ISSN-p 2306-7365
ISSN-e 2664-0686

UDC 378.33; IRSTI 14.01.21
https://doi.org/10.47526/2025-1/2664-0686.182

S. ADAL[1]✉, T.N. AKYLBEKOVA[2], A.Zh. UTEMISSOVA[3]
[1]PhD Doctoral Student (Kazakhstan, Almaty), e-mail: saulet.adal.99@mail.ru
[2]Candidate of Chemical Sciences, Senior Lecturer (Kazakhstan, Almaty), e-mail: turar.83@mail.ru
[3]PhD, Senior Lecturer (Kazakhstan, Almaty), e-mail: arai19_83@mail.ru
[1,2,3]Abai Kazakh National Pedagogical University

IMPROVING THE RESEARCH COMPETENCE OF POST-GRADUATE STUDENTS AT THE UNIVERSITY OF KAZAKHSTAN

Abstract. This article explores strategies to enhance the research competence of postgraduate students in Kazakhstan universities, aiming to strengthen national intellectual capacity and facilitate its integration into the global academic community. Focusing on Abai Kazakh National Pedagogical University (KazNPU) from 2020 to 2024, the study investigates postgraduate student participation in research activities and identifies key barriers hindering their engagement. Employing a mixed-methods approach, the research combines quantitative and qualitative data gathered through surveys, interviews, and institutional records. The study specifically examined master's and doctoral student participation in research projects, conference attendance, and academic journal publication rates.

Key findings revealed that only 41.5% of postgraduate students actively participated in research projects. Participation in international conferences was notably low at 3.6%, while attendance at university-organized conferences reached 37.41% and national conferences 15.23%. Publication rates were also limited, with only 23.57% of students publishing at the national level. Of those publications, 63.96% appeared in domestic journals, and a mere 12.47% were published in international journals indexed in databases such as SCI, IE, and CSCD. These results highlight a significant gap between domestic and international research output. The article proposes actionable recommendations to address these challenges, including establishing internal grant schemes to support student research projects and international conference attendance, providing targeted academic English language training to improve scientific communication skills, and publication in reputable international journals. Implementing these initiatives is expected to align postgraduate research activities more closely with national and international scientific priorities, thereby improving the quality of postgraduate education in Kazakhstan, enhancing its global academic competitiveness, fostering a more dynamic research environment, and strengthening Kazakhstan's position within the global scientific community.

Keywords: postgraduate education, research competence, research activity, academic English, scientific writing.

Бізге дұрыс сілтеме жасаңыз:
Adal S., Akylbekova T.N., Utemissova A.Zh. Improving the Research Competence of Post-Graduate Students at the University Of Kazakhstan // *Ясауи университетінің хабаршысы*. – 2025. – №1 (135). – Б. 496–511. https://doi.org/10.47526/2025-1/2664-0686.182

Cite us correctly:
Adal S., Akylbekova T.N., Utemissova A.Zh. Improving the Research Competence of Post-Graduate Students at the University Of Kazakhstan // *Iasaui universitetinin habarshysy*. – 2025. – №1 (135). – B. 496–511. https://doi.org/10.47526/2025-1/2664-0686.182

Date of receipt of the article 05.04.2024 / Date of acceptance 30.03.2025

ISSN-p 2306-7365
ISSN-e 2664-0686

С. Адал[1], Т.Н. Акылбекова[2], А.Ж. Утемисова[3]
[1] PhD докторант (Қазақстан, Алматы қ.), e-mail: saulet.adal.99@mail.ru
[2]химия ғылымдарының кандидаты, аға оқытушы
(Қазақстан, Алматы қ.), e-mail: turar.83@mail.ru
[3]PhD, аға оқытушы (Қазақстан, Алматы қ.), e-mail: arai19_83@mail.ru
[1,2,3]Абай ат. Қазақ ұлттық педагогикалық университеті

Қазақстан университетінде ЖОО-дан кейінгі білім алушылардың ғылыми-зерттеу құзыреттілігін жетілдіру

Аңдатпа. Бұл мақала еліміздегі магистранттар мен докоранттардың зерттеу құзыреттілігін арттыру стратегияларын зерттейді, ұлттық зияткерлік әлеуетті нығайту және оның жаһандық академиялық қауымдастыққа интеграциялануын жеңілдету мақсатын көздейді. 2020–2024 жылдар аралығындағы Абай атындағы Қазақ ұлттық педагогикалық университетіне (ҚазҰПУ) баса назар аудара отырып, магистранттар мен докоранттардың зерттеу қызметіне қатысуын және олардың қатысуына кедергі келтіретін негізгі барьерлерді анықтайды. Аралас әдіснаманы қолдана отырып, зерттеу сауалнамалар, сұхбаттар және институционалдық жазбалар арқылы жиналған сандық және сапалық деректерді біріктіреді. Авторлар нақты магистранттар мен докоранттардың зерттеу жобаларына қатысуын, конференцияларға қатысуын және ғылыми журналдардағы жарияланымдар санын зерттеді.

Негізгі нәтижелер магистранттар мен докоранттардың тек 41,5%-ы ғана зерттеу жобаларына белсенді қатысқанын көрсетті. Халықаралық конференцияларға қатысу 3,6% деңгейінде өте төмен болды, ал университет ұйымдастырған конференцияларға қатысу 37,41%-ға, ал ұлттық конференцияларға 15,23%-ға жетті. Жарияланымдар саны да шектеулі болды, студенттердің тек 23,57%-ы ұлттық деңгейде жариялаған. Осы жарияланымдардың 63,96%-ы отандық журналдарда, ал небәрі 12,47%-ы SCI, IE және CSCD сияқты дерекқорларда индекстелген халықаралық журналдарда жарияланған. Бұл нәтижелер отандық және халықаралық ғылыми өнімділік арасындағы айтарлықтай алшақтықты көрсетеді. Осы мәселелерді шешу үшін мақалада студенттік зерттеу жобалары мен халықаралық конференцияларға қатысуды қолдау үшін ішкі гранттық схемаларды құруды, ғылыми коммуникация дағдыларын жетілдіру және беделді халықаралық журналдарда жариялауды қолдау үшін мақсатты академиялық ағылшын тілінде оқытуды қамтамасыз етуді және ғылыми жазу мен жариялауға бағытталған семинарлар мен тәлімгерлік бағдарламаларын ұйымдастыруды қоса алғанда, іске асыруға болатын ұсыныстар ұсынылады. Осы бастамаларды жүзеге асыру магистранттар мен докоранттардың зерттеу қызметін ұлттық және халықаралық ғылыми басымдықтарға неғұрлым сәйкес келтіруге, осылайша Қазақстандағы жоғары оқу орнынан кейінгі білім беру сапасын арттыруға, оның жаһандық академиялық бәсекеге қабілеттілігін арттыруға, неғұрлым динамикалық зерттеу ортасын қалыптастыруға және Қазақстанның жаһандық ғылыми қауымдастықтағы орнын нығайтуға ықпал етеді деп күтілуде.

