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SYSTEM OF PEDAGOGICAL CONDITIONS TO DEVELOP POSTGRADUATES' METHODOLOGICAL READINESS FOR PROFESSIONAL AND PEDAGOGOCAL ACTIVITIES

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Abstract. *The article examines the system of pedagogical conditions that contribute to the development of methodological readiness of postgraduate students for their professional and pedagogical activity. The relevance of the topic is determined by the necessity to train highly qualified specialists who possess the theoretical knowledge and practical skills necessary for successful work in the educational sphere. The aim of the study is to present the system of pedagogical conditions propelling the development of methodological readiness of postgraduate students to perform professional and pedagogical activities. The comparative method is used to*

analyse Russian and foreign literature on the pedagogical conditions to enhance the professional and pedagogical activities of postgraduate students and develop their methodological readiness. System analysis identified types and forms of pedagogical conditions and was used to establish the relationship between them. Thematic analysis of sources was employed to identify common themes, trends, and gaps in research to compare Russian and international educational environments. The key pedagogical conditions contributing to the development of methodological readiness of postgraduate students were identified. They include individual approach, mentoring, practical orientation, use of modern educational technologies, creation of a favourable educational environment, development of scientific thinking, evaluation, and feedback. The results of the study posit the importance of a systematic approach to train postgraduate students. The development of methodological readiness of graduate students is a multifaceted process that requires a comprehensive approach and consideration of various factors. Further research in this area is recommended in order to optimise educational processes and improve the effectiveness of specialist training in the educational sector.

Keywords: *pedagogical conditions, methodological readiness, professional and pedagogical activities, postgraduate students, mentoring, practical orientation, educational environment, modern educational technologies, scientific thinking, feedback.*

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СИСТЕМА ПЕДАГОГИЧЕСКИХ УСЛОВИЙ ФОРМИРОВАНИЯ МЕТОДОЛОГИЧЕСКОЙ ГОТОВНОСТИ АСПИРАНТОВ К ПРОФЕССИОНАЛЬНО-ПЕДАГОГИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ

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Аннотация. *В статье рассматривается система педагогических условий, способствующих формированию методологической готовности аспирантов к профессионально-педагогической деятельности. Актуальность темы обусловлена необходимостью подготовки высококвалифицированных специалистов, обладающих не только теоретическими знаниями, но и практическими навыками, необходимыми для успешной работы в образовательной сфере. Цель исследования – представить в виде системы педагогические условия, способствующие формированию методологической готовности аспирантов к профессионально-педагогической деятельности. Компаративный метод помог проанализировать отечественную и зарубежную литературу о необходимых педагогических условиях, активизирующих профессионально-педагогическую деятельность аспирантов для формирования методологической готовности. Системный анализ помог выявить виды и формы педагогических условий и установить связь между ними. Тематический анализ источников используется для выявления общих тем, тенденций и пробелов в исследованиях для сравнения российской и международной образовательных сред. Выявлены ключевые педагогические условия, способствующие формированию методологической готовности аспирантов. К ним относятся: индивидуальный подход, наставничество, практическая ориентация, использование современных образовательных технологий, создание благоприятной образовательной среды, развитие научного мышления, оценка и обратная связь. Результаты исследования подчеркивают важность системного подхода к подготовке аспирантов. Формирование методологической готовности аспирантов является многогранным процессом, требующим комплексного подхода и учета различных факторов. Рекомендуется дальнейшее исследование в данной области с целью оптимизации образовательных процессов и повышения эффективности подготовки кадров для образовательной сферы*.

Ключевые слова*: педагогические условия, методологическая готовность, профессионально-педагогическая деятельность, аспиранты, наставничество, практическая направленность, образовательная среда, современные образовательные технологии, научное мышление, обратная связь.*

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Introduction.

