

**7<sup>th</sup> icCSBs 2018**  
**The Annual International Conference on Cognitive - Social,  
and Behavioural Sciences**

**TRAINING OF A TEACHER OF THE HIGHER  
SCHOOL TO DESIGN THE ADAPTIVE EDUCATIONAL  
ENVIRONMENT OF A STUDENT**

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***Abstract***

The research team identified one of the vectors for solving the problem of the quality of vocational training in the higher school — designing an adaptive educational environment for a student - a future geography specialist, whose process depends on the level of professionalism of a higher school teacher. . The developed methodology of gradual training of a higher school teacher for designing the student’s adaptive educational environment in formal and non-formal education is presented. The intra-departmental training of a teacher of the higher school was tested, with its involvement in the work of an interim research working party where its own pedagogical experience and the experience of colleagues were reflected. Three stages of teacher training for designing the student’s adaptive educational environment have been characterized: “simulation of environment” - mastering the reproductive complex of professional skills that helps to form students’ competences at the threshold level; “combining the environment” - when teachers acquire a set of constructive skills, the possession of which ensures the formation of students’ professional competence at the advanced level; “transformation of the environment” - when teachers master a complex of creative skills that helps students to form professional competences at the high level of their development. The technology of tutor support and case technology are described that provide students at the stage of “combining the environment” with the ability to organize and manage independent teaching and research activities at the advanced level of mastering professional competencies. Experimental testing has confirmed that the design of the student’s adaptive educational environment effectively ensures the development of the professional experience of the higher school teacher.

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**Keywords:** Interim research working party, adaptive educational environment of a student, tutorial support technology, case technology, model, research project.



## **1. Introduction**

The teachers of the higher school are a special social category of teachers who are motivated for self-improvement, self-development and systematic mastery of the new professional experience. New experience can be mastered in the course of specially organized classes to improve the level of the professional competence. This can be coursework (formal training) or training in the course of the work of an inside department problem seminar, the purpose of which is to develop the professional competence of the teacher (informal education). As one of the directions of an informal training of the teachers of the higher school we consider in our article on the example of the work of the interim research working party of teachers of the Department of Geography and Methods of Geography Teaching of Vyatka State University.

## **2. Problem Statement**

Under the conditions of innovative transformations, which naturally change the educational process at the university, the requirements for the quality of training of future specialists are increasing. In the first place readiness of a graduate is determined by his ability to adapt to new conditions of life (positive change), constantly learn and acquire new skills for professional activities (Russsikh, 2004). The solution of the problem of the quality of education at the university largely depends on the level of development of the professionalism of a teacher of the higher school. In accordance with the implementation of the new standard of higher professional education (Order of the Ministry of Education and Science of the Russian Federation, August 7, 2014, No. 955), the totality of the requirements obligatory for the implementation of the main professional educational programs of higher education served as a basis for justifying the requirements for the professionalism of the university teacher, and as a consequence, predetermined the development of new directions for the professional progress of the teacher.

## **3. Research Questions**

The authors developed and tested the methodology for developing the professional experience of the higher school teacher in the context of designing the adaptive educational environment of a student. Professional teacher experience is formed in the course of the work of an interim research working party according to didactics of the higher school.

## **4. Purpose of the Study**

Is to show the development of a step-by-step methodology for the training of a teacher of the higher school to design the adaptive educational environment for a student.

## 5. Research Methods

Research is carried out by the participants of an interim research working party in the context of the interdisciplinary approach, which allows synthesizing of different theories and concepts within a single methodology. The interdisciplinary methodological approach includes totality the following approaches: systemic, the study of pedagogical situations and the transformation of pedagogical reality; activity, involving the mastery of modes of action in the process of independent cognitive activity of students; andragogical based upon the idea of the possibility of learning and developing of the creative potential of every person regardless of age; acmeological the essence of which is that in the process of professional development there are positive changes in the structure of the individual, the actualization of the motives of professional achievements being realized, new algorithms for solving professional problems being mastered, and as a result, the competency and creativity of the subject is increased; individual and creative, with the fundamental idea of the uniqueness and originality of a personality, his ability for self-development. The competence approach is most important nowadays in the practice of higher school, because it is noted in the requirements of GEF, that a graduate who has mastered the program must have general cultural, general professional and professional competencies. The notion "competence approach" appeared in the middle of XX century in the United States. The scientists-teachers revealed the following essential features of the competence approach: 1) the idea of general and personal development; 2) meta-subject education integrating knowledge and skills; 3) the idea of targeting and purposefulness of the educational process, in which competence sets the generalized level of skills of the student.

