Artículo de investigación

Innovative Technologies of Teachers and Students' Interaction in the Educational Process of the University

Инновационные Технологии Взаимодействия Преподавателей и Студентов в Образовательном Процессе Вуза

Tecnologías innovadoras de la interacción de docentes y estudiantes en el proceso educativo de la universidad.

Recibido: 1 de marzo de 2019. Aceptado: 15 de abril de 2019

Written by:
Ye. Yu. Orekhova (corresponding autor)[102]
ORCID: 0000-0002-4954-9518
L. K. Grebenkina[103]
ORCID: 0000-0001-5534-0641
M. V. Badelina[104]
ORCID: 0000-0002-3741-0834
N. A. Kopylova[105]
ORCID:0000-0002-3797-6811
S. M. Sysoev[106]
ORCID:0000-0002-5180-571X

Abstract

Based on the analysis of scientific literature and experience, the article discusses the strategic goals of developing innovative education in Russia and modern interactive technologies of interaction between teachers and students in the educational process of the university. The authors consider the leading methodological approaches (humanistic, system-activity, competence-developing, creative, technological) and methods for studying the problem of interaction between teachers and students in the holistic educational process of the university (design, simulation, monitoring, experiment). The main content of the article is devoted to the characteristics of the theory of interaction of activity subjects and practical experience of the departments of the universities of the Russian Federation. On the basis of the conceptual apparatus, the authors analyze the essence of cooperation, interaction and innovative technologies, describe their use in teaching and educating students (characteristics of the use of innovative technologies and

Аннотация

В статье на основе анализа научной литературы и опыта рассматриваются стратегические цели развития инновационного образования в России и современные интерактивные технологии взаимодействия преподавателей и студентов в образовательном процессе вуза. В последующих разделах статьи раскрываются ведущие методологические подходы (гуманистический, системно-деятельностный, компетентностно-развивающий, креативный, технологический) и методы исследования проблемы взаимодействия преподавателей и студентов в целостном педагогическом процессе вуза (проектирование, моделирование, мониторинг, эксперимент). Основное содержание статьи представлено в характеристиках теории взаимодействия субъектов деятельности и практическом опыте кафедр вузов Российских Федерации. На основе понятийного аппарата

[102] PhD, Associate Professor. Department of Foreign Languages, Surgut State University, Surgut, Russia Address: Komsomolskiy Prospect., 19, apt. 3, Surgut, Russia ORCID: 0000-0002-4954-9518
[103] Doctor of Education, Professor. Department of Pedagogics and Management in Education, Ryazan State University named for S.A. Yesenin, Ryazan, Russia, grin17.66@mail.ru
[104] PhD, Associate Professor.Department of Natural Sciences and Humanities, Tyumen IndustrialUniversity, Tyumen, Russia. mvbadelina@mail.ru
[105] PhD, Associate Professor.Department of Foreign Languages, Ryazan State Radio Engineering University, Ryazan, Russia.nakopylova@yandex.ru
[106] Candidate of Physical and Mathematical Sciences, PhD, Director of the Institute Department of Experimental Physics, Surgut State University, Surgut, Russia, smsysoev57@mail.ru

practical recommendations for their use. It is proved that the level of university teachers' professionalism and mastery depends on the development of their technological competence and active interaction with students and colleagues of the university departments. The experience of designing and using interactive technologies of interaction of activity subjects can be used in the educational process of the universities.

Keywords: educational process, cooperation, pedagogical interaction, innovative-pedagogical technologies, interactive technologies, interaction technology

раскрывается сущность сотрудничества, взаимодействия и инновационных технологий, их использования в обучении и воспитании студентов (признаки использования инновационных технологий и практические рекомендации их применения). Доказано, что уровень профессионализма и мастерства преподавателя вуза зависит от развития его технологической компетентности и от активного взаимодействия со студентами и коллегами кафедр вуза. Опыт проектирования и использования интерактивных технологий взаимодействия субъектов может быть использован в образовательном процессе вуза.

