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PEDAGOGICAL CONDITIONS FOR THE FORMATION OF A CULTURE OF ACCESSIBILITY OF FUTURE SPECIALISTS IN THE EDUCATIONAL PROCESS OF HIGHER EDUCATION INSTITUTION THROUGH TRAINING TECHNOLOGIES

Abstract. The article examines the pedagogical conditions for developing a culture of accessibility among future specialists in the social sphere within the educational process of higher education institutions through the application of training technologies. The relevance of the issue is substantiated by the need to prepare professionals capable of acting effectively in socially diverse environments, responding to the needs of vulnerable groups, and ensuring the principles of accessibility and inclusion in their professional activities. It is demonstrated that training technologies, as an interactive form of instruction, facilitate the integration of cognitive, emotional-value, and behavioral components of professional preparation, thereby creating conditions for the formation of stable attitudes and competencies related to accessibility.

The article identifies and characterizes key pedagogical conditions that determine the effectiveness of training technologies in developing a culture of accessibility. These include the creation of a psychologically safe and supportive educational environment; integration of accessibility-related content into training modules; the use of active experiential learning methods such as role-playing, situation modelling, group discussions, and reflective practices; development of students' reflective skills as a mechanism for understanding the values of inclusion and overcoming personal stereotypes; enhancement of the trainer's professional competence as a model of accessible interaction; and the provision of interdisciplinary and practice-oriented learning.

It is concluded that the systematic implementation of these pedagogical conditions creates an optimal educational environment for fostering a culture of accessibility among future professionals, contributes to the transformation of their professional values, and strengthens their readiness to act within an inclusive social space. The obtained results provide a theoretical foundation for further research and practical developments in the training of specialists in the educational and social spheres.

Keywords: barrier-free, inclusiveness, barrier-free competence, training technologies, pedagogical conditions, professional training, educational sphere, social sphere.

ПЕДАГОГІЧНІ УМОВИ ФОРМУВАННЯ КУЛЬТУРИ БЕЗБАР'ЄРНОСТІ МАЙБУТНІХ ФАХІВЦІВ В ОСВІТНЬОМУ ПРОЦЕСІ ЗАКЛАДІВ ВИЩОЇ ОСВІТИ ЗА ДОПОМОГОЮ ТРЕНІНГОВИХ ТЕХНОЛОГІЙ

Анотація. У статті висвітлено педагогічні умови формування культури безбар'єрності майбутніх фахівців соціальної сфери в освітньому процесі закладу вищої освіти із застосуванням тренінгових технологій. Обґрунтовано, що актуальність проблеми зумовлена необхідністю підготовки фахівців, здатних професійно діяти за умов соціальної різноманітності, ефективно реагувати на потреби вразливих груп населення та забезпечувати принципи доступності й інклюзивності у своїй професійній діяльності. Доведено, що тренінгові технології як інтерактивна форма організації навчання сприяють поєднанню когнітивного, емоційно-ціннісного та поведінкового компонентів професійної підготовки, створюючи умови для формування стійких установок і компетентностей, пов'язаних із безбар'єрністю.

У статті визначено й схарактеризовано педагогічні умови, що забезпечують ефективність тренінгових технологій у процесі формування культури безбар'єрності. До них віднесено: створення психологічно безпечного й підтримувального освітнього середовища; інтеграцію змістових компонентів безбар'єрності в тренінгові модулі; використання активних методів досвідного навчання, зокрема рольових ігор, моделювання ситуацій, групових дискусій та рефлексивних практик; розвиток рефлексивних умінь студентів як механізму усвідомлення цінностей інклюзії та подолання власних стереотипів; підвищення професійної компетентності тренера як носія моделі безбар'єрної взаємодії; забезпечення міждисциплінарності навчального процесу та його практичної спрямованості.

Зроблено висновок, що системне впровадження зазначених педагогічних умов створює оптимальне освітнє середовище для розвитку культури безбар'єрності в майбутніх фахівців, сприяє трансформації їхніх професійних цінностей і готовності діяти в інклюзивному соціальному просторі. Здобуті результати становлять теоретичне підґрунтя для подальших досліджень і практичних розробок у галузі підготовки фахівців освітньої та соціальної сфер.

Ключові слова: безбар'єрність, інклюзивність, безбар'єрна компетентність, тренінгові технології, педагогічні умови, професійна підготовка, освітня сфера, соціальна сфера.

