiency, confidence and a responsible attitude to participation in innovative activities from the outside.

Figure 2 – Components of Teachers’ Readiness for Professional Activity

![Figure 2](image2.png)

Source: Devised by the authors

Thus, the problematization of the pedagogical activity implemented by the teacher is a mechanism for teachers’ inclusion in innovative activity. This ensured the achievement of the expected personal results: the readiness of teachers to participate in professional activities for
the continuous development of educational independence of a student at the transitional stage of general education was 78%, which is indicative of the average (sufficient level) of readiness to conduct innovative activities.

**Example 2.** For the teachers who work in inclusive classes, a distance face-to-face course has been developed, the purpose of which is to update knowledge and teach modern methods of forming communicative interaction among elementary school students. The demand for such a course is confirmed by the test results of 47 teachers of secondary schools № 114 and № 17 of the city of Berezniki, Perm Territory, who have demonstrated a low level of competence in a number of issues (Table 1).

**Table 1** - “Problem” Issues from the Results of Testing the Teachers of “Inclusive” Schools

<table>
<thead>
<tr>
<th>“Problem” Issues</th>
<th>Average score (out of 5)</th>
<th>Share of “low” scores (1-2), %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philosophy of inclusive teaching and learning</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Peculiarities of speech development of children with disabilities</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Fear of a child with disabilities</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Physiological capabilities of a child with disabilities, how to account</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Needs of a child with disabilities for friendship</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Forms and methods working on organization of communicative interaction between children</td>
<td>1</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: Devised by the authors

The course is divided into two parts: theoretical and practical training. Theoretical training is supposed to be in online environments.

Theoretical training is provided according to the algorithm: testing on the topic (*the transition “practice-theory”*), watching a webinar, re-testing, discussion on the forum. The tasks of the group tutor include carrying on the discussion on the forum, updating a weblog.

The theoretical block consists of three sections, seven lessons. The first section is *Age Characteristics of Children* (personal, cognitive and speech development of primary school students). The second section is *Individual Characteristics of Children that Affect Communicative Interaction* (features of communication, features of socialization and features of the emotional development of children in an inclusive class). The third section *Forms and Methods of the Teacher’s Work on the Formation of Communicative Interaction of School Students in an Inclusive Class.* Following on from the results of the theoretical stage of training,
repeated testing is envisaged, aimed at identifying “problem” issues, which are further discussed during the practical stage of training.

Practical training takes place in a concentrated manner during a week (7 sessions) using elements of training, brainstorming, problem solving, discussion (the transition “theory-practice”). In total, six topics for learning sessions have been formulated: 1) organization of acquaintance of children of an inclusive class; 2) work with parents of children of an inclusive class; 3) organization of the interaction of accompanying school specialists; 4) forms and methods of organization of communicative interaction, used by the teacher at the propaedeutic stage of training (1 year); 5) the peculiarities of organization of communication in the classroom and after school hours; 6) forms and methods of organization of communicative interaction employed by the teacher (2-4 years of study).

At the final meeting, final testing and reflection on the significance of the material under discussion should be organized. Feedback was received via questionnaire, the analysis of the teachers’ answers allowed for the adjustment of the content of the internal training program.

**Example 3.** The next situation is associated with a change in the teacher's outlook. Awareness of oneself not only as a teacher (who transfers knowledge) but as a tutor.

The research was carried out based on municipal educational organizations № 2, № 27 and № 135 of the city of Perm. It engaged: 38 primary school teachers, 183 parents (legal representatives) of primary school students.

The results of the questionnaire with multiple choice of answer have revealed that the position “tutor” (78.6%) should be a predominant position among primary school teachers in the educational organization, while the teacher may be in other positions, for example, in a position of a “consultant” (52.4%) or a “teacher” (50%). However, primary school teachers point to the fact that in individual work with a child the leading positions should be “psychologist” (57.1%) and “tutor” (45.2%).

At the same time, the teachers with their leading positions have now defined the positions “teacher” (59.5%) and “class teacher” (52.4%). Then, in order of importance are the positions “mentor” (47.6%) and “consultant” (31%); the position “tutor” (and at the same time “teacher”) has been indicated by 4 teachers (9.5%); the position “tutor” (without realization of the competences of “teacher”) has not been found among the choices of teachers. The questionnaires of the teachers in study point to the fact that primary school teachers are aware of the need to change the pedagogical position.

According to parents, a tutor in an educational organization is a specialist who can positively influence and change a student’s attitude to education. This is the opinion of 76.36%
of parents. He or she is also a specialist with the help of whom children can receive a higher-quality education. This is the opinion of 80.35% of parents.

Consider the main forms of work for shaping a tutor position of a teacher in a general education school, based on the use of multiple transitions “practice-theory” and “theory-practice”.