Ключевые слова: образовательный процесс, сотрудничество, педагогическое взаимодействие, инновационно-педагогические технологии, интерактивные технологии, технология взаимодействия

Resumen

Basado en el análisis de la literatura científica y la experiencia, el artículo analiza los objetivos estratégicos del desarrollo de la educación innovadora en Rusia y las modernas tecnologías interactivas de interacción entre profesores y estudiantes en el proceso educativo de la universidad. Los autores consideran los principales enfoques metodológicos (humanísticos, de actividad del sistema, de desarrollo de competencias, creativos, tecnológicos) y los métodos para estudiar el problema de la interacción entre profesores y estudiantes en el proceso educativo holístico de la universidad (diseño, simulación, monitoreo, experimentación). El contenido principal del artículo está dedicado a las características de la teoría de la interacción de los temas de actividad y la experiencia práctica de los departamentos de las universidades de la Federación Rusa. Sobre la base del aparato conceptual, los autores analizan la esencia de la cooperación, la interacción y las tecnologías innovadoras, describen su uso en la enseñanza y la educación de los estudiantes (características del uso de tecnologías innovadoras y recomendaciones prácticas para su uso. Está comprobado que el nivel El profesionalismo y la maestría de los docentes universitarios depende del desarrollo de su competencia tecnológica y de la interacción activa con estudiantes y colegas de los departamentos universitarios. La experiencia de diseñar y utilizar tecnologías interactivas de interacción de temas de actividad se puede utilizar en el proceso educativo de las universidades.

Palabras clave: proceso educativo, cooperación, interacción pedagógica, tecnologías innovador-pedagógicas, tecnologías interactivas, tecnología de interacción.

Introduction

The pedagogy of cooperation today is becoming an increasingly popular area of higher education, as evidenced by the growing need of modern society for new psychological and pedagogical knowledge, as well as the transition to a three-level university education (bachelor, master, postgraduate degree programs). It is known, in the transition to the third-generation standards of the third generation, more and more attention is paid to the formation of competences: universal competences (UC), general professional competences (GPC) and professional competences (PC), directly related to the organization and management of the educational process at the university involving modern innovation (interactive) technology of training and education. The FES HE 3 ++ emphasizes the need to use educational technologies that imply the creation, distribution, introduction and use of interactive forms and methods of teaching and educating future specialists. The main features of the technologization of the educational process are standardization, unification in the system of mass education and upbringing; bringing the

creative process (creation and evaluation of technologies) to a higher level of organization; streamlining the educational system. Scientists emphasize that in modern conditions the practice of using only traditional technologies does not allow developing sufficiently universal and professional competencies (personal, regulatory, cognitive, and communicative) and requires the use of new knowledge and more modern intensive interactive learning technologies. At the same time, this presupposes the creative development of the personality of the teacher and student, their mastery on the basis of a technological approach based on the mastery of innovative technologies, their use in the educational process with the aim of achieving high quality and professional activity. All this proves the importance and relevance of our research: further study and solution of the problem in new conditions.

Literature Review

Scientists and educators call educational innovation a new element in the system, causing its transition from one state to another (Potashnik, 1996; Lazarev, 1993). The aim of innovative education is to develop cognitive activity and independence among future specialists in the course of active and corporate training.
In modern conditions of education modernization, conceptual ideas of pedagogical innovations, cooperation and interaction, pedagogical technologies in higher education are studied by Russian and foreign scientists (E.I. Artamonova, V.I. Andreev, Yu.K. Babanskiy, V.P. Bespalko, M.A. Galaguzova, V.P. Deliya, M.V. Klarin, E.V. Korotaeva, A.I. Kochetov, G.M. Kodzhaspirova, A.P. Panfilova, E.S. Polat, S.L. Rubinstein, V.A. Slasteninin, A.P. Tryapitsina, N.E. Shurkova, D. Dewey, R. Johnson, D. Johnson and etc.).