INTRODUCTION

The problem formulation. The contemporary stage of higher education development is marked by increased attention to ensuring barrier-free environments and inclusivity as key foundations of humanistic educational policy. The training of future specialists in the educational and social spheres requires not only the acquisition of professional knowledge but also the development of the ability to act effectively in diverse contexts, adhere to ethical standards of interaction, and contribute to the creation of an accessible social environment. Training-based technologies have become an important instrument in this process, as they enable the integration of cognitive, emotional-value, and behavioural components in students' professional preparation.

Despite the availability of individual studies, the issue of identifying pedagogical conditions that ensure the effectiveness of training technologies in fostering a culture of barrier-free interaction remains insufficiently explored. In particular, the list of such conditions, their substantive content, and their functional role within the structure of professional training for future specialists in the social sphere require further clarification.

In this context, the main objective of the study is to provide a theoretical rationale and detailed description of the pedagogical conditions that ensure the effective formation of students' barrier-free culture through the use of training technologies in the educational environment of higher education institutions. Achieving this objective involves: analysing scholarly approaches to the concept of "barrier-freeness"; identifying the potential of training technologies in developing barrier-free competence; offering a substantive characterisation of the pedagogical conditions that determine the effectiveness of training interventions; and substantiating the significance of these conditions within the system of professional preparation for future specialists in the educational and social spheres.

Analysis of recent research and publications. Analytical reports and strategic documents outline the priorities of state policy on barrier-free development, describe the regulatory and legal framework, and identify the challenges associated with the implementation of accessibility standards (including recommendations on universal design). They provide important contextual information, in particular the socio-political and institutional requirements within which the system of higher education must operate (Priorities and Challenges of Barrier-Free Policy, 2024).

In contemporary Ukrainian scholarly literature, there is a noticeable increase in attention to the issues of inclusion, barrier-free conditions, and accessibility in education. For example, the work "Inclusivity and Barrier-Free Educational Space: Children with Special Educational Needs" presents a detailed analysis of the barriers that arise during the implementation of inclusive learning and emphasizes that equal access to education is of fundamental importance for individuals with special educational needs (Prokhorenko, 2024). At the same time, the study "Inclusive Culture of Pedagogical Education Students as an Indicator of Their Professional Culture" substantiates that the formation of an inclusive culture among future educators is not only an institutional task but also a matter of their professional ethics, worldview, and readiness to work with different categories of learners (Rashydova, 2024).

Modern scholarly articles in domestic journals emphasize the need for a clearer conceptual distinction between the notions of "barrier-free environment" and "inclusivity," as well as clarify their applied significance in higher education. Studies published in 2023-2024 offer an analysis of the semantic meaning of these categories and point to different levels of barrier-free conditions (physical, communicative, informational, cultural-psychological), which is useful for shaping the content of training programmes; however, they do not focus on the integration of these aspects as a comprehensive and multidimensional phenomenon of barrier-freeness. In addition, scientific publications reveal a lack of empirical research that examines the impact of specific training methodologies on changes in students' professional attitudes and behaviours.

Recent methodological manuals aimed at the practical implementation of inclusion and barrier-free practices (Kolupayeva & Taranchenko, 2023) propose algorithms for organizing teaching and practical support for participants in the educational process, emphasizing methodological tools for educators and the adaptation of the educational environment. These materials are useful as a practical basis for forming the substantive components of training modules; however, they are predominantly focused on school-level practice rather than on the preparation of specialists in the educational and social spheres within higher education institutions.

The review of international experience demonstrates that many European countries employ specialized methodologies, adapted educational programmes, individualized approaches, and practices that may be useful for

the Ukrainian context (Chepka, 2021). At the same time, the article "Integration of Barrier Freeness Accessibility into Educational Standards: Challenges and Prospects of Professional Training" analyses that current educational standards in Ukraine often lack clear provisions on accessibility and barrier-freeness, and therefore the training of specialists is insufficiently oriented towards the development of competencies necessary for working in an inclusive environment (Hurich, 2025).

