Integration of higher, general, additional pedagogical education

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Abstract. The modern development of society requires a new system of education – “innovative training”, which would form the trainees’ ability to projective determination of the future, responsibility for it, faith in themselves and their professional abilities. The main legislative documents “The UNESCO IITE Educational Program for the training and professional development of teaching staff”, “The Strategy of innovative Development of the Russian Federation until 2024”, “The Law on Education in the Russian Federation”, “The Concept of the development of additional education”, Federal State educational standards, local regulations of various subjects of the Russian Federation in the field of higher, general and additional education raises the problem of integration of these education systems into the category of important state tasks and at the same time determines its relevance. The article is based on the materials of a research on the use of general and additional education resources in the training of future teachers conducted at Shadrinsk State Pedagogical University. Online questionnaires, interviewing students, solving pedagogical problem situations and modified methods of Ehlers T., Klyueva N.V., as well as methods of studying communicative and organizational abilities (COA-2) were used as diagnostic tools. The conducted research made it possible to design a system of training future teachers in the conditions of integration of higher, general and additional education, including components: setting and goal-setting, organizational-activity, performance-evaluation. During the conducted experiment, the effectiveness of pedagogical conditions in the implementation of this system was proved. The result of the work done is the development of a model for training a future teacher in the conditions of integration of higher, pedagogical and additional education systems, which can be implemented in the practice of pedagogical universities.

Keywords: teacher training, integration, higher pedagogical, general and additional education, pedagogical conditions

1 Introduction

The direction of the development of the potential of all social systems for the purpose of teacher training, highlighted as a basic priority by UNESCO, is a new vector in higher education. Teaching staff today is considered an influential and powerful resource in achieving equality, access and quality of education, as well as the key to the sustainable development of States. However, the training of these staff, involvement in professional activities, the status of teachers and the conditions in which modern teachers work often cause concern. The data of the UNESCO Statistical Institute (SIU) state that by 2030 the world community will need more than 69 million teacher rates, which already determines their deficit today.

The higher education system equips the student with the necessary subject knowledge, general education, when introducing the future teacher to real work with children at school (kindergarten), contributes to the formation of readiness for pedagogical activity. Additional education, in turn, provides an opportunity to work out the acquired skills of working with different groups of the population, acquire innovative technologies and build a trajectory of continuing professional education. The integration of higher pedagogical, general and additional education systems is of particular relevance in the current situation, which has become the subject of this research.

The system itself for training future teachers clearly responds to the big challenges of the state: specialists who will become real assistants to classroom teachers, mentors and educators, will be organizers of exciting, interesting projects for children at school will come to schools; funds are being allocated to expand the network of children's technology parks, quantoriums, centers for digital, natural science, and humanitarian development, in which it is planned to create more than a million new places in the system of additional education. This indicates that, along with the classical school education system, the system of additional education for children is developing more and more dynamically, both of these systems require new approaches to teacher training at the university [1]. Today there is an urgent question of integrating education systems into the training of a modern teacher that is reaching a new level. Thus, the
need to train a teacher capable of carrying out professional activities in the systems of school and additional education of children is revealed. The historical and logical review of psychological and pedagogical researches convincingly proves that the relevance of the problem of professional training of future teachers not only does not weaken, but increases many times. Researchers pay special attention to finding ways of effective practices and organizing the process of independent work of students, both in the educational process [2] and in unregulated activities, including educational activities. The emerging studies on the integration of education and science in a pedagogical university [3], as well as scientific research in the field of integration of the university and the system of additional education of teachers [4] should be particularly noted.

The objectivity of our research in the field of training future teachers to solve professional problems in the conditions of integration of higher pedagogical, general and additional education systems is justified by the use of a set of approaches that are presented: at the general scientific level by methodology by systemic approach, at the specific scientific – by professional–personal approach, at the technological level – by integrative-activity approach [5]. Let us consider in detail the influence of these methodological approaches on the process of preparing a future teacher.

The systematic approach is the basis of the general scientific methodology of any research. This approach allows not only to present the structure of the author's development according to its principles, but also to build the process of the entire system of the problem being studied [6]. The systematic approach is reflected in the analysis of the definitive characteristics of the scientific apparatus of research, the systematization and structuring of the process or phenomenon being developed, the justification of the conditions for the effective implementation of this process, as well as the definition of the points of contact between theoretical positions and practical (experimental) development.