Кілт сөздер: жоғары оқу орнынан кейінгі білім, зерттеушілік құзыреттілік, ғылыми-зерттеу қызметі, академиялық ағылшын тілі, ғылыми жазба.

С. Адал[1], Т.Н. Акылбекова[2], А.Ж. Утемисова[3]
[1]PhD докторант (Казахстан, г. Алматы), e-mail: saulet.adal.99@mail.ru
[2]кандидат химических наук, старший преподаватель
(Казахстан, г. Алматы), e-mail: turar.83@mail.ru
[3]PhD, старший преподаватель (Казахстан, г. Алматы), e-mail: arai19_83@mail.ru
[1,2,3]Казахский национальный педагогический университет им. Абая

ISSN-p 2306-7365
ISSN-e 2664-0686

Совершенствование научно-исследовательской компетенции обучающихся послевузовского образования в казахстанском университете

Аннотация. Данная статья исследует стратегии повышения исследовательской компетентности магистрантов и докторантов в казахстанских университетах с целью укрепления национального интеллектуального потенциала и содействия его интеграции в глобальное академическое сообщество. Сосредоточив внимание на Казахском национальном педагогическом университете имени Абая (КазНПУ) в период с 2020 по 2024 год, исследование изучает участие магистрантов и докторантов в исследовательской деятельности и выявляет ключевые барьеры, препятствующие их вовлечению. Используя смешанную методологию, исследование объединяет количественные и качественные данные, собранные с помощью опросов, интервью и институциональных записей. Авторы конкретно изучали участие магистрантов и докторантов в исследовательских проектах, посещение конференций (университетских, национальных и международных) и количество публикаций в научных журналах.

Ключевые результаты показали, что только 41,5% магистрантов и докторантов активно участвовали в исследовательских проектах. Участие в международных конференциях было заметно низким – 3,6%, в то время как посещаемость конференций, организованных университетом, достигла 37,41%, а национальных конференций – 15,23%. Количество публикаций также было ограниченным: только 23,57% студентов публиковались на национальном уровне. Из этих публикаций 63,96% появились в отечественных журналах и всего лишь 12,47% были опубликованы в международных журналах, индексируемых в базах данных, таких как SCI, IE и CSCD. Эти результаты подчеркивают значительный разрыв между отечественной и международной научной продуктивностью. Для решения этих проблем в статье предлагаются действенные рекомендации, включая создание внутренних грантовых схем для поддержки студенческих исследовательских проектов и участия в международных конференциях, обеспечение целевого обучения академическому английскому языку для улучшения навыков научной коммуникации и содействия глобальному сотрудничеству, а также организацию семинаров и программ наставничества, ориентированных на научное письмо и публикацию в авторитетных международных журналах. Реализация этих инициатив, как ожидается, позволит привести исследовательскую деятельность магистрантов и докторантов в большее соответствие с национальными и международными научными приоритетами, тем самым повысив качество послевузовского образования в Казахстане, укрепив его глобальную академическую конкурентоспособность, создав более динамичную исследовательскую среду и усилив позиции Казахстана в мировом научном сообществе.

Ключевые слова: послевузовское образование, исследовательская компетентность, исследовательская деятельность, академический английский язык, научное письмо.

Introduction

The challenges of the age of modern information and highly innovative technologies have actualized the development of the nation's intellectual potential. This phenomenon, caused by global development processes, has a great responsibility, first of all, in the field of education and science. Education, scientific research, and integrating science and education are the basis of modern postgraduate education. Today, the goal set for each university in the country is to form a specialist of a new format, with a high level of creativity and developed research competencies, who can skillfully combine science and technology innovations with professional activities. In this

ISSN-p 2306-7365
ISSN-e 2664-0686

regard, the formation of competencies that meet modern requirements among young scientists, who are the nation's future in education and science, has become relevant.

This article highlights modern problems in the development of science and education. The Kazakh scientific community places a high value on subjects about master's and doctorate students' research endeavors and the growth of their scientific proficiency. The article covers the practical aspects of planning research activities, including the types and details of master's and doctoral students' work and the part teachers play in helping students become competent researchers. Other colleges can use these elements to enhance their scientific education. The article's discussion of issues like how young scientists' scientific accomplishments affect national and international university rankings helps to foster a conversation about the value of science in Kazakhstan and how it fits into the larger scientific community.

In connection with the rapid change of the information age and the rapid obsolescence of knowledge, the issue of the development of scientific research activities of undergraduate - doctoral students in postgraduate education is one of the urgent problems. Currently, one of the most necessary motives for post-university students is the ability of universities to support them, involving more graduate students in systematic and high-level scientific research. Many of the roots of the current social problems are discussed in connection with future specialists' competencies, qualifications, and the ability to transfer scientific knowledge to practical skills. It can be concluded that the main reason for this is that in universities that train future qualified specialists in each field, academic knowledge is transferred to deep scientific theory. The skills of their projection into practice are not formed. In general, the issue of strengthening the practical orientation of research work in higher educational institutions is one of the main conditions for the development of professional competencies of university students. The relevance of solving this problem is considered in various international and Kazakhstan studies and is perceived as the main condition for developing research activity of future young scientists in the field of education.

Issues of science aimed at improving scientific knowledge, research, and practice are highlighted in all national programs and legal and regulatory documents of the Republic of Kazakhstan in education and science. “In the state program for the development of education and science of the Republic of Kazakhstan for 2020–2025” [1] the main tasks are as follows:

- strengthening the intellectual potential of science;
- modernization and digitalization of scientific infrastructure;
- the tasks of increasing the effectiveness of scientific developments and ensuring their integration into the world scientific space were noted.