The scientific foundations of high school technology are developed by such educational scientists and psychologists as E.S. Polat, M.Yu. Bukharkina, A.M. Panfilova, M.M. Levina, the authors of textbooks on higher education pedagogy: Slastenin V.A., Andreev V.I., Delia V.P., Zagvyazinskiy V.I., Panfilova A.P. and others.

Methodology and Research Methods

When organizing a holistic pedagogical process at a higher education institution (training and education of students) based on cooperation and interaction, the authors relied on a set of the following methodological approaches: humanistic, cultural, axiological, competence-developing, communicative, personally oriented, system-related, creative, technological, integrative. In solving scientific problems, all of them are used most often in connection with the theme, purpose and focus of research based on the following principles: humanization, creativity, unity of theory and practice, integration, continuity and succession. Consequently, the leading approaches are: humanistic, system-activity, competence-developing, creative, technological.

The main research methods are retrospective analysis and literature review, observation, questioning, interviews, interviewing, design, modeling, monitoring, experiment.

Materials (theory and experience)

In the context of our research, the essence and content of the most significant concepts were described: “cooperation”, “training and education in cooperation”, “pedagogical interaction”, “innovative pedagogical technologies”, “interactive technologies”, “interaction technology”, “interaction experience”.

The concept “cooperation” as a more general concept is defined as a joint activity aimed at achieving common goals (Soviet Encyclopedic Dictionary, 1985). Cooperation in training is considered by G. M. Kodzhaspirova as a joint, interrelated activity of students and the teacher, built on democratic principles, focused on the achievement of perceived, personally significant goals (2005). This is the desire and ability of the teacher and the trainees to work together, helping and supporting each other in team collaboration and joint activities. The definition emphasizes the importance of humanistic principles in the process of interaction. Cooperation in education is associated with the position of the teacher in relation to the student, which is considered as a partnership, involving active interaction in the educational process of the university. It implies, in the context of personality-oriented education, a set of activity-related, behavioral, intellectual, and value relationships, due to the self-development of personalities.

The term "interaction" is considered by scientists as a philosophical category, reflecting the processes of the impact of objects on each other, their mutual conditionality and the creation of one object by another (Soviet Encyclopedic Dictionary, 1985). Interaction in psychology is a

process of direct or indirect influence of objects (subjects) on each other, creating their mutual conditionality and connection (Korotaeva, 2007). S.L. Rubinstein emphasizes the importance of one of the psychological laws - the relationship of personal development and activity, which lies at the basis of the understanding of the pedagogical significance of interaction (New values of education, 1995). Pedagogical interaction is a personal contact between an educator and a pupil (s), which results in mutual changes in their behavior, activities, relationships, attitudes occur" (Pedagogical dictionary, 2008). In education, interaction is considered as a "coordinated activity to achieve joint goals and results, according to the decision by participants of a problem or task that is significant for them" (New values of education, 1995).

Interactive communication is a form of verbal communication, the participants of which are in direct contact, exchange thoughts, statements related to one theme. The types of dialogue are a social conversation, a business conversation, an interview, a job interview, negotiations. The following conditions are characteristic of dialogue communication in the educational process: initial knowledge gap, if the participants do not communicate information unknown to each other, the dialogue will not take place; the need for communication among the participants in the dialogue; students have a common memory - a common information reserve about the past; the absence of a large gap of communicative competence (Humanitarian dictionary of civic education teacher, 2015).

Pedagogical technology is considered both in the broad sense of the word and in the narrow sense.

In a broad sense, it is a system in which a pre-designed educational process (from goal to result) is consistently implemented, ensuring successful achievement of pedagogical goals. In the narrow sense, it is a sequence of certain actions and operations related to a specific activity of a teacher and aimed at achieving the goals and objectives of training, education, development ("technological chain"). Thus, in the form of a "technological chain", one can imagine a system of a teacher's activity as an algorithm of sequential actions in preparing and conducting training sessions or various forms of educational work.