Overall, the analysis of contemporary studies demonstrates a number of important trends. First and foremost, inclusivity and barrier-freeness are becoming increasingly established as key values of modern education. At the same time, scholarly interest is growing in the formation of an inclusive culture among future educators as an integral component of their professional competence. Researchers also emphasize the need to update and reconceptualize educational standards and programmes in accordance with the principles of accessibility and universal design. Considerable attention is devoted to the development and adaptation of methodologies, practices, and technologies (both Ukrainian and international) capable of effectively ensuring barrier-free conditions within the educational environment. In addition, the issue of preparing specialists to work in contexts of social diversity is becoming increasingly relevant, as it requires flexibility, empathy, and readiness to interact with various groups of learners.

For further research, particularly those concerning the preparation of future specialists in the educational and social spheres, it is important to take into account both theoretical achievements and practical challenges. This includes adapting the content of educational programmes, integrating training-based and reflective technologies, and providing interdisciplinary support and adequate resource provision.

AIM OF THE RESEARCH

To identify the pedagogical conditions and methodological approaches for cultivating a culture of barrier-freeness among future specialists in a higher education institution through the use of training technologies, and to evaluate their effectiveness for developing professional competencies and readiness to work in an inclusive environment.

RESEARCH METHODS

The research methods included a combination of theoretical and empirical approaches. The theoretical methods comprised the analysis and synthesis of scientific and methodological literature, the generalization of experience related to the implementation of inclusive and barrier-free practices in higher education institutions, and a comparative analysis of international and domestic practices. To obtain empirical data, observation and analysis of educational training sessions, modelling of educational situations, as well as reflective methods that made it possible to identify the level of formation of students' value-based and professional competencies were employed. The study also used methods of systematization and generalization of results, which ensured a comprehensive assessment of the pedagogical conditions for forming a culture of barrier-freeness and the effectiveness of training technologies in the professional preparation of future specialists.

RESULTS OF THE RESEARCH

The formation of a culture of barrier-freeness among future specialists emerges as one of the key tasks of contemporary professional training, oriented towards the implementation of the principles of accessibility, inclusivity, and human rights. In view of the growing social diversity and the increasing number of situations requiring specialists to work effectively with different groups of the population, pedagogical conditions that foster the development of a barrier-free worldview, empathy, tolerance, and constructive communication gain particular importance.

In the context of professional education, it is essential not only to convey knowledge about barrier-freeness as a social phenomenon, but also to create learning situations that allow students to experience its practical significance, reflect on their own attitudes, and model barrier-free behavior in conditions of interpersonal interaction. The effectiveness of forming a culture of barrier-freeness increases under conditions of purposeful organization of the educational process, which integrates the value-semantic component, an open communicative space, and the application of active training technologies.

The formation of a culture of barrier-freeness among future specialists necessarily requires the creation of pedagogical conditions in higher education institutions that ensure the integration of the values of inclusivity, humanism, and non-discrimination into educational interactions. Of particular importance in this regard are training technologies, which allow not only the actualization of students' understanding of the nature of various types of barriers but also the creation of opportunities for safe, reflective, and emotionally significant experiences of overcoming them in simulated situations. Training, as an active learning method, facilitates the transition from declarative knowledge to practical mastery of the principles of barrier-freeness, promotes the development of empathy, communicative sensitivity, tolerance, and the ability to act in accordance with ethical norms of interaction with individuals from diverse groups. At the core of such technologies is the creation of conditions for experiences that transform attitudes, behavioral strategies, and the professional thinking of the future specialist.

The conducted theoretical analysis of pedagogical approaches made it possible to identify a system of pedagogical conditions that ensure the effectiveness of this process:

- Value-oriented focus of the educational environment on the principles of barrier-freeness and respect for human dignity, which involves developing students' awareness of the significance of barrier-freeness as a societal and professional norm.

- Creation of an open communicative environment, in which students have the opportunity to freely express their opinions, discuss complex issues of barrier-freeness and inclusivity, and analyze their own biases.
- Use of training technologies as practice-oriented forms of learning, aimed at developing empathy, cooperation, conflict-free communication skills, and supportive interaction.
- Provision of reflective support, which stimulates awareness of personal changes and the development of readiness to apply barrier-free approaches in professional activity.

Together, these conditions provide a systematic influence on the student's personality and contribute to the formation of stable attitudes toward barrier-free behavior.

The training format of interaction plays a special role, as it combines the emotional-cognitive and activity-based aspects of learning. Training methods, in particular, create opportunities for experiencing empathy, analyzing barrier situations, searching for solutions, developing practical skills, and changing internal attitudes. Thus, training within the system of professional preparation of future social educators and social workers serves as an effective means for developing a culture of barrier-freeness.