## 6. Findings

6.1. We consider the planned result of the acquisition of the programme as the main purpose of the success of the participants in the educational process at the university. General cultural, general professional and professional competencies should be formed by a graduate as a result of the acquisition of the undergraduate programme (see the GEF, the V section - Requirements for acquisition of the bachelor's programs). At the stage "simulation of the environment" - the acquisition of a complex: general cultural (GC), general professional (GP) and professional (P) competencies at a threshold level. At the stage "combining the environment" - the acquisition of a complex of competencies GC, GP and P at an advanced level; at the stage "transformation of the environment"- the acquisition of a complex of competencies: GC, GP and P at a high level.

6.2. The position of a teacher. The modern concept of the pedagogical activity of a teacher of the higher school is to create conditions for successful independent cognitive activity of a student. At the same time, it is necessary to take into account the initiative of the future specialist, his capabilities and needs in professional activities. The certainty of the position of a teacher helps the participants in the educational process to perform actions in accordance with the values that are characteristic for a certain stage of the educational environment. The revaluation of values causes a change in positions. The development vector is directed from the position of "mentoring" to the position of "cooperation".

Pedagogical position of a teacher at each stage is reflected by his ability to organize and manage the independent educational and research activities of students. Thus, the position of "mentoring" is realized in a familiar educational situation at the stage of simulation of the environment. At this stage the participants of educational process use methodological recommendations for the organization of independent educational and research activities of a student that allow students to learn how to perform the actions according to the model. The position of "cooperation" is realized in a changed educational situation at the stage of combining of the environment. Didactic materials developed in the process of cooperation of a teacher and students are used at this stage. These are texts of students' speeches, answers to questions of a problem seminar, presentations, essays and other which are used both on theoretical and practical lessons. The position of "co-creation" is realized in a new learning situation at the stage of transformation of the environment. An essential sign of the position "co-creation" is the dialogue between a teacher and a student. It is an exchange of information between participants in the educational process. Dialogue has had a great creative and developing potential since knowledge as a product of educational and cognitive activity is the result of integrating the external influence of a teacher and the student's internal activity. It is a dialogue in learning that forms the student's ability to use his mind as an instrument of understanding. The dialogue as a process of interaction activates the speech activity of its participants. The dialogue forms an ability to formulate, present one's judgment, to compare it with other judgments and to prove one's own point of view. The ability to conduct a dialogue with a particular student and his creative personality increases the efficiency of the professional work of a teacher. The dialogue in the process of creative educational and research activities is considered to be a goal, process and result of the education. It is important that implementing the position of "co-creation" the teacher contributes to the development of skills of students to create author's materials - articles, scientific reports on the results of research activities, presentations at scientific conferences, courseworks, graduate programs and other works.

6.3. Selection of the content, methods and forms of the student's independent research and development activities. The selection of the content of education is carried out in accordance with the requirements of the GEF of higher education. A set of mandatory requirements for the implementation of major professional education programs of higher education is presented in its content. The standard provides traditional and innovative forms of student's learning such as a training on an individual student's curriculum, e-learning and distance learning technologies, the use of a network form of education. To prepare students for the specialization 05.03.02 Geography (bachelor's level), complex expedition and cameral researches on problems of development of cities and territories of various levels, carrying out of geographical and ecological examinations and diagnostics of various types are provided (Dmitrenko, Lavryk, & Yaresko, 2015). It creates additional opportunities in selecting the content of the education and implementing the educational component in the context of designing the adaptive educational environment of a student.

The basic content of the education is specified by the teaching methods (TM) which the teachers of the higher school develop in accordance with the requirements of the standard in their disciplines. In accordance with the TM the content of education is realized at the training sessions of the lecture- seminar system of education at the university. During the training sessions the reproductive

methods of instruction are used at the stage of simulation of the environment, the frontal independent research and educational activity of future specialists is organized. At this stage the skills of the threshold level of mastering competencies are formed. At the stage «combining the environment» mastering the content of TM is provided through problem-based teaching methods. At this stage both frontal and group forms of independent research and educational activity of students are organized, and as a result the skills of advanced level of mastering competences are developed. At the stage «transformation of the environment» the mastering the content of the TM is carried out with the help of a complex of research methods of education, group and individual creative (research) projects are carried out. As a result, future specialists develop skills of the high level of mastering competences.

6.4. *A complex of pedagogical technologies.* Pedagogical technology is a scientific design and accurate reproduction ensuring the success of pedagogical actions. The following statement is important for our research that pedagogical technology is mediated by the characteristics of the teacher's personality, therefore, different performers can use the same technologies, following the step-by-step algorithm of activity. It is important that different teachers, having an unequal level of professional training, applying pedagogical technologies, get results in training that are close to the average value. This is the main advantage of the technology approach in training. Selection and combination of pedagogical technologies work on the quality of education in the case when the teacher regularly conducts pedagogical diagnostics and, according to its results, has information about the resource opportunities, both of the student group in general, and of each student individually.