Among the concentrated problems in the field of science are the low practical orientation of scientific research, insufficient funding for scientific research, the lack of mechanisms for stimulating undergraduates and doctoral students to research work at the university, as well as the lack of a level of knowledge for undergraduates and doctoral students to participate in scientific work, for research work, it is possible to use the world's scientific bases with a strong knowledge of the English language, for example Web of Science (Clarivate Analytics) and Scopus (Elsevier) we can highlight the issues of attracting young scientists who are inclined to Scientific Collaboration, who can freely work on the data of information resources on the platform [2]. In this regard, it should be borne in mind that the most basic essence of science is that it is aimed at universalizing, improving, and developing experience [3].

The main purpose of this article is to reveal the relevance of the development of research activities of students of higher educational institutions based on the study of domestic and world sources of literature related to the improvement of the scientific research process, especially the degree of interest of undergraduates and doctoral students in the field of chemistry in the Natural Sciences. It is known that the competitiveness of higher educational institutions is measured by the scientific potential of its faculty and students. For example, QS World University Rankings, Times

ISSN-p 2306-7365
ISSN-e 2664-0686

Higher Education, Round University Ranking (RUR), etc [4]. Among the main criteria for evaluating universities are research activity, learning process, meaningful potential with employers' opinions, training of students with foreign teachers, academic reputation, the index of creating scientific links per teacher, the ratio of student-faculty members, etc [5]. Therefore, the development of scientific research activities for students in the provision of postgraduate education within the university is very important.

Literature review

The literature on research activities, which is the basis of the article, emphasizes the need to increase the scientific methodology and the potential of university teachers' interest in scientific research activities of undergraduates and doctoral students. Considering the philosophical, scientific, subject, technological, etc [6]. Levels of pedagogical methodology, it is clear that it will be the main traffic light for scientific research work.

It is necessary to reveal the importance of developing the pedagogical creativity of future specialists in postgraduate education, which ensures the process of training scientific personnel in general. Its effectiveness is determined by the readiness of future specialists for research activities, the ability to use a scientific style of thinking in the educational process, creativity in their research work, and the formation of research skills. The organization of research activities in pedagogical science in various aspects considered: training of scientific and pedagogical personnel in the magistracy; the relationship of educational and research work; formation of the readiness of future teachers for research work conditions and essence; formation of research qualifications. The idea of the formation of creativity and readiness for professional activity; creativity is the highest criterion of professionalism; creativity as the main condition for the formation of a future specialist. Formation of the research culture of the teacher of researchers of Kazakhstan; theoretical foundations of the formation of the professional research culture of students and the teacher in the system of university education; methodology of scientific and pedagogical research; the influence of the unity of didactic and methodological training on the formation of the professional culture of the future teacher; development of the creative potential of teachers in the system of advanced training; psychological and pedagogical Organization of scientific research ; formation of creativity of future specialists; preparation of Masters the role of research activities; formation of acmeological training of specialists in the conditions of post-graduate education; issues of formation of research competence.

In the works of G. Musabekova and S. Chakanova, special attention is paid to the philosophical and pedagogical aspects of creativity. They explore the significance of creativity in the pedagogical system and investigate the influence of different types of creativity on the development of future professionals' creative abilities. Furthermore, the authors describe creativity as an essential factor in the professional and personal development of an individual, and they propose the methodological foundations for effectively organizing creative processes. As a result of these studies, the content, structure, developmental patterns of creativity, and its application in pedagogical practice have been identified. The practical significance of such works is high, as they provide an opportunity to develop the professional and creative abilities of future professionals through scientific research activities [7].

P. Truran in his works, analyzes the structural and functional aspects of creativity and concludes with the following key points:

- The objective and subjective aspects of creativity develop in close connection with each other, and this connection contributes to the emergence of new knowledge and ideas.

- The conscious creative activity of an individual unlocks their innovative potential and adapts it to objective reality.

- The preservation of naturalness in the creative process ensures the stability of new ideas and their practical application.

ISSN-p 2306-7365
ISSN-e 2664-0686

Based on his research findings, P. Truran emphasizes the role of creativity in pedagogical and scientific activities. He considers creativity as the foundation for the methods used in teaching and research, and proves the necessity of developing creative potential in the training of future professionals. P. Truran's works lay the foundation for understanding the essence of creativity, its multifaceted nature, and its impact on both society and individual development. The practical significance of these studies lies in their ability to organize the creative process scientifically and enable its effective use in the education system [8].

In her study of the characteristics of pedagogical creativity, Z. Karakulova reveals the multifaceted nature of this concept and defines its role in pedagogical science.

While describing pedagogical creativity, the researcher highlighted the following key aspects:

- Pedagogical discovery – finding new methods and approaches in pedagogical activities.
- Pedagogical creation – the process of developing new content and forms.
- Rationalization – activities aimed at improving pedagogical processes.
- Modernization – updating educational content and methods to meet contemporary demands.
- Optimization – activities aimed at increasing the efficiency of the educational process.

In her research, Z. Karakulova analyzed two main aspects of creative activity in pedagogical science: developing the theoretical foundations of creativity and its practical application. Special attention was given to the key concepts for developing pedagogical creativity, including:

- The central role of creativity in the pedagogical process.
- Improving the quality of education through the development of the teacher's creative potential.
- The interconnection between creative activity and pedagogical innovations.

As a result of her research, Z. Karakulova thoroughly substantiated the significance of pedagogical creativity in society and the education system. She considered creativity an essential component of the professional training of future educators. According to her conclusions, pedagogical creativity contributes not only to the development of new teaching methods but also to the enhancement of the efficiency of the teaching process. Z. Karakulova's works provide a deep understanding of the structure and content of pedagogical creativity, as well as offer a methodological foundation for creatively preparing future professionals [9].

T. Prodromou and Z. Lavitsa conducted a study on the use of information technologies in students' creative activities, examining how these technologies affect the development of students' creative abilities. They focused on defining the theoretical foundations and pedagogical conditions necessary for developing creative abilities within the system of professional training.