The study on the formation of a culture of barrier-freeness among future specialists in the social sphere was conducted in two stages and involved work with two groups of respondents: a control group and an experimental group.
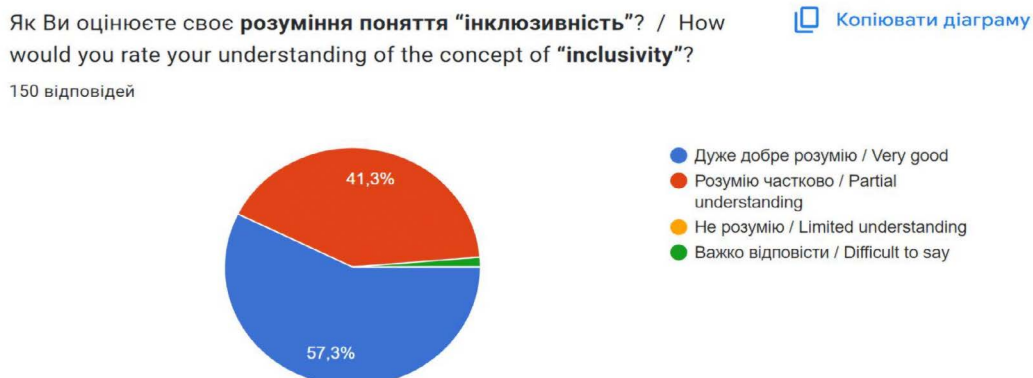
At the first, diagnostic stage, a large-scale survey of students from various specialties and higher education institutions was conducted. The aim was to determine the initial level of students' awareness of the concepts of "inclusivity" and "barrier-freeness," as well as to ascertain the extent to which students understand the key components of these phenomena.

The sample for the first stage of the study consisted of 150 individuals – students at the "Bachelor" and "Master" levels from Vasyl Stefanyk Precarpathian National University, Ivano-Frankivsk National Medical University, Ivano-Frankivsk National Technical University of Oil and Gas, King Danylo University, Ivan Franko National University of Lviv, Lviv Polytechnic National University, Ukrainian Catholic University, and Kherson State University. The respondents also represented a wide range of academic specialties. These included the following fields of study: A2 Preschool Education, A3 Primary Education, A4 Secondary Education, A5 Vocational Education, A6 Special Education, A7 Physical Culture and Sports, C4 Psychology, D3 Management, D4 Public Administration, D8 Law, E2 Ecology, I2 Medicine, I7 Therapy and Rehabilitation, I10 Social Work and Counseling, and I11 Child and Youth Services. This distribution ensured the representativeness of the data, as it encompassed both those who were just beginning their professional training and those who already had a developed understanding of professional activity in the field for which they were being trained.

The questionnaire was designed to collect data on the following key indicators: 1) the respondents' level of understanding of the concept of "inclusivity," 2) understanding of the concept of "barrier-freeness," 3) students' perceptions of the components of inclusivity, and 4) students' knowledge of the types of barrier-freeness.

The obtained data made it possible to assess students' level of awareness on these issues and to identify aspects that require further development within the educational process. For clarity and a deeper understanding of the results, an overview of each block with corresponding diagrams is provided.

Diagram 1. Level of Understanding of the Concept of «Inclusivity»

The survey results indicated a fairly high level of understanding of the concept of inclusivity among students. More than half of the respondents (57.3%) reported that they understand this concept very well, while 41.3% indicated that they partially understand its meaning. Only a few participants stated that they did not understand the term or were unsure of how to respond.
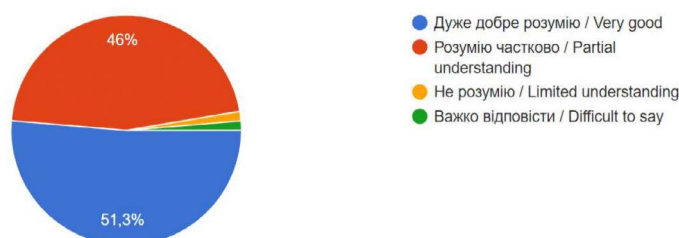
Diagram 2. Understanding of the Concept of «Barrier-Freeness»
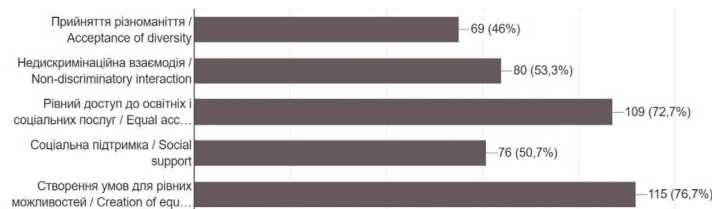