One of the most challenging tasks higher education encounters today is to identify, justify, and verify the pedagogical conditions in higher educational institutions that contribute to the success of remodeling a favourable educational doctoral environment for postgraduates to perform professional and pedagogical activities. Studying the issues of shaping the pedagogical environment and its key conditions is currently amongst the critical priorities of pedagogical science. This is because the quality of postgraduate training directly influences the training of highly qualified specialists with scientific and methodological knowledge. Professional and pedagogical activities of postgraduate students are one of the forms of intellectual and personal self-improvement of a specialist.

Thus, pedagogical conditions conceived during postgraduate training should be aimed at pioneering an effective educational environment for developing methodological readiness and improving their professional and pedagogical [1]. Pedagogical conditions presented as interrelated integral components should be considered as the main element in this pedagogical system.

The article aims to define and characterise types and forms of pedagogical conditions as components of the pedagogical system and augments the effective development of methodological readiness among postgraduate students.

Literature Review.

The study of pedagogical conditions in higher education institutions ensures the development of methodological readiness of postgraduate students for performing professional and pedagogical activities. The importance of instantiating optimal pedagogical conditions cannot be overestimated as they shape the educational environment [2]. This area of research reveals various aspects of pedagogical conditions – organisational, methodological, and psychological conditions that augment the quality of education.

According to Z.M. Filatova, *pedagogical conditions* are “a set of sufficient and necessary measures of influence such as the definition of content, forms, and methods that are aimed at ensuring the effectiveness of the pedagogical process” [3]. Hence, pedagogical conditions are a set of interrelated elements that should be considered in developing pedagogical processes and propelling effective learning and personality development of a would-be specialist. By devising favorable pedagogical conditions in higher educational institutions, postgraduate students are able to develop their personal and professional competencies, which contributes to the development of their methodological readiness. Methodological readiness is referred to as a set of knowledge, abilities, and skills in the field of methodology of professional pedagogy, necessary for rewarding research in this area of scientific knowledge; for effective training in the higher education system; and for the quality performance of professional duties as a higher education teacher [4]. Organisational and pedagogical conditions, psychological, and pedagogical conditions and didactic conditions are particularly highlighted as the main pedagogical conditions.

Organisational and pedagogical conditions are defined as “a characteristic of the pedagogical system reflecting a set of potential opportunities of the spatial-educational environment, the implementation of which provide an orderly and directed effective functioning, as well as the development of the pedagogical system” [5]. Such conditions include readiness covering motivation for practice-oriented assessment of educational results; availability of material and technical base for assessment procedures; and information and methodological support for the preparation and implementation of diagnostic activities that are one of the key issues of organisational and pedagogical conditions [6].

Psychological and pedagogical conditions are essential to form learning motivation by comprising a set of pedagogical tools, methods and forms, and specific approaches to communicating with postgraduate students. This formation sequentially pioneers conditions for an

effective pedagogical impact on them and propels the growing interest in the educational process [7, 8].

Didactic conditions, the main type of pedagogical conditions, are represented by the purposeful selection, design, and application of educational content elements; methods (techniques), and organisational forms of teaching which provide effective design of the educational process aimed at achieving the didactic goals. The availability of modern teaching materials and technologies allows university teachers to use effective teaching methods that enhance the active atmosphere of active involvement among postgraduate students in the educational process. This elucidates the unification of the teaching and research competencies formation in the postgraduate training system. Since 2020, postgraduate students have been awarded the qualification of "Researcher-Teacher-researcher" [9]. However, the regulation of postgraduate training based on norms, rules, and revision of the educational component of postgraduate programmes violated the logic of the devised pedagogical system in Russian postgraduate training.

Furthermore, pedagogical conditions represent procedural, personal, and methodological components of the educational environment ensuring its function and development. Pedagogical conditions are necessary to organise and implement the pedagogical process in preparing postgraduate students for their professional and pedagogical activities and developing their methodological readiness to perform these activities. Therefore, the interconnected and interdependent conditions of the educational environment created in higher educational institutions, psychological and pedagogical support for productive interaction, and the formation of personal requirements and demands should be considered a purposeful impact within the pedagogical system in achieving educational goals [10]. Thus, the three main types of pedagogical conditions (organisational and pedagogical, psychological and pedagogical, and didactic) can be used in designing a system of pedagogical conditions to develop methodological readiness of postgraduate students.