The researchers proposed a structural content model for the effective integration of creative teaching methods and the use of information technologies. Through this model, they identified the pedagogical conditions that enhance the process of developing creative abilities and illustrated how teacher training programs should be adjusted to foster these abilities.

The main goal of the study was to develop a concept for fostering creative thinking in future teachers, which was carried out to better prepare teachers to cultivate creativity in their students. Additionally, their research proposed a structural model for the professional training of future teachers, which facilitates the effective organization of pedagogical conditions for developing creative abilities. Their work highlights the importance of educational programs aimed at developing creative thinking in teachers, the necessity of effectively utilizing information technologies, and the role of pedagogical conditions conducive to fostering creativity. This research provides an important foundation for the development of appropriate training programs designed to enhance the creative abilities for teachers and educational institutions [10].

At the beginning of the XX century, engineer P.K. Engelmeyer used the first systematic opportunities for understanding the pedagogical process as creative. At the same time, creativity and the study of thinking problems began. The socio-cultural situations in society education aimed

ISSN-p 2306-7365
ISSN-e 2664-0686

at activating the ability to develop, and reveal their creative potential. This led to the stimulation of needs [11].

The University's educational and extracurricular activities aim to improve future specialists' pedagogical skills. In the formation of creativity of the integral elements of the system of dialectical mutual unity shows. In the process of solving scientific research tasks, there is an improvement in the level of true knowledge and business under the needs of future specialists, improving and replenishing already known approaches with new ones. This fact once again proves the point of view of many researchers about the subjective nature of future specialists' creativity in scientific research activities.

The analysis of these studies is based on the fact that the research activities of university teachers are always a process that needs to be improved. In his valuable works L. Clark substantiates the general methodology as a science about the research process. L. Clark considers the research process as the foundation of scientific and pedagogical activity, highlighting the necessary methodological aspects to enhance its effectiveness. She defines the key methods for integrating the results of scientific research into the educational process and identifies crucial approaches for developing the scientific and creative abilities of future professionals. In her research, she offers specific recommendations for strengthening the creative component of pedagogical activity and improving the methodological level of research work.

Her work emphasizes the importance of improving the processes and methods of scientific research, as well as the formation of the necessary knowledge and skills to develop the creative abilities of university faculty and future professionals [12]. Also, revealing the essence of scientific research, he emphasizes the main criteria for its effectiveness: correlation with the research results, usefulness in the development of theory and practice, and design of the direction of development of the research topic in the future [13]. Zh.S. Sykhynbaeva and D.A. Zholdasbekova, together with young scholars, proposed a theoretical model for the scientific research work of master's students. This model encompasses various components for fostering research culture, namely motivational, content, and process components. Through this model, the researchers aimed to enhance the quality of scientific research activities for master's students and young scholars.

In their study, the authors analyzed the various factors influencing the formation of research culture, with particular emphasis on the significance of the motivational component in improving the effectiveness of research activities. The motivational component aims to engage master's students in research work, stimulate their scientific interests, and enhance their enthusiasm for scientific activities. The content component covers the fundamentals of conducting scientific research, mastering scientific methods, and creatively acquiring new knowledge. The process component involves the practical aspects of research work, such as applying scientific research methods and analyzing results.

Thus, the authors proposed a comprehensive approach to forming a research culture, which increases the interest of master's students and young scholars in research activities and allows for the development of their scientific creative potential. This model serves as the foundation for pedagogical methods aimed at improving the quality of future professionals' scientific research work. The results of this research highlight the importance of research culture in the preparation of future researchers and identify the necessary conditions for its development [14]. As the main indicators in this model:

- the desire for creative search;
- the need for research work;
- high motivation to know the methods of scientific and pedagogical research;
- the need for self-improvement and self-development;
- knowledge of the methodological foundations of scientific research, such as the laws of dialectics, the theory of knowledge, the theory of personality and activity;

ISSN-p 2306-7365
ISSN-e 2664-0686

- knowledge of the laws and laws of the entire pedagogical process;
- knowledge of the phased methodology for conducting research work;
- knowledge of the methodology for structuring scientific works;
- to be able to systematize the research methods used under the tasks of scientific work;
- mastering the methods of information culture;

-the most important indicators are identified, such as the ability to ensure the interconnection of scientific work and teaching work, etc. It is becoming increasingly clear that the vast majority of these indicators serve as the basis for the development of research activities of young scientists [15].

Developing countries, such as India, Brazil, and South Africa, have emphasized the importance of incorporating creativity into their education systems. For example, in India, promoting creativity through problem-based learning has been found to significantly enhance students' research skills. In Brazil, linking educational programs to community projects strengthened the practical application of research skills. In South Africa, educational reforms have focused on encouraging innovative thinking through the integration of technology. Comparing these findings with the current situation in Kazakhstan, significant progress has been made in integrating research into higher education. However, there is a clear need to focus more on the practical application of research and to enhance collaboration between academia and industry.

If we pay attention to the typology of educational research in the field of teaching chemistry in postgraduate education:

- a type of research that focuses on problems arising from the research specificity of the training subject.
- in general, the type of research is focused on the education problem, but the research work is formulated based on the specifics of the subject being studied.
- although the work is aimed at the quality of education, such research allows you to adjust the educational content [16].

In post-university education, the effectiveness of scientific research activities of students by modern requirements is becoming one of the most important problems. Based on the analysis of the content of scientific works, the reason for which is revealed, the vast majority of young scientists reveal the essence of the key concepts: “research activity”, “research culture”, and “research competence” [17]. All these studies are the basis for a comprehensive disclosure of the structure, content, and features of the concept of research activity. In the pedagogical and psychological literature, “action” and “activity” are considered in a very close relationship. It is also known that the concept of activity gives the very definition of the concept of activity. Currently, the concept of publication activity of young scientists is used very often. It is not a qualitative but a quantitative criterion, and there is little risk of forming an attitude toward the ultimate mission of science as a whole [18].

If a graduate student or doctoral student decides that they are going to work in the research field, they must know in advance the following 3 different factors:

a. financial situation;

b. extended training periods;

c. uncertainties on the path of science; these 3 factors force only a very small number of young scientists to continue on the path of science [19].

