

Integrative education in professional training of doctors of philosophy

Iryna Savka

Ivan Franko National University of Lviv, Ukraine

ORCID ID [0000-0002-3213-0921](https://orcid.org/0000-0002-3213-0921)

Mykhaylo Kozyar

Lviv University of Life Safety, Lviv, Ukraine

ORCID ID 000-0001-7068-598X

Yuri Kozlovsky

Lviv Polytechnic National University, Ukraine

ORCID ID: [0000-0003-1006-0130](https://orcid.org/0000-0003-1006-0130)

Halyna Lotfi Ghahrodi

Ivan Zyazyun Institute of Pedagogical and Adult Education of the

National Academy of Educational Sciences of Ukraine

ORCID ID: [0000-0001-6713-9056](https://orcid.org/0000-0001-6713-9056)

Oksana Bilyk,

Lviv Polytechnic National University, Ukraine

ORCID ID: [0000-0001-6042-1147](https://orcid.org/0000-0001-6042-1147)

Uiyana Kushpit,

Ivan Franko National University of Lviv, Ukraine

ORCID ID: [0000-0002-4256-0765](https://orcid.org/0000-0002-4256-0765)

Ostap Zaiats

Lviv Polytechnic National University, Ukraine

ORCID ID: [0000-0003-0026-2812](https://orcid.org/0000-0003-0026-2812)

Abstract. The article shows the feasibility of forming integrative education for candidates for the scientific degree of doctor of philosophy (PhD), in particular in the territories of Western Ukraine, where for historical research most of the scientific materials in archives are in Polish. Integration of professional knowledge and knowledge of the Polish language allow to increase the professional level of architectural historians and have a positive impact on the professional activities of both ethnic Poles and Ukrainians. The optional block for the research work “Restoration of Architectural Monuments and Urban Planning, Reconstruction of Architectural Objects” contains such professional competencies as the ability to work in archives; awareness of the importance of preservation and exposition of architectural monuments; the ability to collect, analyze and evaluate information necessary for making reasonable architectural design decisions. The generalization of the results of testing our methodology indicates the feasibility of its implementation in the practice of training doctors of philosophy (PhDs).

Keywords: integration, integrative education, professional training, doctor of philosophy, postgraduate student, historical and pedagogical research, architecture

Introduction

The basic concept of our study – postgraduate students’ integrative training - is defined as the interconnected activities of teachers and postgraduate students aimed at studying core subjects using both the state and native languages, as a result of which a deep assimilation of the professional content of training

is ensured, the development of the professional-terminological apparatus of both languages in their interrelation, the formation of a culture of professional thinking, as well as a high level of proficiency in the state and native languages for special professional purposes.

The integrative competence of the future PhD is formed, in particular, on the basis of multilingualism, which significantly expands the possibilities of scientific research. The qualitative characteristics of professional multilingual development set certain requirements for the personality of a specialist in the context of his ability to successfully overcome communicative barriers: barriers of understanding, socio-cultural barriers, barriers of relationships, etc. We substantiate this idea on the example of historical and architectural researches in the western territories of Ukraine: 1) work in state archives; 2) direct communication with representatives of Polish nationality (especially older ones), who can provide the necessary interesting information, received either personally or from their parents; 3) access to family archives, which are also largely written in Polish; 4) . use of archives related to the history of specific cities and villages, as well as individual architectural monuments.

An integrative approach can improve the quality of professional training and postgraduate activities if teaching is mixed and based on teaching courses in both the state and native languages of representatives of national minorities. However, we make a reservation that such an approach does not diminish the role of the state language and does not compete with it (all exams and documents are issued in it), but only expands the possibilities for professional growth of a specialist.

The scientific understanding of integration processes, which are actively developing in the society of the second half of the 20th - the beginning of the 21st century, could not but affect education. This caused a rapid increase in the number of researchers of the topic, which is considered both at the general scientific level and in the educational aspect: integration in the improvement of teaching and learning (B. Bandhana, 2012), integration of the curriculum (J. Beane, 1998), integrated education (M . Fan, 2004), obstacles to integration in education (W. Pelgrum, 2001), the impact of technology on the integration of education (C. Rhonda, 2002; S. Rodney, 2002), teaching and learning of integrated science (A. Jacinta, 2011), predictors of technology integration in education (K. Rogers, J. Wallace, 2011), etc.