In contrast to inclusivity, the level of understanding of the concept of "barrier-freeness" was somewhat lower. Only 51.3% of students rated their knowledge as very good, while 46% indicated that they partially understood the concept. At the same time, a small proportion of respondents demonstrated insufficient understanding of the term. This suggests that the concept of barrier-freeness is not yet as widely integrated into educational programmes as inclusivity and requires targeted pedagogical intervention, particularly through training technologies.

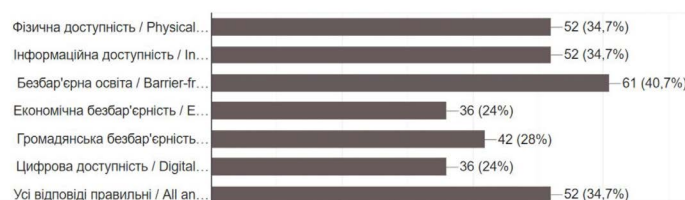**Diagram 3. Students' Perceptions of the Components of Inclusivity**

In analyzing the responses regarding the components of inclusivity, students most frequently selected the following: creating conditions for equal opportunities (76.7%), equal access to educational and social services (72.7%), social support (50.7%), non-discriminatory interaction (53.3%), and acceptance of diversity (46%). These results indicate that students primarily associate inclusivity with ensuring equal access and providing support, which aligns with contemporary approaches to understanding this phenomenon. At the same time, the lower percentage regarding acceptance of diversity points to the need to develop empathy and readiness for open interpersonal interaction – key elements of a culture of barrier-freeness.

Diagram 4. Students' Perceptions of the Types of Barrier-Freeness

The respondents identified the following types of barrier-freeness as the most important: barrier-free education (40.7%), physical accessibility (34.7%), informational accessibility (34.7%), digital accessibility (24%), economic

barrier-freeness (24%), and civic barrier-freeness (28%). A significant proportion of students (34.7%) selected "all answers are correct," demonstrating an understanding of the comprehensive nature of barrier-freeness. However, the overall distribution shows that students are better oriented toward traditional, more visible forms of barriers (physical, informational) and less aware of social and economic aspects.

The survey results indicate that the concepts of inclusivity and barrier-freeness are well recognized by students and are already partially integrated into their professional training. At the same time, the analysis highlights the need for additional in-depth learning that would enable future specialists to apply this knowledge effectively in practice and to develop a genuine culture of barrier-freeness in the professional environment.

The obtained data confirmed the necessity of developing a training programme and implementing it in the process of forming a culture of barrier-freeness, because:

· students demonstrate sufficient theoretical understanding of inclusivity, but have fragmented notions of barrier-freeness;
· the greatest difficulties concern the social aspects of barrier-freeness: empathy, non-discriminatory communication, and awareness of hidden barriers;
· there is a varying level of students' preparedness depending on their year of study.

At the second, experimental stage, the training programme "Barrier-Freeness as a New Standard of Social Work" was implemented for students of the I10 Social Work and Counseling specialty (educational programmes "Social Pedagogy" and "Social Work") at Vasyl Stefanyk Precarpathian National University. The sample for the second stage of the study consisted of 24 participants.

The programme had a comprehensive, practice-oriented nature and was aimed at developing barrier-freeness competencies in future social workers and social educators. Its main components included:

· Interactive lectures and brief theoretical blocks, including explanations of key concepts of inclusivity and barrier-freeness, types of barriers (physical, informational, communicative, psychological), as well as examples of their elimination in professional practice.
· Practical tasks, during which students performed simulation exercises, modeled real-life interactions with various client groups, and assessed the accessibility of public and educational spaces.
· Case analysis through group discussions of specific professional practice situations, aimed at identifying barriers and developing strategies to overcome them.
· Development of empathetic communication and adaptive skills, including tasks focused on understanding the needs of people with different types of limitations and developing practical ways of effective interaction.
· Study of all six types of barrier-freeness (physical, informational, educational, civic, digital, and economic), analyzing all components in professional activities and societal life.
· Reflective sessions and discussion of results, during which participants evaluated their own knowledge and skills, shared impressions, and made suggestions for improving practical work in the field of barrier-freeness.