Professional and personal approach, as a rule, it determines the methodological strategic orientation of the study [7]. The scientific ideas that form the basis of the approach contribute to the study of the process of formation of the readiness of future teachers for professional activity based on individual characteristics and personal self-improvement. The phenomenon of the readiness of future teachers to work at school is determined in the close relationship of two positions: firstly, as a specific property of the individual, which is determined by a set of knowledge and skills that allow to carry out professional activities with a certain quality; secondly, as a set of formed skills and qualities that contribute to the successful performance of a certain type of activity.

The integrative-activity approach determines the practice-oriented tactics of conducting research [8]. Taking into account its provisions contributes to the realization of the interrelation of the components of the systems being developed (integration itself), the interaction of the process organization with the activity component (joint activity of subjects).

The analysis of psychological and pedagogical literature made it possible to design a system of training future teachers based on the following components: setting and goal-setting; system-activity; performance-evaluation.

The selected components of the system are defined by the purpose and objectives, and can be characterized by functions [9]. Thus, the goal-setting component, in relation to the subject of our study, is designed to form attitudes to mastering the teaching profession; the system-activity component involves organized activities to master the competencies necessary for the future teaching profession and professional growth; the performance-evaluation component contributes to the prediction and achievement of the result of the developed system, as well as a critical assessment with the possibility of making correction. The considered components are not just outlined by specific functions, but also contribute to the achievement of the goal, while forming the meaningful core of the system.

The modern State educational standard of higher education is designed to solve the main goal – in addition to obtaining the competencies necessary for professional activity, to prepare a student, a future graduate of a university for independent socialization to society and self-realization.

2 Problem Statement

The relevance of the research is due to the need to search for new methods and means of preparing students – future specialists to solve professional problems. In the current situation – the rapidly changing conditions of education in secondary schools and the increasing role of additional education – claims are made to the higher education system in the training of teaching staff. The weak orientation of graduates of pedagogical universities in innovative technologies and the conduct of educational (extracurricular) activities make it necessary to revise the traditional system of training students – future teachers.

3 Research Questions

To analyze the system of training future teachers in the following three directions:

- Study of methodological approaches
- Study of structural elements
- Study of pedagogical conditions

4 Purpose of the Study

To conduct an experimental test of the developed system of training future teachers, including methodological approaches, structural elements and pedagogical conditions for its implementation.
5 Research Methods

For this purpose, experimental work on the use of general and additional education resources in the training of future teachers was organized at Shadrinsk State Pedagogical University (hereinafter SHSPU). Experimental work was carried out in stages. At the first preparatory stage, a questionnaire was conducted on subjects of educational relations (high school graduates (652 people), their parents (320 people), teachers (117) and university teachers (84 people). The questionnaire showed that a one-third of graduates in the last year of school have not yet formed a conscious choice of a future profession. More than 40 % of high school graduates have a choice of profession that does not coincide with the choice of parents. Only 16 % of graduates chose teaching, although more than 30 % of parents want to see their child as a teacher. University teachers note the lack of motivation for pedagogical professional activity of applicants of pedagogical universities. More than half of the university teachers (58 %) noted the insufficiency and the need to use the potential of general and additional education. They assign a special role in the training of future teachers to pedagogical (educational) practices, volunteer movement, participation in clubs, sections and educational events held at the university and beyond.

The determination of the readiness of graduates of a pedagogical university to solve the tasks that they will have to solve in their professional activities was particularly significant for the research. For this purpose, the formation of the components identified by us was determined by means of questionnaires, interviewing and solving problem situations. Criteria, indicators and methods of diagnosing students are presented in Table 1.

<table>
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<th>Criterion (structural component)</th>
<th>Indicator</th>
<th>Diagnostic tools</th>
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| Motivational-target             | • the presence of internal motivation for pedagogical activity;  
                                 | • creative focus on solving professional pedagogical tasks;  
                                 | • the involvement (sincere desire to participate in the educational activities of students, inner involvement, interest);  
                                 | • the social activity;  
                                 | • the desire of the individual for self-development | • questionnaire;  
                                 |                                           | • modified personality diagnostics for motivation to success by Ehlers T. [10] |
| Content and activity             | • possession of professional and pedagogical skills in the field of organization of educational events;  
                                 | • assessment of the real conditions in which extracurricular activities will be carried out in schools and institutions of additional education;  
                                 | • actualization of the experience associated in the past with solving tasks similar in meaning;  
                                 | • ability to communicate with children, parents and other subjects of education | • interviewing;  
                                 |                                           | • solving problematic pedagogical situations;  
                                 |                                           | • modified methodology for the study of communicative and organizational abilities (COA-2) [11] |
| Effective-reflective             | • openness to changes in educational (sports, creative, research, etc.) activities;  
                                 | • the ability to correct their actions;  
                                 | • the ability to structure their teaching activities, bring it into the system according to the plan of educational work;  
                                 | • reflection of the achieved results in unregulated (extracurricular) activities | • interviewing;  
                                 |                                           | • modified methodology for identifying the teacher's ability to self-development by Klyueva N.V. [12] |

The conducted diagnostics showed, in general, an average and low level of formation of the components of the readiness of students – future teachers for professional activity.