The concept "technology" is defined by authors differently. According to V.P. Bespalko, pedagogical technology is a system in which a pre-designed educational process is consistently put into practice. Any technology can be either technology or art. Art is based on intuition, technology - on science (1995). M. V. Clarin defines pedagogical technology as a systematic approach and design of the educational process that guarantees the achievement of goals (1989). N. E. Shurkova believes that pedagogical technology is the sum of scientifically based methods of educational influence on a person or a group of people, associated with creativity, skill, teaching equipment (1998). G.K. Selevko examines the concept of "pedagogical technology" in three levels: general didactic, private methodical (subject), local (modular) (2006).

Pedagogical (educational) technology is a system of functioning of all components of the pedagogical process, built on a scientific basis, programmed in time and space and leading to intended results.

V.A. Slastenin gives the following definition of a pedagogical technology: strictly scientific design and accurate reproduction of pedagogical actions guaranteeing success (2000).

The authors of the textbook "Pedagogy" (V.A. Slastenin, I. F. Isaev, E. N. Shiyanov) believe that pedagogical technology is a consistent, interdependent system of teacher's actions related to the use of one or another set of upbringing and teaching methods and carried out in the pedagogical process in order to solve various pedagogical problems (2012).

Innovative technologies are a set of methods and tools that support the stages of the implementation of innovations (Academician 02.02.2019). In recent years, the development of educational technologies of higher education has focused on the design of innovative educational technologies. Innovative educational technologies of higher education are aimed at achieving the goals and objectives of the educational process, at developing the universal and professional competencies of future specialists. G.K. Selevko argues that any modern educational technology can be the component of innovative educational technology (2006).
G.K. Selevko singled out the characteristics of pedagogical technologies: diagnosticity of goals, algorithmization, designability, efficiency, integrity, feedback, correctability, controllability, visualization, performance reveal their essence and content, forming the basis of the characteristics of modern pedagogical technologies:

Scientificity is a characteristic feature of a scientifically based solution to a pedagogical problem, including the analysis and use of experience, conceptuality, predictability and other qualities that represent a synthesis of the achievements of science and practice.

Systematicity is a special quality of a great number of components organized in a certain way. The technological process includes objectives, content, methods, and forms of participants' interaction.

Conceptuality is a system of views, technologies are built on the basis of ideas, principles.

Complexity is the presence of elements (pedagogical, psychological, organizational and managerial), requiring coordination and interaction.

Structuring is internal organization of the system, internal connections between the elements (concept), stable interactions (algorithm), ensuring stability and reliability.

Algorithmicity is the division into separate content areas (steps, frames, portions, etc.) that are performed in a certain order, according to an algorithm.

Continuity is typical for most technologies, as they are usually associated with the above-located technology and determine the following one.

Manageability involves setting goals, planning, designing pedagogical process.

Instrumental characteristic of technological approach is determined by the equipment of didactic means, reasoning, operational nature of changes in the implementation (correction, reproducibility, mobility, efficiency).

Diagnosticity is manifested in diagnostically formulated goals, in the possibility of constant and timely control, monitoring results.

Predictability is the quality of any technology and is manifested in the "guaranteed" results.

Efficiency is the ratio of the minimum resources used and the significance of the result.

Optimality is the best for the given conditions, with minimum costs, the maximum effect.

Reproducibility is the ability to use technology by other people (2006).

In recent years, when developing educational technologies of higher education, attention has been focused on designing and modeling innovative educational technologies. For example, the use in the educational process of case-technologies, interactive forms and teaching methods, which means to interact, to be involved in a conversation, dialogue with someone). Interactive technologies are a special dialogue form of organization of the pedagogical process, aimed at creating comfortable learning environment, where the student feels his success, his intellectual viability. Awareness of this makes the learning process itself productive: it provides for the formation of general cultural and professional competences, communication skills based on interaction and joint activities, and most importantly, it creates the basis for successful problem solving after studying at a university. Interactive technologies involve a wide interaction and joint activity of students and teachers, as well as more active interaction of students with each other. The teacher in the preparation of interactive classes develops the course of the lesson, the plan, building the path of each student to achieve the goals and objectives of the training.