In preparing a system for the formation of the pedagogical creativity of future specialists through scientific research activities, first of all, attention was paid to the content of the concepts of the pedagogical system. A system (from the Latin systema – a whole, a compound) is a set of components that interact with each other, are connected, and form a certain whole a union.

From an epistemological point of view, the system is organized based on internal connections and is unique to the set of parts, connections, relationships, and processes that live in truth [20]. Therefore, the system has a characteristic structure, as well as the composition of elements and

ISSN-p 2306-7365
ISSN-e 2664-0686

certain functions there will be exceptions. Teaching and learning as objects of scientific research of the pedagogical system the process and its forms, the actions of the teacher and the future specialist (for example, the process of self-learning), any educational association, and other subjects of the pedagogical process (for example, children organizations), considered as the educational system of the state, region, region.

The functioning of the pedagogical system is the source of the pedagogical strategic goal and the tool for their success is a complex social dynamic management system. In any pedagogical system, the learning process is the educational formation of pedagogical goals and new tasks in educational content. It is constantly updated, based on which the state of formation of academic disciplines is realized.

The pedagogical system, in terms of structural and functional aspects, is social, scientific, and technological progress, as well as improving, flourishing, and improving the education of society appears, builds, and acts according to specific goals that express conscious demand. The peculiarity of the pedagogical system is that it is within the framework of systems of activity and relationship systems (reconstructor – active, Recreator - performer, consumer – individual or action-creator, etc.). These systems are created through the subjects of the learning process and are derived not personally but through them. In this context, learning as a pedagogical system is the main characteristic of the educational process, its unity and complexity.

The importance of using the systematization platform in our research is that future specialists will be able to consideration of the formation of creativity as a whole system, system builder the definition of factors, i.e. the goal and the result, the components that compose them and their definition of the dialectic of interrelationships, internal components of communication and considered the disclosure of the main conditions of the system is characterized by its features.

The result of the experience of scientists who studied the problem under consideration in creating a system for the formation of pedagogical creativity of future specialists through scientific research activities developed methods of diagnostics of the motivation of the personality structure.

Personality creativity test questionnaire for self-assessment of potential; author's questionnaire for the development of pedagogical creativity of undergraduates through scientific research activities; personality differences and parameters of readiness for scientific research activities and personality creativity diagnosis. At the same time, «Future teachers-psychologists included in the educational process the system of scientific activities in the formation of works» elective course and «Future pedagogical creativity of specialists» scientific circle the main components of this system (Figure 1).

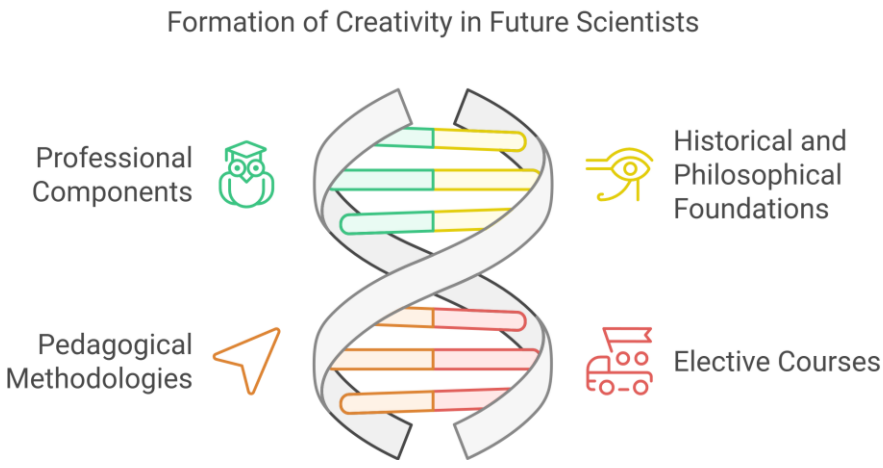

Figure 1 – Pedagogical activity of future specialists through scientific research activities the system of formation of creativity

ISSN-p 2306-7365
ISSN-e 2664-0686

The system of formation of scientific creativity of future specialists through scientific research activities includes an analysis of the content of education in a university, training activities (lectures, practical classes, laboratory classes, independent work), and training beyond was the basis for the assertion that scientific research is a single whole of activity.

The alignment between the concepts of publication and research activity of undergraduates and doctoral students in higher educational institutions can be a reason to escape reality. To increase the number of publications, the transformation of general scientific work into a paid market attitude, such as co-authorship among young scientists and resorting to the help of services for developing special publications, undermines the ultimate meaning of science. Empirical and theoretical research methods were used in detail on the problem under consideration. Empirical research methods, such as control and its types, interviews, professional interviews, surveys, experiments, etc., were widely used. Methods such as analysis, synthesis, analogy, abstraction, comparison, induction and deduction, the study of literary sources, generalization, systematization, etc., were used as methods at the theoretical level. As part of the research, small scientific experiments are conducted. Scientific and pedagogical literature and familiarization are some initial stages of any research. The study of literary sources determined and systematized the level of actual study of the topic, the views, and valuable opinions of domestic and foreign scientists on this problem. Based on such a generalization, the author's personal views on the problem are formed, and the leading idea of the study becomes clear.

Research methods and materials

This study focused on analyzing the participation of master's and doctoral students in scientific events organized within the framework of the "School of Young Scientists" at Abai Kazakh National Pedagogical University. The study aimed to determine the level of involvement of postgraduate students in research activities and to identify the factors that contribute to increasing their participation. A total of 350 postgraduate students (240 master's and 110 doctoral students) participated in the study. The selection process was carried out using the Krejcie and Morgan method, which ensured the representativeness of the studied population. The margin of error was set at 5%, ensuring the reliability of the results.

Participants were selected using the stratified random sampling method. The selection criteria were clearly defined and applied as follows:

Inclusion Criteria:

- enrollment in a master’s or doctoral program at the university between 2020 and 2024;
- participation in at least one scientific event (conference, seminar, research project);
- voluntary consent to participate in the study.

Exclusion Criteria:

-students who had never participated in scientific events;
- participants who initially took part in the study but later withdrew;
- respondents who provided incomplete answers in surveys or interviews.