At the first stage, the transition “practice-theory” was organized: a) “representation of a situation as a significant event” and b) “critical reflection on a life event”, implying a reflection on professional activity, individualized pedagogical knowledge that the teachers competently apply in an educational situation, reflection on their own algorithms used in professional activities and professional values. The format of “round table” was used to carry out the work. Effective methods of work and resource points of the educational organization for solving the arising difficulties were identified in discussion.

Then the teachers were asked to determine their own direction of professional activities through a specially designed “navigator” in a graphic form. Also, teachers carried out a personal reflection of actions and deeds in professional activity, which resulted in the enrichment of “Self-Image” and a constructive practical change in the methods of activity (the transition “theory-practice”). As a result, their own goals and objectives had been defined, further development had been prognosticated.

Then, a “personality-resource map” was constructed, on which internal and external resources were shown, ensuring the achievement of the goal. The construction of the personality-resource map was based on the principle of mind mapping. This allowed teachers to create a visual, detailed image of various resources.

Also, the factors stimulating the successful professional activity of a teacher, existing in an educational establishment were identified in the survey; in the first places turned out to be the following: the achievement of high results by school students, self-education, the lead and influence of colleagues in their school.

Note that the teachers pursued their individual options for the formation of a tutor position; this was facilitated by the methods of reflective activity and, on this basis, an analysis of the methods of constructing, implementing and evaluating an individual pedagogical project aimed at personal and professional development and increasing the effectiveness of professional pedagogical activity.

The implementation of the support of forming the tutor position of the teacher outlined the strategies to pilot innovative projects at the initial stage of education:
1) implementation of individual pedagogical projects in accordance with the general direction of activities of an educational organization on the development of learning process;  
2) implementation of the stage-by-stage training of teaching staff and educational resources for subsequent (prolonged) changes in the activities of the structural unit, changes in various aspects of the pedagogical process.

The data obtained from the experimental work are presented in the summary table (Table 2).

Table 2 – The Results of Skilled-Experimental Work on Formation Tutor Position of a Teacher

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Defining the demonstration of tutor position of a teacher</th>
<th>Ascertaining Stage (AS)</th>
<th>Formative Stage (FS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>Fisher’s angular transformation criterion</td>
<td>46.7%</td>
<td>73.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.4%</td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At the AS the fact of difference in demonstration of tutor position has been confirmed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At the FS the difference in the result is no accident but has been formed under the influence of certain factors.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Defining the demonstration of tutor competences</th>
<th>Ascertaining Stage (AS)</th>
<th>Formative Stage (FS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>McNemar sign test</td>
<td>80%</td>
<td>73.91%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>79.9%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>At the AS typical shifts in direction (the demonstration of tutor competences) are accident for CG.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At the FS typical shifts in direction are no accident for EG.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Defining the level of demonstration of key competences</th>
<th>Ascertaining Stage (AS)</th>
<th>Formative Stage (FS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>Wilcoxon’s test</td>
<td>1.37 (av. score) average level</td>
<td>1.68 (av. score) average level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.45 (av. score) average level</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.47 (av. score) average level</td>
<td></td>
</tr>
</tbody>
</table>
At the FS the shift to a “typical” side (the demonstration of key tutor competences) is not prevalent for CG. At the FS the shift to a “typical” side in intensity is more reliably prevalent for EG.

### Diagnosis

**Comparing the results from the experiment**

<table>
<thead>
<tr>
<th></th>
<th>CG (15 people)</th>
<th>EG (23 people)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Result</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spearman’s rank correlation coefficient</strong></td>
<td>$T_{cr} = 0.17$</td>
<td>$T_{cr} = 0.26$</td>
</tr>
<tr>
<td><strong>$p$</strong></td>
<td>0.957</td>
<td>0.814</td>
</tr>
<tr>
<td><strong>Result</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Source</strong></td>
<td>Devised by the authors</td>
<td></td>
</tr>
</tbody>
</table>

### Result

The results of the study at the formative stage (FS)

<table>
<thead>
<tr>
<th></th>
<th>$T_{emp}=3$</th>
<th>$T_{emp}=5$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$T_{cr}$</strong></td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>$p$</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Temporarily significant**
- **Probably significant**

### Conclusion

Thus, we can conclude that teachers need to be accompanied by professional activities in the field of goal setting, planning of individual pedagogical projects and reflection of intermediate and final results.

The development of tutoring competencies can be carried out directly in the professional teacher’s work and be an indicator of their utmost professionalism.

The adopted systems of internal training for teachers, based on the ideas of an experimental and analytical approach to teaching pedagogy and the use of interactive collaborative learning, have shown good results in training teachers and successful solutions to the problems faced at school.

This study can serve as a springboard for further research to expand the use of interactive internal training for teachers for solving current issues of general education.

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