The problem of introducing interactive technologies into the practice of higher professional education is currently highly relevant, which can be explained by two main trends. Firstly, this is a general orientation of the development of education and its orientation is not so much to obtain specific knowledge, but rather to the formation of professional competence, abilities and skills of thinking, the development of personal abilities. Secondly, these are new requirements for the quality of specialist training as a certain product, which must also possess the ability of optimal behavior in various situations, be systematic and effective. At the same time, scientists draw the attention of teachers to the fact that today it is permissible to equate active and interactive technologies, since interactive technologies are a modern form of introducing innovative technologies used in the educational process.

The key to understanding the technological structure of cooperation in teaching and education at the university is a consistent orientation towards clearly defined goals, determined on the basis of the content of the subject or theme being studied, the interrelated joint activities of the teacher and the students,

and the internal development processes of the students' personality (intellectual, emotional, moral, etc.).

Designing new technologies is a complex process involving several levels: conceptual, methodical, operational, analytical, control and evaluative, effective. According to the ideas of one or another psychological-pedagogical theory or concept, it is possible to define, for example, the technology of a modern lesson, the technology of instruction by orientation (problem-based learning, programmed learning, distance learning, computer science), the technology of collective cognitive activity, the technology of gaming activity, the technology of collective creative education, technology of studying and describing advanced pedagogical experience, etc.

Description of technology:

1. Name;
2. Targets;
3. Conceptual framework;
4. Content;
5. Process characteristics: methodological features, algorithm activities, forms, diagnostics;
6. Educational and methodical support (EMS);
7. Quality control.

Design conditions: orientation of a teacher to innovative technology; analysis of available technological resources; ability to design (plan); ability to set goals and target distribution; organization and analysis of activities; the ability to master your experience through reflection, to express it in a technological form, the ability to express oneself; the vision of aging technology and the ability to rebuild it.

A.P. Panfilova worked out the practical recommendations for university teachers on the use of intensive cooperation technologies that contribute to the intensification of the educational process.

1. When preparing and organizing group studies, the teacher develops an activity algorithm (sequence of steps), including goals, content, forms and methods, tools, regulations, illustrative material, joint discussion, handouts, etc.
2. In order to introduce intensive gaming technologies into the learning process, the author recommends the development of gaming space for group interaction.
3. Each teacher, introducing intensive gaming technology, must possess a variety of abilities and skills, needs to master various activities aimed at the formation of communicative, interactive, perceptual, and game technical competencies (Panfilova, 2013).

The author emphasizes that the teacher himself in some cases is a competent playing technik, a trainer, a communicator, a presenter to achieve effective learning with the help of intensive technologies.

This means that he has the ability to listen to others; forms his thoughts, views, position clearly and intelligibly; is an analyst capable of carrying out an objective expertise; possesses high tolerance for stress and emotional culture; demonstrates tolerance; knows a variety of technologies and interaction techniques; has a high level of discussion culture, is able to verbally influence the participants of the classes; is able to learn and draw the moral; is a creative improviser seeking mobile reorganization in the space, regulations, means of interaction, forms of interactive contact.

Developed conceptual ideas of pedagogical interaction are used by teachers in the integrated pedagogical process of the university, which contributes to humanization and humanization of the educational process, development of the innovative level of interaction between teachers and students, the formation of subject-subject relations, mutual understanding and humanistic relationships.

Pedagogical interaction between the teacher and students is based on the organization of thoughtful dialogic communication, joint activities, both in the course of studies, and in extracurricular activities, as well as in the organization of independent work.