To comprehensively examine the research activity of postgraduate students across various aspects, multiple methods were employed:

- structured questionnaires were used to assess students’ participation in research activities, their chosen topics, and the main challenges they faced. All questionnaires were created in Google Forms and distributed electronically to respondents;
- semi-structured interviews conducted to gain deeper insights into students' motivation and interest in scientific events;
- institutional data analysis included the collection and systematization of information on university-organized scientific conferences, seminars, and publications in academic journals.

ISSN-p 2306-7365
ISSN-e 2664-0686

Several key steps were taken to ensure the validity and reliability of the methods used in the study:

- content validity the survey and interview questions were reviewed by five independent experts to assess their clarity and relevance. based on their recommendations, modifications were made to improve the structure of the questionnaire;
- pilot study a pilot study was conducted with 30 students (20 master's and 10 doctoral students) to evaluate the effectiveness of the research tools. minor revisions were made to the questions to ensure clarity and ease of understanding;
- reliability assessment the internal reliability of the research tools was confirmed by a Cronbach's alpha coefficient of 0.87, indicating a high level of consistency in the collected data.

The collected quantitative and qualitative data were processed using the following analytical methods:

- descriptive statistics mean values, standard deviations, frequencies, and percentages were calculated;
- correlation analysis used to examine the relationship between students' choice of research topics and their academic achievements;
- multifactor analysis applied to determine key factors influencing participation in scientific events;
- inferential statistics hypothesis testing was conducted at a $p < 0.05$ significance level.

Qualitative data were coded and categorized using NVivo software through thematic analysis.

The study strictly adhered to international ethical standards and academic integrity principles:

- approval was obtained from the Ethics Committee of Abai Kazakh National Pedagogical University;
- participants voluntarily agreed to take part in the research;
- all personal data were anonymized and kept confidential;
- participants retained the right to withdraw from the study at any time.

Additionally, the study examined the alignment of students' research topics with the university's scientific priorities. Furthermore, the relationship between students' independent topic selection and their academic achievements was analyzed (Figure 2). Based on the findings, the study identified key barriers to research participation and proposed solutions to address them.

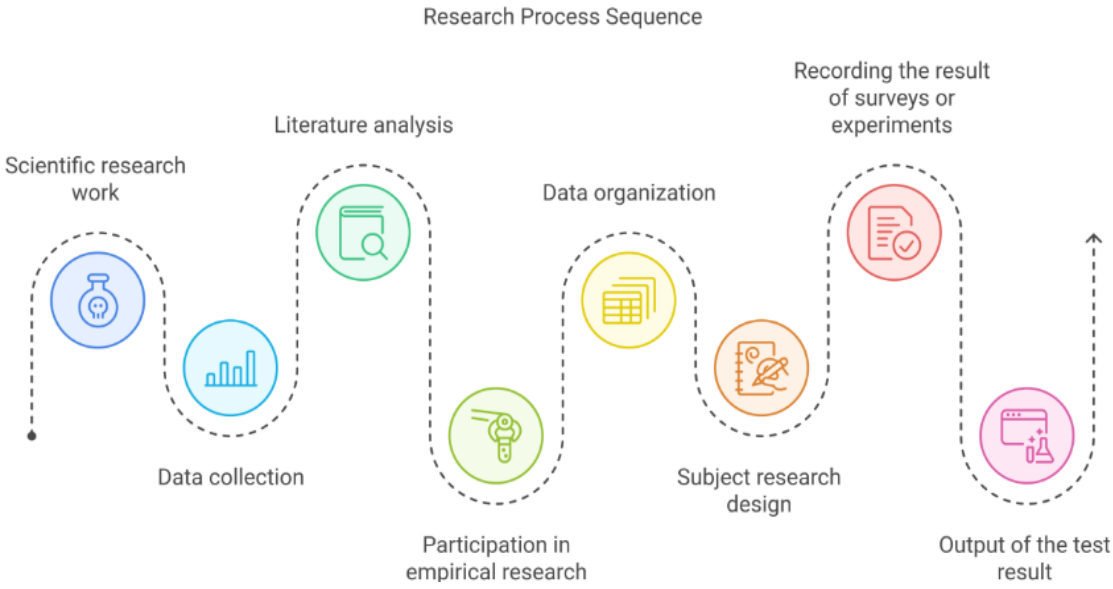

Figure 2 – Steps for completing tasks on research topics

ISSN-p 2306-7365
ISSN-e 2664-0686

Results and discussion

This study focused on examining the participation of master's and doctoral students in scientific events organized by the “School of Young Scientists” at Abai Kazakh National Pedagogical

University (KazNPU). The research encompassed 350 postgraduate students (240 master's and 110 doctoral students) enrolled in the university's master's and doctoral programs between 2020 and 2024 who had participated in at least one scientific event. Participants were selected using stratified random sampling to ensure the representativeness of the sample. Overall, male students comprised 45% of the participants, while female students constituted 55%.

Table 1 – Distribution of participants by gender and educational level

Category	Total number	Male number	Female number	Male percentage (%)	Female percentage (%)
Master's students	240	108	132	45	55
Doctoral students	110	50	61	≈45.5	≈54.5
Total	350	158	193	≈45.1	≈54.9

The analysis revealed the overall participation rates of students in scientific events.

Table 2 – Participation rates in scientific events

Indicator	Value (%)
Overall conference participation	43.76
University conferences	37.41
National conferences	15.23
International conferences	3.60
National level publications	23.57
Domestic journal publications	63.96
International database publications	12.47

As shown in the table, the majority of students (37.41%) participated in university-organized conferences, while participation in national conferences was significantly lower (15.23%). Particularly concerning is the very low participation in international conferences (3.60%), which may indicate financial, language, or institutional barriers that limit access to global academic engagement.

Publication Activity and Key Challenges

In terms of publication activity, only 23.57% of students published articles at the national level. Among these, 63.96% were published in domestic journals, while only 12.47% were published in international databases such as SCI, IE, and CSCD. This highlights a major gap between domestic and international research output.