The complex of pedagogical technologies is designed by the teacher taking into account the leading type of activity, the characteristic age of the student. At the youthful age the main activity is research and educational work, and as a result most students are motivated to self-development and prepare themselves for professional activity. The most effective are technologies that realize the idea of individualizing of learning and give scope for creative self-expression and student's self-fulfillment.

The technologies of activating students' research and educational activities are effectively used at the stage of "simulation of the environment".

The revitalization of teaching and research activities is traditionally one of the conditions of the organization of practical and seminar sessions at the university. However, the usage of methods of revitalization of students at the lectures is of interest for the teachers of the department of geography and geography teaching methods VSU. For example, the use of questions and tasks of different levels of complexity. Questions and tasks in the course of the lecture session are used for a different didactic purpose. With the help of questions the teacher can structure the theoretical material, accentuate attention of students to the ambiguous aspects of the content of the lecture, to shift attention from one block of study material to another, to prepare the students to perceive and comprehend complex information. At the end of the lesson, questions of a creative nature are used for a conversation in order to synthesize and sum up the lecture material. A special role at lecture classes is played by problematic questions and assignments. Questions of this type contribute not only to the realization of educational material, but also allow students to develop an interest in geography education, stimulate their independent research and educational activity.

Thus, the technology of revitalization of research and educational activities at the stage of "simulation of the environment" allows students to develop the ability to organize and manage independent cognitive activities at the threshold level of mastering competences.

At the stage of "combining the environment" professional competencies are effectively developed by means of case-technology (Carapkina, 2015; Lukichova, Kovalenko, Babij, & Chernousova, 2013). Case technology is a task-exploratory analysis of the content of the educational material which enables the students, based on their own experience and the new school text, to practice self-acquired knowledge. The case is a package of didactic materials with which a group of students work. The structure of the case may contain the following set of didactic materials: 1) describing an unusual situation; 2) group task for independent work on the analysis of the situation; 3) additional information (publications, factual material, research of scientists, video materials, presentations and etc.); 4) instructions for the task; 5) additional questions.

The solution of a problem, as a rule, is born in the creative group during the analysis of information and its discussion of the non-standard situation. The organization of interaction between the teacher and the student by using case technology, includes two phases: 1) before the session - it is a teacher's creative work on the creation of the case and questions for its analysis; 2) during the lesson - the organization of students' activities and the management of the discussion of problematic situations by groups, an assessment of the contribution of each student to the solution of the problem. The teacher directs the discussion, he asks questions, draws students' attention to certain information. Finishing the discussion, the teacher suggests students to choose the best solutions to the problem.

Thus, the technology of tutor support (Erofeeva & Serebrovskaja, 2011) and case-technology (Carapkina, 2015) at the stage of "combining the environment" allow students to create skills in organizing and managing independent research and educational activities at an advanced level of mastering competences.

At the level of "environment transformation" the technology of tutor support and modular construction of programs are effective, since the step-by-step algorithm for interaction between the teacher and the student in the mode of these technologies contributes to the creation of individual educational routes for studying the content of higher professional education programs.

Technology «tutor support». The tutor is a specialist who provides support to students in the course of the educational process. In our case, we provide an opportunity for teaching tutorial methods to 4th-year students who help to create projects for 1st-year students, in preparation for the regional youth conference "Nature and Society", which is held annually at the university. Support, as it is known, implies assistance to someone who acts and experiences difficulties in the process of activity. Tutor support, as a technology, allows us to implement in course of work with students methods of pedagogical approach to the learning process. This is especially important in the context of the training of a future geography specialist for work at school without pedagogical practice, which for objective reasons is absent in the training of students today. Several sequential steps are singled out in the tutor's work. The first step is the study of methodological recommendations on the topic: "Tutor support". The second step is to get acquainted with the logic of designing and carrying out of your own project on local history. The third step is an individual work with students to study the sequence of project activities on a concrete example,

selection of a topic for the research project for the learner and consulting on the implementation of this project. The fourth step is to help with the design of the results of the research project and to prepare a first year student to speak at the conference.

Therefore, the technology of tutor support allows students of the 4th year to consolidate their creative skills, prepare them for the conscious implementation of their own research project in the form of final qualification work, and teach first year students to create an author's project in the course of their creative activity.