Long-term experience of university practice shows that the formation of a student’s personality as a future teacher depends entirely on the teacher, his desire and ability to involve the student in interaction and joint activities, to form his need for professional self-development, to direct his interests to an active part in the whole pedagogical process. Thus, teachers of the department of pedagogy and management in education, forming students’ universal and professional competences, according to the developed basic professional educational programs on pedagogy, use interactive technologies in the system, involving cooperation, interaction, active participation and joint activities. The teacher, in preparing and conducting interactive classes together with

students, develops a plan and implements it in the course of classes, setting an individual way for each student to achieve certain strategic goals in his or her development. At the same time, teachers support both "horizontal" and "vertical" interconnections. For example, senior students become organizers and participants of studies and extracurricular activities in junior courses, which allows them to develop professional skills successfully, change the social status of a student, and form an adequate self-assessment. Participation in pedagogical activity allows the undergraduate student to adjust his motivational sphere, they develop the motivation to achieve success in their future profession, the initiative is born, the awareness of professional choice is strengthened. As a rule, there is a desire to continue their work at school and university.

Currently, technologies of various types of independent work of students are used in higher education. They all have a place in student life. In our opinion, an important place among the accompanying technologies is occupied by the technology of dialogic communication, the technology of project activities technology "portfolio" (individual folder of student achievements). When using technology "portfolio" special attention is paid to the type and purpose. G.K. Selevko identifies the following types of portfolio: "folder of achievements", "reflexive portfolio", "problem-research", "thematic portfolio", "portfolio-anthology", "portfolio-presentation" (2006).

For example, the preparation and running a traditional student competition of innovative projects requires participants to possess technologies of project activities. In particular: the knowledge and use of the algorithm of joint activities, including the selection of the nomination and themes of the innovative project; registration of the written application of the participant of the competition; analysis of scientific literature and outlining the topicality, problems and goals, the object and subject of research. Accordingly, a description of the content of the project, mechanisms and sources of funding, the intended final result, the preparation of an electronic presentation. At the appointed time, a public presentation of the project is held, the results of the competition and the awarding of the participants of the competition are summarized.

Conclusion

Thus, scientists conclude that the implementation of the ideas of cooperation, interaction and innovative technologies in higher education is based on integrated psychological and pedagogical knowledge and skills about reorienting the interaction of subjects of training and education at the university to innovative professional activities, subject-subject relationships, and innovative technologies education. The level of a university teacher's professionalism and mastery depends on the development of his technological competence and active interaction with students. In addition, the analysis of scientific sources shows that, at present, in the practical activities of university teachers, targeted pedagogical attitudes, aimed at forming a competently developed creative personality of future specialists, become integrative in nature and contribute to the effective and economical use of pedagogical tools in achieving their goals. They note the following characteristics of cooperation and interaction: the humanistic orientation of pedagogical activity, the center of attention of researchers is a person as an integral person with his problems; interdisciplinary: interscientific interaction is clearly noticeable; integration and differentiation of psychological and pedagogical knowledge about pedagogical interaction: content, forms, methods, technologies; innovativeness in education, training and development (methodological approaches, new concepts and theories, modern innovative technologies).

References

Academician // https://dic.academic.ru/dic.nsf/fin_enc/23283. Appeal date 02.02.2019

Andreev, V.I. (2013). Pedagogy of higher education. Innovative prognostic course: study guide. - Kazan: Center for Innovative Technologies.

Artamonova, E. I. (2015). Preparing a future teacher for innovation: the determinants of the process // Teacher's professionalism: essence, content, and development prospects. - M.: MANPO, pp. 3–13.

Babanskiy, Yu. K., Potashnik, M. M. (1983). Optimization of the pedagogical process. - Kiev: Rad. shk.

Bahmutskiy, A. E. et al. (2018). Pedagogy. Textbook for universities. The standard of the third generation/ edited by A.P. Tryapitsina. – Saint Petersburg: Peter.

Bespalko, V.P. (1995). Pedagogy and progressive learning technologies. - M.: Publishing House of the Institute of Vocational Education.