Methods and Materials.

The methods of this study are based on the existing Russian and foreign literature grounded on the ideal pedagogical conditions and professional qualities of postgraduate students required to carry out their professional and pedagogical activities. The purpose of the study is to examine various pedagogical conditions that critically impact professional development, characteristics, learning outcomes, and overall academic success of postgraduate students in their appropriate professional educational environments. The authors contemplate these pedagogical conditions as a system that serves as mandatory pedagogical conditions for amplifying postgraduate skills in practical professional and pedagogical activities.

To achieve this goal, several distinct objectives can be identified:

1. To analyse the existing pedagogical conditions influencing the development of methodological readiness of postgraduate students and to determine the approaches the system of pedagogical conditions is based on.

3. To determine the types and forms of pedagogical conditions aimed at developing methodological readiness of postgraduate students considering modern requirements to the pedagogical process.

4. To define the forms of pedagogical conditions in the pedagogical system.

The main hypothesis of the study presumes the best professional and pedagogical activities of postgraduate students, pedagogical conditions should be conceived for the development of their methodological readiness during professional training at higher educational institutions.

The comparative analysis of theoretical materials in Russian and foreign literature indicates the pedagogical conditions advance the professional and pedagogical activities of postgraduate students in developing their methodological readiness. The system analysis allows us to identify types and forms of pedagogical conditions and to establish the relationship between them. The

thematic analysis of sources is used to identify common themes, trends, and gaps in research to compare Russian and international educational environments.

Results.

This section will identify and justify the system of pedagogical conditions that contribute to the development of methodological readiness of postgraduate students for their professional and pedagogical activities. The pioneer of appropriate conditions and integration of various aspects of the educational process are necessary for the complex development of a learner's personality. By conceptualising the interrelated types and forms of pedagogical conditions as an integrated system, scholars can critically examine the interdependent dynamics among its components, thereby elucidating how such synergies enhance the efficacy of fostering methodological readiness in postgraduate students.

Table 1 delineates the categorisation of pedagogical conditions by type and form, establishing a systematic framework to organise and contextualise the empirical findings.

Table 1

The system of pedagogical conditions in developing methodological readiness of postgraduate students

Forms of pedagogical conditions in developing methodological readiness of postgraduate students	**Types of pedagogical conditions**		
	Organisational and Pedagogical	Psychological and Pedagogical	Didactic
Creating a favourable educational environment	– structuring postgraduate curricula tailored to students' personal and academic needs – cooperation with scientific institutions, business, and public organisations	– open communication between scientific supervisors and postgraduate students – realisation of postgraduate students' personal differences, their interests, and needs – skill training in self-regulation, empathy, and effective communication	– interactive learning methods – modern educational technologies – introduction of systematic formative assessment
Personalised Approach	– heterogeneous learning modalities – customisation of curricula and programmes to align with postgraduates' individualised academic needs and research interest	– integrating postgraduate students' psychological well-being into academic support frameworks – skill training for self-organisation and self-control	– development of individual educational plans – interactive learning methods

	– creation of a supportive and trusted atmosphere	– stimulating motivation for practical activities	
Mentoring	– development and implementation of mentoring programmes – heterogeneous mentoring modalities	– establishing a trusted relationship – mentorship fosters holistic development of graduate students' professional skills and personal attributes – contemplation of postgraduate students' specific interests and needs	– tailoring assignments and projects to postgraduate students' academic proficiency and intellectual interests – interactive learning methods – provide regular constructive feedback
Practice orientation	– development of practice-oriented programmes – cooperation with professional communities and organisations – integration of theory and practice in the educational process	– the propagation of conditions conducive to reinforcing intrinsic motivation among postgraduate students – development of critical thinking	– active learning methods – development or adaptation of educational resources aimed at practical application of knowledge – provision of systematic feedback from university teachers and mentors
Use of modern educational technologies	– creation of flexible educational programmes using online and blended learning – online resources and educational platforms – creation of interdisciplinary projects and courses	– support and development of self-directed learning competencies – creation of academic communities for scientific interaction, knowledge sharing, etc. – adaptation of the educational process through a variety of education forms	– implementation of technology-based interactive methods – collection and analysis of postgraduate student progress – development of multimedia technology for teaching
Development of scientific thinking	– structuring the educational process for active participation of postgraduate students in research, projects, and experiments – organisation of several modules to	– support for creativity, experimentation, and innovation – itntegrate analytical, evaluative, and synthetic tasks into	– active learning methods – modern educational technologies – development of research skills