Such a comprehensive approach enabled students to acquire theoretical knowledge and practice essential skills, which are critical for the development of barrier-freeness competence. Participation in the programme contributed to increasing students' readiness to apply this knowledge in real professional contexts, while also fostering a stable professional stance regarding accessibility and inclusivity.

Upon completion of the training, feedback was collected from this group through a questionnaire, which allowed for the assessment of the training's impact on the development of competencies, practical skills, and value-based attitudes toward barrier-freeness. Analysis of the survey results indicated a high level of students' mastery of the core concepts of barrier-freeness and their readiness to apply them in professional practice.

Approximately 60% of respondents indicated that they fully understand the content of the training and are ready to apply it, 30% reported a good understanding of the material, and about 10% indicated partial understanding, which points to the need for additional in-depth training for some participants. Regarding the significance of the topic, more than half of the students (55%) rated it as critically important for their future professional activities, 40% considered it important and relevant, and only a small proportion (about 5%) regarded it as partially important. This reflects a high level of motivation and interest among students in developing a culture of barrier-freeness. Equally important is the readiness to apply the acquired knowledge in professional practice, with approximately 75% of respondents expressing full agreement and 25% partial agreement. This confirms the effectiveness of the training programme in developing practical barrier-freeness skills and a conscious readiness for integrative activities in the professional environment.

The analysis of the obtained data revealed a positive dynamic in the development of the components of a culture of barrier-freeness. Students demonstrated an increased awareness of the importance of barrier-free interaction, enhanced empathy, and a greater readiness to help others. Changes were also observed in communicative behavior: more expressions of support, tolerance, and constructive dialogue, along with a reduction in categorical and stereotypical judgments.

Students' reflective records confirmed that participation in the training facilitated the re-evaluation of personal attitudes, the development of the ability to identify barriers in everyday interactions, and the awareness of ways to overcome them.

The assessment of the effectiveness of the pedagogical conditions revealed their coherence and integrity in the process of forming barrier-freeness. The combination of the two stages – initial survey and training programme – щ provided a comprehensive approach to the study, allowing for the recording of the initial level of knowledge and attitudes toward barrier-freeness and for evaluating the effectiveness of training technologies in fostering a culture of barrier-freeness among future specialists in higher education institutions.

The conducted study confirmed that the formation of a culture of barrier-freeness among future specialists in higher education institutions is both feasible and effective, provided that the educational process is scientifically grounded. The identified pedagogical conditions ensure the development of important personal and professional qualities in students, necessary for implementing the principles of inclusivity and accessibility. The training programme proved to be effective as a form of practical acquisition of barrier-free behavior.

CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

The study of the pedagogical conditions for forming a culture of barrier-freeness among future specialists in the social sphere demonstrated that training technologies play a central role in the development of students' professional competencies and value orientations. It is precisely the training forms of instruction (role-playing, case analysis, situation modeling, group discussions, and reflective practices) that ensure the integration of cognitive, emotional-value, and practical components of preparation. Through training, students gain experience in barrier-free interaction, the ability to recognize their own stereotypes and barriers, and develop readiness to act in an inclusive environment, thereby enhancing the effectiveness of their future professional activities. A key factor is the creation of a psychologically safe and supportive environment, which stimulates active participation and deep reflection.

Prospects for further research lie in the development and testing of comprehensive models of training programmes with various forms of active interaction, the assessment of their impact on different aspects of students' professional competencies and value orientations, as well as in the systematization of criteria for the effective formation of a culture of barrier-freeness. An important direction is the study of mechanisms for applying the acquired skills in practical activities and the integration of an interdisciplinary approach combining pedagogy, psychology, social work, and ethical aspects of interaction with various population groups. Furthermore, future research should consider the influence of the sociocultural and regulatory context, as well as technological innovations, on the effectiveness of preparing future specialists, which will ensure a more systematic and strategically oriented development of inclusivity and barrier-freeness in the educational process.

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