The second stage (conceptual and technological) involved the development of a structural and functional model for preparing future teachers for professional activity, including motivational-target, content-activity, effective-reflective structural components, as well as the development of pedagogical conditions for the implementation of this model. Following the logic of our research, we will describe the implementation of pedagogical conditions in the practice of a pedagogical university – SHSPU.

6 Findings

The first pedagogical condition that we are considering is **the creation of an intellectually didactic educational environment aimed at solving professional and pedagogical tasks.** The strategic vector of this condition contributes to the activation of students in solving practical pedagogical situations, to the search for the necessary information, to the creation of an atmosphere of emotional and intellectual satisfaction from the realization of the value of the solution found. In the implementation of this condition, different variations of imitation-professional sketches, pedagogical technologies, intellectual quizzes, didactic games and other forms and methods of organizing practical classes are used [13].

The scenario of designing an intellectual and didactic educational environment consisted in a full-fledged structural integration, which is based on the close relationship between the theoretical and practical parts of the educational process. The connecting link of these parts can be various types of activities: research...
and search, artistic and creative, intellectual and cognitive, project and others.

The created intellectual and didactic educational environment at SHSgpu provided: close interrelation of all subjects of the educational process; mutually beneficial cooperation with educational institutions and social partners; didactic and methodological support of students in obtaining practical skills (in pedagogical practice, volunteer movement, organization and conduct of educational activities); the use of technical means, including an Internet resource, in order to model events in a digital format and conduct them with a deeper content; creation of an educational practice-oriented platform where students have the opportunity to carry out project, research and creative activities.

Summarizing the consideration of the essential characteristics of the intellectual and didactic environment, it should be noted that it sets the strategy of organizing the educational process of students, from which creative and artistic pedagogical personnel are formed.

Considering the following pedagogical condition – the creation of a bank of practice-oriented case situations, it should be noted that case-study, as a non-game method, refers to interactive teaching methods. The creation of a problematic situation, which is often based on real-life scenarios, is a distinctive feature of this pedagogical condition. The possibility of developing a collective solution is considered valuable in solving specific problem cases. At the same time, the emotional stress of the subjects at the moment of developing a joint decision is no less significant, because everyone has to prove their point of view.

Correlating what has been said to the process of training future teachers at the university, the case method provides a meaningful analysis of various pedagogical, psychological and methodological problem situations.

In the educational process of the university, the use of the case method in psychological and pedagogical disciplines (bank of case situations) contributed to: formation of analytical skills: students developed the ability to separate essential information from non-essential, analyze, classify, synthesize, be able to restore missing information, etc.; development of practical skills: application of theoretical knowledge, principles and methods in seminars and pedagogical practice; the formation of creative skills, the end result of which was the opportunity to generate new ideas from students, make alternative decisions, develop emotional stability; improve communication skills and skills that allow you to defend your point of view, hold a discussion, make a short and complete report, summarize the conversation.

These skills are extremely in demand in the professional activities of teachers who have to regularly interpret the information they receive, compile reports on events held with students and their parents, use various formats (graphs, diagrams, tables, virtual excursions, videos, etc.)

Practice-oriented cases that are used in the educational process of the university are different both in organization and content. These cases can be classified according to the directions: contributing to the solution of problem situations and making the right decisions; teaching assessment and analysis; actually research and focusing on the inclusion of schoolchildren in experimental search activities.

The bank of practice-oriented cases contains a sufficient volume of specific situations, which is constantly updated and adjusted. It is used in the study of disciplines of the psychological and pedagogical cycle. Depending on the problem being solved, different types of cases are used in academic disciplines: 1) value-semantic cases are aimed at understanding the proper personal development, they contribute to the assertion of one’s own status, attitude to life values and future profession. The potential of value-semantic case situations consists in the implementation of a system-forming function – value-orientation. That’s what ensures the working out of all components of the readiness of future teachers for professional activity in unity; 2) modeling case situations involve designing and playing mini-models of a teacher’s professional activity. As a result of these cases, students get acquainted with innovative technologies, educational activities, model processes and make notes on trainings and play fragments of various teaching methods. This contributes to the adaptation of future teachers to the new conditions of interaction, allows them to make a reasoned decision; 3) design and organizational case situations contribute to the analysis of the studied activities in order to develop the necessary strategy with subsequent organization and independent conduct of various kinds of labor actions: training, educational, developing; 4) creative-reflective cases include independent development by students of various educational and research cases. The basis of the cases are the ideas obtained during the germination of educational situations. At the same time, reflective case situations realize many functions: subjectivization, design and implementation, decentralization, etc.; 5) search and illustrative cases contain a graphic image: an illustration, a photograph, a diagram. This type of case involves analyzing an illustration, hypothesizing what is depicted on it, translating the pictorial information into another sign system – into the language of words, revealing what meaning is hidden in it: an educational problem, how to solve it, what attitude students have towards it.