	develop systematic thinking – creation of a research environment	pedagogy – individualised learning, adaptive technologies, and personalised educational pathways	
Assessment and feedback	– organisation of the assessment process – creation of transparent assessment criteria – organisation of regular feedback sessions	– creation of a supportive atmosphere – acknowledgement of individual characteristics for evaluation of postgraduate students' works	– various assessments and methods – formative assessment – digital assessment platforms

To enunciate, the proposed forms of pedagogical conditions to develop methodological readiness of postgraduate students.

Educational environment is recognised as a special form in developing methodological readiness under the framework of the "person - environment" system, where the emphasis is placed on pedagogical and psychological conditions that promote the development of existing potentials and personal characteristics of participants interacting in this educational environment [11]. Creating a favorable educational environment through structured academic support from supervisors, scientific communities, and public/commercial organisations corroborate a conducive educational environment, enhancing professional research skills and competencies among postgraduate students [12]. Participation in scientific projects, conferences, and seminars ameliorates the development of teamwork skills and the ability to present and defend scientific ideas.

In foreign literature, the educational environment of postgraduate students is considered through the prism of their well-being, which includes the consideration of individual experience [13, 14], and factors that cause a decreased interest in scientific activity [15]. In this regard, the creation of an autonomous research educational environment includes autonomous selection of thesis topics and opportunities in creating new research projects or making personal decisions. Other favourable conditions advocate independent and critical thinking and promote self-awareness among postgraduate students to perform professional and pedagogical activities [16].

Personalised approach of postgraduate students' methodological readiness enhances academic engagement and aligns professional and practical training with the demands of future professional employers. This approach highlights regulatory and administrative requirements of postgraduate training; internal factors such as motivation, attitudes toward learning, and clarity in understanding of the research topic. As a result, postgraduate students develop a profound understanding of organising and controlling research process and their professional perspectives [17]. Awareness of personal research concepts and perspectives encourages postgraduate students to be mindful in selecting research topics and methods and utilising available resources [18]. Individual educational trajectories (IOT) are one of the ways to infer a personalised approach in postgraduate training. IOT promotes the cognitive interest of postgraduate students from various professional experiences and levels of training, and their teaching, scientific, or business-oriented focus [19].

Subsequently, *Mentoring* is referred to as training postgraduate students and developing their methodological readiness. It is a collaboration between scientific supervisors and university professors who supervise research practice and assist in the scientific guidance of postgraduate [20]. In foreign literature, mentoring plays a key role in training highly qualified specialists and researchers as it ameliorates the professional development of postgraduate students and the creation of the scientific community in transferring scientific knowledge and skills. It should substantiate the creation of a support system for postgraduate students and scientific supervisors where the discussion of practical cases, reflection of the completed works, and feedback from adept colleagues or mentors form new scientific, methodological, and pedagogical knowledge [21].

Foreign researchers advocate the application of professional experience of academic supervisors in designing criteria for professional support and guidance that are aimed at developing postgraduates' skills and competencies [22]. Mentoring should be comprehensive and require special attention from government and methodology advisory services to boost up a system of multi-functional mentoring [23; 24]. Postgraduate students, scientific supervisors, and university teachers must perceive the actual practical result of their joint activities. Generous fellowship between university stakeholders strengthens the professional and personal identity of postgraduate students [25] and improves their academic and professional productivity [26].