To further understand why the publication activity remains low**,** semi-structured interviews were conducted with selected master's and doctoral students. The qualitative analysis identified several recurring challenges:

- lack of financial support many students mentioned that high publication fees for reputable international journals acted as a barrier;

- limited academic writing skills a significant portion of students expressed difficulties in writing research papers in English, which limited their ability to publish in indexed journals;

ISSN-p 2306-7365
ISSN-e 2664-0686

- lack of mentorship several students emphasized the absence of experienced academic advisors who could guide them through the research and publication process;

- limited institutional encouragement while university-organized conferences are relatively accessible, there is a lack of incentives for students to participate in external international conferences and publish in high-impact journals.

Comparative analysis with other universities in Kazakhstan

A comparative study was conducted to analyze how the research engagement at KazNPU compares with other major universities in Kazakhstan. Data from publicly available university reports and academic publications indicate that:

- universities with stronger research funding mechanisms tend to have higher student participation in international conferences and indexed journal publications;

- institutions that offer targeted English academic writing courses and mentorship programs see an increase in the number of postgraduate students publishing in international journals;

- research-oriented universities with internal grant schemes enable students to cover conference participation fees and journal submission costs, reducing financial barriers to research dissemination.

This comparative analysis suggests that implementing structured institutional support mechanisms at KazNPU could significantly enhance postgraduate students' research output.

A statistical analysis was conducted on the available percentage values (43.76, 37.41, 15.23, 3.60, 23.57, 63.96, 12.47). The following indicators were obtained (Table 3):

Table 3 – Statistical analysis results

Statistical indicator	Value
Mean	28.57
Standard error	7.94
Median	23.57
Mode	3.60
Standard deviation	21.03
Variance	442.27
Skewness	01.05
Number of intervals	3
Minimum value	3.60
Maximum value	63.96
Sum	200
Range	60.36

The mean value of 28.57% suggests that student participation in scientific events is relatively low on average. The high standard deviation (21.03%) indicates significant variability, meaning that some students are highly active, while others remain inactive. The positive skewness (1.05%) further confirms that only a small number of students have very high engagement levels.

Additionally, the low mode value (3.60%), corresponding to international conference participation, underscores the necessity for targeted interventions aimed at improving global research engagement.

The study highlights the uneven distribution of research participation among KazNPU students. While university-organized conferences see relatively high engagement, participation in international conferences and high-impact journal publications remains critically low.

ISSN-p 2306-7365
ISSN-e 2664-0686

The primary barriers include financial constraints, language proficiency challenges, lack of mentorship, and limited institutional support mechanisms. Comparative analysis suggests that enhanced institutional funding, targeted English language training, and structured mentorship programs could improve students' research engagement at both national and international levels.

To address these issues, the following recommendations are proposed, which will be discussed in further detail in the discussion section of this article.

This study aimed to analyze the participation of master's and doctoral students of Abai Kazakh National Pedagogical University (KazNPU) in scientific activities. The research findings indicate that students exhibit limited research engagement and face significant challenges in integrating into the international academic community.

Participation in scientific conferences and international experience

The study results show that only 43.76% of students participated in scientific conferences, which is relatively low compared to international standards. In leading universities worldwide, attending multiple conferences annually is considered an essential academic practice for postgraduate students. According to the collected data, participation in university-organized conferences was 37.41%, national-level conferences 15.23%, and international conferences only 3.60%**.** The low participation rate in international conferences can be attributed to financial constraints, organizational difficulties, and inadequate proficiency in foreign languages**.**

Publication activity and its characteristics

The study also revealed that students' publication activity is insufficient. Only 23.57% of students have published scientific articles at the national level, while publications in internationally indexed databases (SCI, IE, CSCD) account for just 12.47%**.** This suggests that students lack the necessary academic writing skills to meet international publishing standards and face difficulties in submitting papers to high-impact journals. Additionally, 63.96% of students published their work in domestic journals**,** indicating that their research is primarily focused on local scientific issues, which may limit its relevance to the global academic community.

Based on the study results, several measures should be implemented to enhance students' research activity and facilitate their integration into the international academic environment:

In developed countries, postgraduate students receive financial support to attend scientific events. Kazakhstan universities should establish similar grant programs to ensure that students can actively participate in international conferences**.**

Many leading universities have academic writing centers that assist students in developing their writing skills. Introducing such programs in Kazakhstan universities will significantly increase the number of students publishing in international journals**.**

In many countries, academic advisors play a key role in guiding students through the research and publication process**.** Strengthening mentorship programs in Kazakhstan universities will help students improve the quality of their research and publications**.**

In globally recognized universities, postgraduate students have greater flexibility in choosing research topics**,** which fosters their academic interest and enhances the quality of their work. Kazakhstan universities should encourage independent research topic selection to promote innovation in student research.

Universities should establish regular training sessions and workshops to equip students with the knowledge and skills required for publishing in international journals.

Conclusion

The findings of this research highlight a key trend: while undergraduate and doctoral students demonstrate active engagement in research activities within the university setting, their participation in high-level research endeavors, particularly those involving international collaboration and publication in reputable journals, remains limited. This disparity underscores the influence of both

ISSN-p 2306-7365
ISSN-e 2664-0686

subjective factors (such as individual motivation and research skills) and objective factors (including funding opportunities, access to resources, and institutional support) on students' research engagement. To enhance the participation of undergraduate and doctoral students in scientific research within national universities, a multi-faceted approach is required. This approach should focus on the following key areas:

Implementing well-structured research programs and initiatives is crucial. This includes clearly defined research objectives, timelines, and evaluation criteria. Such planning provides a framework for students to engage in research effectively. Fostering a research-conducive environment requires addressing both internal motivations and external support structures. This involves stimulating students' intrinsic interest in research, providing access to necessary resources (e.g., equipment, databases, funding), and offering mentorship from experienced researchers. Cultivating a passion for research is essential. Universities should create opportunities for students to explore their research interests, participate in research projects early in their academic careers, and present their findings at conferences and workshops. Providing adequate support services, including workshops on research methodologies, scientific writing, and presentation skills, is vital. This also includes ensuring access to funding opportunities, travel grants for conferences, and publication support. Focused training on research methodologies, data analysis, and scientific writing is necessary to equip students with the necessary skills to conduct high-quality research and publish their work in reputable venues. Recognizing and addressing the diverse needs and research interests of young scientists is crucial. Tailored programs and initiatives should be developed to cater to different research areas and levels of experience.