Thus, the considered cases, in the aspect of practice-oriented teaching of students, can be presented as practical tasks requiring reasoned solutions and as close as possible to the real professional activity of the teacher.

The next (third) pedagogical condition is the involvement of students in professionally oriented activities. When implementing this condition, students were immersed in practical activities through various types of practices planned in the curriculum: pedagogical, design and technological, pre-graduate. In addition, students were involved in various public organizations and student groups: volunteer movement, KVN, student scientific societies, pedagogical landings, debates, olympiads, creative groups, etc.
In the series of important events that have been considered, a special place is given to pedagogical practice. During its passage, future teachers not only consolidate theoretical knowledge, but also work out practical skills and abilities, acquiring the necessary pedagogical competencies.

Pedagogical practice can be considered successful if the student fulfills the methodological recommendations laid down in the practice program in his professional activity. At the same time, he critically approaches the analysis of the existing real conditions of an educational organization and creatively solves the problematic situations facing him, in accordance with the understood laws and principles of the organization of the educational process [17].

An equally important component in the training of future teachers is educational practice. It acts as a means that combines the acquisition of academic experience and cognitive activity. Of course, this is preceded by the study of such a discipline of the curriculum as "Introduction to pedagogical activity". In the course of the discipline, students acquire the specifics of pedagogical activity, master the requirements for the personality of the teacher, improve communication skills.

In the process of passing the design and technological practice, students hone their own skills in designing various events, acquire professional skills in accordance with the individual task of the practice [18].

Pre-graduate practice forms practical skills to organize and carry out experimental search activities as part of the implementation of their final qualification projects. At the same time, students gain valuable experience in the selection of diagnostic tools, the organization of project activities and the justification of the necessary methods and techniques for the effective organization of the educational process.

The specifics of this pedagogical condition included the introduction of special courses that form the necessary pedagogical competencies in the study of the disciplines of the psychological and pedagogical cycle and special courses: "Fundamentals of leadership activities", "Features of psychological and pedagogical trainings", "Pedagogical support of cognitive activity of students", "Project activities and pedagogical design".

The pedagogical condition, the fourth in a row – the organization of an academic platform for the interaction of the university, school and additional education, serves as a means of enhancing the effectiveness of practice-oriented training of students to solve future professional tasks. Based on the name of this pedagogical condition, it becomes clear that it is based on the principle of integrating the capabilities of different educational systems and social partners in the training of future teachers. It is the interaction of the pedagogical university, school and institutions of additional education that contributes to the mastery of basic functions in professional activity and the comprehensive development of standards of each level of education.

The academic platform carries a "threefold load": the university is designed to form basic psychological and pedagogical competencies, introduce modern technologies of education and training, the secondary school acts as a base for practicing professional actions and labor functions, additional education, in turn, strengthens the potential of acquired knowledge and experience beginning its formation [19].

The value of the academic platform is actualized by the fact that in the process of interaction of all subjects and educational systems, work on methodological support of students is organized. So, along with the disciplines of the curriculum to be read, future teachers develop summaries of lessons, educational activities, consultations for parents, etc. Scientific and methodological seminars are regularly held on the basis of the academic platform, where students have the opportunity to study in more depth certain theoretical topics of the course, as well as to get acquainted with innovative practices of general education and preschool institutions. In the pedagogical technopark, as well as the university's quantorium, students conduct direct work with school students and kindergarten children, and our experience significantly exceeds foreign practices [20].

The place of the University School has been determined in the structure of the academic site. Procedurally, it is represented not only by the formation of professional competencies, but also by the organization of scientific work of future teachers. Independently, students can hold thematic round tables where they discuss the topics (diagnostic features, experimental technologies, etc.) of their course and final qualifying studies. The best works are published in scientific publications, offered for use by teachers in the educational process.

The pedagogical significance of students' activities on the basis of an academic platform can be represented by the following schematic formula: teacher (consultant) → teacher (customer) → student – (performer) → specific result.