Practice orientation in the context of higher education refers to practical experience in the professional and pedagogical activities of postgraduate students gained through the synthesis of traditional research and methodological skills with new competencies (instrumental, transferable and professional) [27]. The development of methodological readiness of postgraduate students requires regular academic consultations with scientific supervisors and university teachers for versatile feedback delivery to enhance postgraduates' research skills. In addition, practice orientation is applied through postgraduates' accumulation of practical experience in scientific and academic research; participation in scientific conferences and other research projects; development of practical teaching methods predicated on the amalgamation of postgraduates' practical skills, scientific and professional experience, and innovative activity; and development of postgraduates' methodological skills [28; 29; 30; 31]. Thus, the practical orientation of postgraduate students' training is an integral part of their education, ensuring the integration of theory and practice, which ultimately contributes to the training of highly qualified education specialists.

Use of modern educational technologies is a special form of developing methodological readiness through the combination of online and offline components, promotion of personalisation through learning and active involvement of postgraduate students in the educational process, and development of their readiness for professional activity [32]. Moreover, the application of educational technologies transforms educational processes and forms of interaction between all participants and promotes the concept of ubiquitous teaching and learning [33]. Consequently, postgraduate students will master new knowledge and skills necessary for auspicious professional and pedagogical activities [34]. In addition, university teachers possess the competencies needed to implement modern educational technologies, to effectively apply their skills of information and communication technologies in higher education institutions to create sound teaching materials suitable for open information educational environments [35, 36]. Thus, modern educational technologies enable postgraduate students to innovate in teacher-researcher training and systematically plan, execute, and analyse teaching and research outcomes [37].

Following, the *Development of scientific thinking* is another form of developing postgraduate methodological readiness and a wide range of interactive educational technologies used in the pedagogical process to train postgraduate students and enhance their scientific thinking. The latter encompasses "cognitive intension, the focus on learning new things; the ability to doubt, rely on verifiable data and be able to verify them; scientific literacy; breadth of vision; large scales

of space and time compared to 'everyday thinking'[1]; lack of contradictions in thinking; ability to synthesise global knowledge [38]. Moreover, the integration of scientific thinking with other types of thinking is regarded in the intellectual processes (critical, analytical, creative, logical, systemic, methodological, etc.) that permeate the development of postgraduates' scientific thinking and the formation of research skills for self-analysis and improvement [39; 40; 41; 42; 43].

This training process comprises three phases: 1) theoretical training and interactive lectures: short videos, web applications, research reports, and quizzes; 2) practical training: short case studies solved individually or collaboratively by postgraduate students; 3) small-group brainstorming sessions on a pre-determined project as a part of postgraduates' assessments [44]. However, the system of assessment and feedback needs to be reconsidered to cultivate postgraduates' analytical skills, critical perception of information, and independent research abilities.

Assessment and feedback from mentors and university teachers are an integral part in developing methodological readiness and educational processes. Regular assessment and feedback on academic and educational research allow postgraduate students to identify their potential academic and professional strengths and weaknesses, facilitating their further development in various fields. Qualitative assessment and feedback on postgraduates' professional and pedagogical performance can improve learning outcomes and ultimately transform educational processes into practical ones that meet the educational and professional needs of postgraduate students [45].

The quality of interaction between postgraduate students and their scientific supervisors is directly related to feedback practices as it plays a key role in learning and allows postgraduate students to envisage their goals, current situation, and ways to achieving desired results [46]. Feedback provides information about postgraduates' successes or shortcomings, enabling them to gain a deeper understanding of learning goals and their position. Feedback is built through a productive dialogue which contributes to the achievement of academic and personal goals and assists postgraduate students in concisely articulating their thoughts and seeking proper solutions [47]. Through constructive feedback from scientific supervisors, university teachers, or other researchers, a supportive atmosphere in which postgraduate students feel confident and motivated is created. Meanwhile, feedback should be related to the control of academic performance [48], based on the following indicators:

1) Direct indicators of academic performance (grades for exams and other types of assessments).

2) Number and quality of scientific articles published in peer-reviewed journals.