Deliya, V. P. (2011). The innovation thinking in XXI century. - Moscow: Depo.
Dewey J. (1975). Progressive education and the science of education. Wash.: LPN/. Galaguzova, M.A., Galaguzova, Yu.N., Shtinova, G.N., Tishchenko, E.Ya., Dyakonov, B.P. (2003). Social pedagogy: A course of lectures: manual for students of higher educational institutions / edited by M.A. Galaguzova. - M.: VLADOS.
Grebenkina, L.K, Kopylova N.A. (2013). Competence approach in education as a basis for improving the activities of subjects of pedagogical interaction // Pedagogical education: challenges of the XXI century: materials of the IV International Scientific and Practical Conference dedicated to the memory of V.A. Slastenin. Belgorod: Belgorod Publishing House, pp. 276-281.
Grebenkina, L.K., Orekhova, Ye.Yu., Badelina, M.V., Kopylova, N.A. (2019). Interaction of Subjects of Pedagogical Activity in Technical University, International Journal of Civil Engineering and Technology, 10 (01), 2019, pp. 1241-1252.
Humanitarian dictionary of civic education teacher. Tutorial. Edited by A.A. Romanova, B.V. Tsarkov. M.: Press Bureau Press.
Johnson, D., Johnson, R. (1989). Cooperation and competition: theory and research. -MN.: Interaction Book Company.
Johnson D., Johnson R. (1997). Joining together: group theory and group skills. Boston: Allyn & Bacon.
Klarin, M.V. (1989). Pedagogical technology in the educational process. Analysis of foreign experience. - M.: Znanie.
Kodzhaspirova, G.M. (2005). Pedagogical Dictionary: for students of higher and secondary pedagogical educational institutions. 2nd ed. - M.: Izd. Center "Academy", 176 p.
Korotaeva, E.V. (2007). Psychologically, the basics of pedagogical interaction. M.: Profit Style, 224 p.
Lazarev, V.S, Potashnik, M.M. (1993). How to develop a school development program. M.
New values of education: a thesaurus for teachers and school psychologists. M.: Ltd. "Cicero", 1995.
Levina, M. M. (2001). Technologies of professional pedagogical education: manual for students of higher educational institutions. - M.: Publishing Center "Academy".
Kochetov, A.I. (1971). Actual problems of pedagogy: Special course for graduate students of pedagogical institutes. - Ryazan state pedagogical institute: Ryazan.
Orekhova, Ye.Yu., Grebenkina, L.K., Badelina, M.V., Kopylova, N.A. (2018). International scientific university community cooperation and interaction (theory and experience), Espacios, Volume 39 (Number 46), 2018, p. 29.
Panfilova, A.P. (2013). Innovative pedagogical technologies: Active learning: studies. allowance for stud. institutions higher. prof. Education / A.P. Panfilova. - 4th ed. - M.: Publishing Center "Academy".
Pedagogical dictionary: studies. allowance for stud. higher studies. institutions. Edited by. V.I. Bahmutskiy, A. E. et al. (2018). Pedagogy. Textbook for universities. The standard of the third generation/ edited by A.P. Tryapitsina. – Saint Petersburg: Peter.
Polat, E. S., Bukharkina, M. Yu., Moiseeva, M. V., Petrov, A. E. (1999). New pedagogical and information technologies in the education system: A manual for students of pedagogical universities and the system of professional development of teaching staff / edited by E.S. Polat. - M.: Publishing Center "Academy".
Potashnik, M.M. (1996). Innovative schools of Russia: formation and development. M.
Rubinstein, S.N. (2000). Fundamentals of General Psychology. - St. Petersburg: Piter Publishing House.
Soviet Encyclopedic Dictionary. (1985). Edited by A.M. Prokhorov. 3rd ed. M.: Soviet Encyclopedia, 1600 p.
Selevko, G. K. (2006). Encyclopedia of educational technologies: 2 Volumes. - M.: Institute of School Technologies.
Shurkova, N.E. (1998). Workshop on educational technology. M.
Slastenin, V. A. (2000). M.: Publishing House MAGISTR-PRESS.
Slastenin, V.A. et al. (2012). Pedagogy: a textbook for students. institutions higher. prof. Education / V.A. Slastenin, I.F. Isaev, E.N. Shiyanov. M: Publishing Center "Academy".