This interaction of university education with the practical implementation of skills in schools and institutions of additional education, which is the essence of the integration of educational systems, allows you to fill with new content and methodically structure the process of preparing a future teacher for professional activity.

The implementation of pedagogical conditions and selected components in the practice of the university provided mechanisms for network cooperation of higher education institutions with institutions of general and additional education, using the university's capabilities to practice the skill of solving professional tasks in the children's Technopark, the Center for Youth and Innovative Creativity, the "Quantorium", the joint laboratory of SHSPU and lyceum, etc. Students independently organized thematic conversations with children and parents, conducted educational activities in schools and institutions of additional education. We present the results of a control slice of the formation of the components of the training of future teachers in Table 2.

The final diagnostics showed an increase in indicators for all components of the preparation of future teachers for professional activity. Thus, the indicators of
the motivational-target component of the high level increased by almost 9%, the average – by 5%, the low level of the motivational-target component decreased by 13.9%, which indicates positive changes in the attitude of students to academic activities and their professional future.

Table 2. Comparative results of the initial and final diagnostics, in %

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<tr>
<th>Levels</th>
<th>Initial diagnostics</th>
<th>Final diagnostics</th>
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<tbody>
<tr>
<td></td>
<td>motivational and target component</td>
<td></td>
</tr>
<tr>
<td>high</td>
<td>16.1</td>
<td>25</td>
</tr>
<tr>
<td>average</td>
<td>37.5</td>
<td>62.5</td>
</tr>
<tr>
<td>low</td>
<td>26.4</td>
<td>12.5</td>
</tr>
<tr>
<td></td>
<td>content-activity component</td>
<td></td>
</tr>
<tr>
<td>high</td>
<td>13</td>
<td>38</td>
</tr>
<tr>
<td>average</td>
<td>63</td>
<td>56.6</td>
</tr>
<tr>
<td>low</td>
<td>24</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>effective-reflective component</td>
<td></td>
</tr>
<tr>
<td>high</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>average</td>
<td>52.5</td>
<td>58.2</td>
</tr>
<tr>
<td>low</td>
<td>22.5</td>
<td>6.8</td>
</tr>
</tbody>
</table>

The most significant changes occurred in the content-activity component. A high level was found in 38% of students in this group. After the implementation of the pedagogical conditions, an increase in the level of students' knowledge about the specifics of holding different levels of events with children, parents, teachers-colleagues, the formation of skills in different technologies, communication skills was recorded.

It should be noted that positive changes have also occurred in the productive and reflective component of the training of future teachers. This indicates that future teachers not only show professional interest, but also through the developed case situations begin the implementation of professional development, which is impossible without personal changes. The data of the expert assessment of teachers shows the changes that have occurred among students during the academic year: increased activity, independence, responsibility, the level of general culture, academic performance, and most importantly, readiness to solve professional tasks.

7 Conclusion

Thus, the theoretical analysis of the problem, based on methodological approaches, allowed us to structurally determine the components of the system of training future teachers in the conditions of integration of higher, general and additional education: goal-setting, organizational and activity, evaluative and effective. During the conducted experiment, the effectiveness of pedagogical conditions in the implementation of this system was proved. The result of the work done is the development of a model for training a future teacher in the conditions of integration of higher, pedagogical and additional education systems, which can be implemented in the practice of pedagogical universities.

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References

1. O.A. Agapova, Updating the content of education based on the analysis of scientific and technological development data: program and methods. The world of ed. – ed. in the world 1(85), 21–36 (2022)
3. V.V. Kulikova, O.A. Volivok, Integration of science and education in higher education on the example of scientific and educational groups. Azimuth of Sci. Res.: Pedag. and Psychol. 10(2), 189–192 (2021)
4. M.A. Chervonny, Preparation of teachers to solve professional problems in the conditions of integration of higher pedagogical and additional education (Doct. Dissertation) (Omsk, 2019)
5. V.I. Dolgova, V.A. Belikov, M.V. Kozhevnikov, Partnership as a Factor in the Effectiveness of Practice-Oriented Education of Students. Int. J. of ed. and pract. 7(2), 78–87 (2019)
10. E.V. Bruskova, Motivation to achieve success and motivation to avoid failures as an important factor of successful educational and professional activity of students. Human Capital 9(165), 136–177 (2022)
11. K.S. Shalaginova, O.A. Vasina, Diagnostics of the readiness of future teachers to resolve conflicts


18. O.G. Brykalova, Competence-based approach as a methodological basis for the professional training of future teachers: on the problem of transformation of the traditional educational paradigm. Kant 2(35), 195–199 (2020)