3) Participation in scientific conferences and symposia.

4) Participation in grant projects and collaborations with other researchers.

5) Originality, significance, and methodological rigour of the conducted research.

Assessing the academic impact of postgraduate research is grounded on formal indicators such as publications and the extent to which the results of research are communicated to potential users [49].

The rigour of postgraduate academic performance assessment constitutes a multifaceted process, hinging on summative assessments (e.g., thesis defence) complemented by iterative formative assessments (e.g., structured feedback cycles and progress reviews) conducted throughout the candidature to monitor development and refine academic and research competencies. Most researchers advocate relying on a competence-based approach, where clearly defined competencies provide a framework for systematic and substantive examination of postgraduates' development, identification of their strengths, and areas for improvement. Competence-based assessment can be

[1] Scientific thinking and popularization of science in Russia. *Expert-analytical report*, 2022. 47 p. (In Russian). Available at: https://национальныепроекты.рф/upload/iblock/doklad_God_Nauki_27_01_22.pdf (Accessed 03.03.2025).

used for self-assessment of postgraduate students and for obtaining constructive feedback from scientific advisors or supervisors by selecting individual competencies for regular review [50].

Assessment and feedback require a comprehensive approach and improvement of the postgraduate training and research system. Monitoring the results and assessing the conditions for training highly qualified specialists are needed. The conditions include the availability of qualified university teachers and scientific supervisors; sufficient funding for research and educational processes; access to necessary resources (scientific publications, databases, and other information resources); availability of laboratories, equipment, material and technical resources, etc.

The above-mentioned pedagogical conditions in developing the methodological readiness of postgraduate students are interrelated and represent an integral system that contributes to effective postgraduate training and the enhancement of their professional skills. The system of pedagogical conditions in fostering postgraduates' methodological readiness are interrelated components and activities aimed to develop postgraduate students' ability to effectively employ scientific methods and approaches in their research activities. This system includes the aforementioned elements that provide an integrated approach to postgraduate training and education contributing to their professional growth and impactful fulfillment of scientific tasks.

Discussion and Conclusion.

This study has identified and justified a set of pedagogical conditions and forms that are essential for developing the methodological readiness of postgraduate students. The results of the study emphasise the significance of a systematic approach to postgraduate training. Systematic implementation of the acknowledged pedagogical conditions in the educational process for the development of methodological readiness of postgraduate students to perform professional and pedagogical activities is discerned by the following:

1) the integration of theoretical knowledge with practical skills

2) the use of active teaching methods, the creation of conditions for self-development and reflection, support from mentors and university teachers

3) the evaluation of the effectiveness of the implementation of these conditions.

Selecting credible pedagogical conditions allows the professional and pedagogical activities of postgraduate students to be improved. Besides, it shapes an educational environment to support and improve the individual, professional and pedagogical qualities of postgraduate students.

In conclusion, there are several conclusions to be drawn from the study:

1. The main types and forms of pedagogical conditions to develop pedagogical and professional activities of postgraduate students are defined and described. They consolidate an educational environment where the methodological readiness of postgraduates for professional and pedagogical activities is successfully developed.

2. Pedagogical conditions are presented as a system of interrelated elements that take into account the needs of postgraduate students and modern requirements of scientific activity.

3. Individual approach, mentoring, practical orientation, use of modern educational technologies, creation of a favourable educational environment, development of scientific thinking, and proper assessment and feedback are essential for the development of professionally significant qualities of future teacher-researchers. They strengthen the educational environment to underpin the professional productivity of postgraduate students and enhance their personal development.

4. The joint work of university teachers and scientific supervisors in training postgraduate students cultivates their professional, pedagogical, and scientific abilities aligning with the requirements of the current labour market.

Overall, this study highlights the complexity and diversity of the postgraduate training process and recommends conducting further research using a systematic approach to train postgraduates to develop their methodological readiness. Further research is needed to assess the

prospects of the proposed pedagogical conditions to be implemented in educational programmes and to study their impact on the quality of future specialists' training.

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