Recommendations

For future research aimed at improving the quality of research activities among undergraduate and doctoral students, the following recommendations are offered:

- Future studies should investigate effective strategies for nurturing research interests early in students' academic journeys. This includes exploring how to integrate research experiences into the curriculum and providing opportunities for students to connect with established researchers.

- Research opportunities should be made available to students from the beginning of their studies. This early exposure can spark research interest and provide valuable hands-on experience.

- Universities should ensure that students have access to the latest scientific literature, databases, and research tools. This includes providing training on how to effectively use these resources.

- Creating a supportive research environment where students can actively participate in ongoing research projects and receive guidance from experienced mentors is essential.

- Universities should provide guidance and counseling services to help students identify their research interests and choose appropriate research directions. By implementing these recommendations, universities can create a more robust research culture and empower undergraduate and doctoral students to become successful researchers and contribute meaningfully to the advancement of knowledge.

REFERENCES

1. Qazaqstan Respublikasynda bilim berudi jane gylymdy damytudyń 2020-2025 jyldarga arnalgan memlekettik bagdarlamasy [State program for the development of education and science of the Republic of Kazakhstan for 2020–2025]. [Electronic resource]. URL: https://adilet.zan.kz/kaz/docs/P1900000988 (date of access 03.02.2024) [in Kazakh]
2. Бозыев Р.С. Педагогикадағы ғылыми зерттеулердің әдістемесі: ұжымдық монография – Нұр-Сұлтан: Планета, 2020. – Б. 207–208.

ISSN-p 2306-7365
ISSN-e 2664-0686

3. Purwati R., Liestari S.P., Suwandi T., Wulan A.R., Utari S. Profile of learning experiences and students' scientific inquiry skills in science subjects // Proceedings of the International Conference on Educational Assessment and Policy (ICEAP 2020). – Paris: Atlantis Press, 2020. – №545. – P. 22–28. https://doi.org/10.2991/assehr.k.210423.059
4. Idris N., Talib O., Razali F. Strategies in mastering science process skills in science experiments: a systematic literature review // Jurnal Pendidikan IPA Indonesia. – 2022. – Vol. 11, №1. – P. 155–170. https://doi.org/10.15294/jpii.v11i1.32969.
5. Lubiano M.L.D., Magpantay M.S. Enhanced 7E Instructional model towards enriching science inquiry skills // International Journal of Research in Education and Science. – 2021. – Vol. 7, №3. – P. 630–658. https://doi.org/10.46328/ijres.1963.
6. Bessarab A., Sadivnychyi V., Ilchenko A., Ripka G., Shaposhnikova V., Tainel E. Development of students' research activity during studying at higher education institutions // Studies of Applied Economics. – 2021. – Vol. 39, №5. – P. 315–325. https://doi.org/10.25115/eea.v39i5.4866.
7. Musabekova G., Chakanova S., Boranbayeva A., Utebayeva A., Kazybayeva K., Alshynbayev K. Structural conceptual model of forming readiness for innovative activity of future teachers in general education school // Opción. – 2018. – Vol. 33, №85. – P. 217–240.
8. Truran P. The development of creative thinking in graduate students doing scientific research // Educational Technology Publications. – 2016. – Vol. 43. – P. 41–46.
9. Kosshygulova A., Sarsenbayeva L., Karakulova Z. Pedagogical and psychological conditions for the organization of independent work of students // European Journal of Contemporary Education. – 2022. – Vol. 11, №4. – P. 1134–1146. https://doi.org/10.13187/ejced.4.1134.
10. Prodromou T., Lavicza Z. Inquiry-Based Learning in Statistics: When Students Engage with Challenging Problems in STEM Disciplines. In: STEM Education: An Emerging Field of Inquiry. – Leiden: BRILL, 2020. – P. 117–131. https://doi.org/10.1163/9789004391413_008.
11. Berikkhanova A., Sapargaliyeva B., Ibraimova Zh., Wilson E. Conceptualising the integration of action research into the practice of teacher education universities in Kazakhstan // Education Sciences. – 2023. – Vol. 13, No. 10. https://doi.org/10.3390/educsci13101034.
12. Clark L. Bridging the Authority Gap: Partnerships Between Postgraduates and Undergraduates. – London: Routledge, 2021. – 200 p.
13. Harrowell J., Davies T., Disney T. Creating Space for Failure in Geographical Research // The Professional Geographer. – 2018. – Vol. 70, №2. – P. 230–238.
14. Sihynbaeva, J.S., Joldasbekova D.A. Bolashaq arnaiy pedagogtardyn kasibi qyzmetin jetildiruge daiyndygyn arttyru [Increasing the readiness of future special teachers to improve their professional activities] // Ahmet Iasauı atyndagy universitetinin habarshysy. – 2023. – №3(129). – B. 224–238. [in Kazakh]
15. 15.Salavati S. Use of digital technologies in education: The complexity of teachers' everyday practice: dis. – Växjö: Linnaeus University, 2020. – 200 p.
16. Pramita S.D., Eka C.P., Ari W., Diana R. Inquiry ability of students to develop cognitive ability in learning hydrostatic pressure // Research in Physics Education. – 2023. – Vol. 2, №2. – P. 138–153.
17. Zhang Y., Jiang Y. Investigation and analysis on the cultivation of academic competence of postgraduates // Open Access Library Journal. – 2021. – Vol. 8, №10. – P. 1–12. https://doi.org/10.4236/oalib.1107967.
18. Morrison M.E., Lom B., Buffalari D., Chase L., Fernandes J.J., McMurray M.S., Stavnezer A.J. Integrating Research into the Undergraduate Curriculum: 2. Scaffolding Research Skills and Transitioning toward Independent Research // Journal of Undergraduate Neuroscience Education. – 2020. – Vol. 19, №1. – P. A64–A74.
19. Matilainen R., Nuora P., Valto P. Student Experiences of Project-Based Learning in an Analytical Chemistry Laboratory Course in Higher Education // Chemistry Teacher International. – 2021. – Vol. 3, №3. – P. 229–238.
20. Partanen L. How Student-Centred Teaching in Quantum Chemistry Affects Students' Experiences of Learning and Motivation: Self-Determination Theory Perspective // Chemistry Education Research and Practice. – 2020. – Vol. 21, №1. – P. 79–94.