The modular program construction technology creates conditions for the individualization of the learning process of students. The modular program consists of several conventional units (modules), each of them is a finished educational product. The student, in the process of designing of an individual educational program, has the right to choose for himself those modules in which the student is interested, and to master these models in the order that allows the student the most effectively learning of the content of the academic discipline.

In the course of studying geography, we give a student the opportunity to develop modular programs according with following courses: geoecology, geopolitics, socio-economic geography of the Volga Federal District. The methodological unity of the modules is provided by the learning elements. The learning element is a section of the module that is presented in a special training manual according with the following plan: topic, brief annotation, key concepts of the studied topic, training material in accordance with the theme plan, tasks for independent text work, instruction for the task, problem questions for discussion on the results of independent work, topics for research projects, a list of sources of information on the topic. The modular construction of programs allows participants of the educational process to use working time productively and create an author's product in the form of publications. This is one of the important indicators of co-creation of a teacher and the students.

We consider the possession of complex pedagogical technologies as one of the important conditions of readiness of a teacher to design the adaptive educational environment of a student, for the possession of the technology complex and the optimum combination of it enhances the teacher's ability and allows him to overcome difficulties in the education of students (Erofeeva & Serebrovskaja, 2011; Kataeva, 2015; Kuznecova, 2015).

6.5. Exam as an examination of achievement of the planned results. It is known that the exam is the most "conservative" stage of the educational process. In the course of designing of the adaptive educational environment of a student, the exam allows you to determine the level of mastering the complex of competences by students and to identify the problems that students have as a result of studying the discipline. The traditional exam allows to determine the level of achievements of participants in the educational process at the threshold level. Achievements of students at advanced and high levels can be determined using an innovative form of exam as an examination of the achievement of the planned results.

In the course of the research the teachers of the Department of Geography and Geography teaching methods tested the following innovative forms of the exam: 1) level-based, in which the student consequently answers three questions, demonstrating the threshold, advanced and high levels of competence development; 2) public, which diagnoses the levels of mastering competences in the process

of defence of the creative (research) work ; 3) granting an exam pass without sitting the exam for students who have demonstrated a high level of effectiveness in mastering the content of the academic discipline in course of the whole semester; 4) field exam, which demonstrates the possession of the complex competencies in conducting an open lesson with subsequent self-analysis (for the discipline "Theory and methodology of Geography teaching").

Therefore, the innovative form of the exam demonstrates the results of students' activities under the conditions of transformation of their own educational environment most effectively.

6.6. Indicators of the student's personal growth. The interaction of a teacher and students at each stage of the adaptive educational environment allows the participants of the educational process to achieve certain indicators of the student's personal growth in succession. At the stage of "simulation of the environment" this is the students' awareness of the norms and rules that are characteristic for the educational environment; at the stage of "combining the environment" this is the experience of a student in the situation of choice in the educational environment; at the stage of "transformation of the environment" this is the experience of individual creative activity in the educational environment.

## 7. Conclusion

7.1. Training of a teacher of higher school for designing the adaptive educational environment of a student is carried out in accordance with the technology of the research project. The training procedure includes several stages:

Stage 1 - organization of an interim research working party, division of responsibilities, development of a work plan, defining the methodology of pedagogical research.

Stage 2 - preparation of diagnostic techniques, monitoring to determine the readiness of teachers of the department to design the adaptive educational environment of a student. Preparation of didactic materials for experimental work with students.

Stage 3 - work in pilot mode, analysis of performance results, selection and structuring of information, conducting a problem-oriented seminar of the department with the purpose of discussing the results of experimental work, settling the modalities for corrective work.

Stage 4 - completion of the report on the results of experimental work, preparation of materials for publications.

Stage 5 - presentation of the work results of the interim research working party, completion of the work of the interim research working party.

7.2. The essence of the new methodology is that a new quality of students' education is provided in the conditions of implementing the model of the adaptive educational environment. The article reveals the content of the model, which offers step-by-step training of students. There are three stages in the model: "simulation of the environment", "combining the environment", "transformation of the environment ". The step-by-step training contributes to the development of creative potential, both as a student and as a teacher. The training of a teacher of higher school to design the adaptive educational environment of a student is carried out in accordance with the technology of the research project.

7.3. The process of formation of a new experience reflects the level of readiness of a teacher to design positive changes in the activities of students, consequently using pedagogical positions: tutor



support, cooperation, co-creation; to teach students the possession of the complex of competences (GC, GP, P) at the threshold, advanced, high levels, to implement reproductive, problematic and research methods of work; to use a set of pedagogical technologies as a means to an end to achieve planned results in training; to determine the level of achievement of the planned results, using non-traditional types of exam in the practice.

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