We are convinced that the problem of integration in education should be solved not only at the empirical level, but based on deep theoretical, methodological and worldview foundations. The authors' long-term experience is reflected in their publications in this field: integration of theoretical and practical bachelor's training in the processes of development of professional competencies of student lecturers (Rovnanova L. & Nemcova L., 2017), integration of instructional technologies in public education (Rodney S., 2002) , f. with the curriculum program integration (Udom, P., 2005), n needs for the integration of the agricultural topic with the Thai language (Satiansiriwivat, S., Intorrathed, S., & Siriwan, S. 2016), etc.

Many researchers agree with the importance of knowledge integration in professional studying, since knowledge itself is a solid foundation for the development of key competencies. There is a growing number of studies that focus on both theoretical and practical aspects of the problem: integrated education (M. Fan, 2004), obstacles to integration in education (W Pelgrum, 2001), predictors of technological integration in education (K. Rogers , J. Wallace, 2011) and others.

The subject-matter of the study is integrative education of doctors of philosophy (PhDs).

Purpose of the study. The purpose of the study presented in this article is to substantiate the feasibility of forming integrative education of doctors of philosophy on the example of the history of architecture in the Western region of Ukraine.

Research objectives:

- ☞ 1. to perform and analyze the initial review of the state of practice of the problem under study, which shows the state of formation of integrative education in the process of training doctors of philosophy in the field of architecture;
- ☞ to identify the attitude of future doctors of philosophy in the field of architecture to integrative education;
- ☞ to analyze the opportunities for the development of professional and personal

interests of postgraduate students in the process of integrative education;

☞ to determine the main aspects of integrative education for the training of doctors of philosophy in the field of architecture;

☞ to analyze generalized review of the state of practice after questionnaires, interviews and presentation of methodological materials.

Methodology

The sample for the research is 100 graduate students aged 22 to 40 (by the questionnaire method) and 20 teachers aged 28 to 55 (by the expert survey method through the distance learning system)..

Research results

1. An initial review shows the state of integrative education in the process of training doctors of philosophy in the field of architecture.

Analysis of the results of the interviews showed that integrative education is not fully practiced in the process of training of doctors of philosophy in architecture. However, such a scientific direction as the history of architecture in the Western region of Ukraine is a fertile beginning for the implementation of integrative education.

Interviews with graduate students showed that spontaneous situations often arise when proficiency in Polish is exceptionally important for professional purposes.

In our opinion, these results can be interpreted in two ways: bilingualism as the right of an ethnic Pole to scientific education in his native language and the proficiency of Ukrainian graduate students in Polish as an attribute of the professional competence of an architectural historian who studies the Western region of Ukraine.

The conducted interviews and surveys made it possible to identify the cause of the low popularity of integrative learning among future doctors of philosophy in the history of architecture:

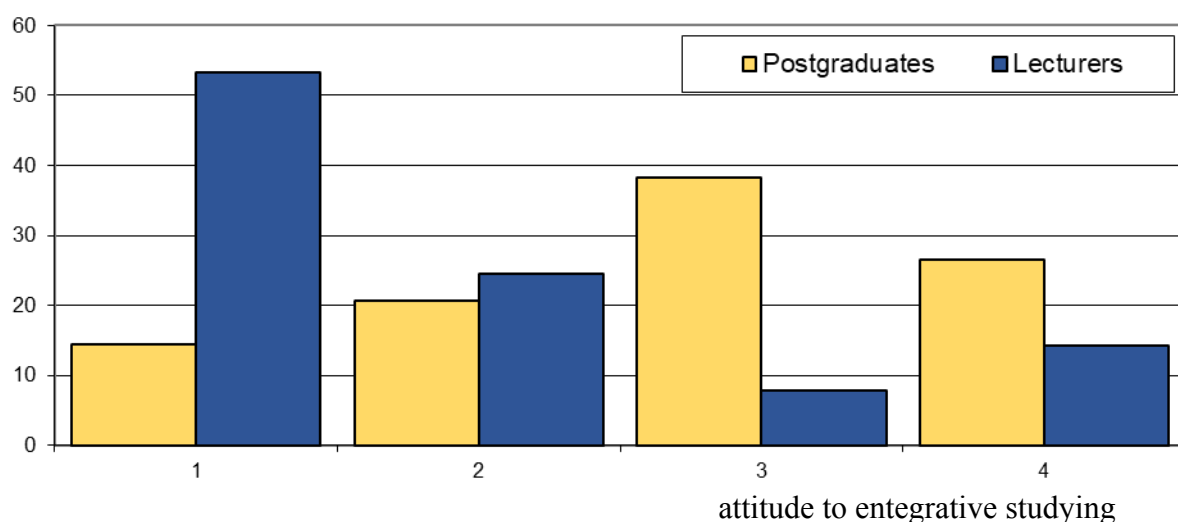
- lack of educational mechanisms for diagnosing the impact of integrative learning on the quality of professional training;
- difficulties in translating the content materials of disciplines for the implementation of integrative learning;
- formalities associated with the introduction of integrative learning;
- unpreparedness of teachers to implement integrative learning for specialists in the history of architecture.

Analysis of the results showed that there is a possibility of increasing the effectiveness of the doctors of philosophy training in the field of architectural history by means of integrative learning.

2. Research on the attitude of postgraduate students in the field of history of architecture to integrative education

The questionnaire determined the attitude of postgraduate students and teachers to integrative learning (Fig. 1).

Fig. 1 Attitudes of graduate students and teachers to integrative learning



where:

1) integrative education is one of the important categories of education;

- 2) integrative education is not actual;
- 3) integrative education is a contrived phenomenon;
- 4) Integrative education is an individual problem for everyone.

The next part of the experiment was aimed at identifying the levels of professional readiness of teachers to implement integrative learning.

Analyzing the answers to questions about the difficulties of implementing the ideas of integrative learning, it should be noted that teachers mainly focused on the lack of theoretical knowledge and practical experience; lack of interest of the administrative apparatus in the implementation of integrative learning; lack of scientific and methodological literature, specific programs, methodological developments, recommendations, etc.

The survey of graduate students was conducted twice: at the beginning and at the end of the scientific research. This attitude was assessed at the following levels: pessimistic, neutral and optimistic (creative).

During the scientific research, respondents changed their assessment of their own capabilities and ability to overcome obstacles. At the end of the study, confidence increased in 25% of respondents with a creative level, and the number of pessimistic respondents decreased by 20%.

In our opinion, during scientific research, postgraduate students had the opportunity to supplement the system of foreign language knowledge and skills and see their real application in the course of the research.

A survey was also conducted regarding which sources of information postgraduate students prefer.

Analysis of the responses showed that at the beginning of the experiment, there was the use of the Internet (69%), special journals and literature (24%). Only 7% were engaged in a targeted search for the necessary knowledge by using the bibliography. At the end of the experiment, these indicators changed significantly: the level of use of the Internet (43%), special journals and literature (36%), targeted search for the necessary knowledge with the help of the bibliography 21%.

It can be concluded that integrative learning does not have the proper level of implementation, both in postgraduate students' opinion and teachers' opinion. The development of this direction in education is only at the very start.

3. Analysis of the possibilities of developing professional and personal interests of postgraduate students in the process of integrative learning.

The professional interest of a postgraduate student is the basis of his/her future achievements, therefore the personal meaning of his/her performance of scientific research is an important element of his/her readiness for the professional activity. Thus, these two indicators can be considered as integral, characterizing the state of the subject-matter under study.

In the context of our study, we highlighted the importance of the foreign language aspect for achieving professional efficiency, namely: how much the knowledge of several languages affects the results of the postgraduate student's professional activity and the level of their scientific research. In order to fully identify the attitude of postgraduate students to the chosen profession, surveys were conducted at different stages of professional training, as well as among graduates. However, a small percentage (4%) of respondents who were completely satisfied with the state of their studies indicates that it was precisely those postgraduate students who had the highest professional motivation who were able to demonstrate active practice and chose a relevant research topic, which provided an opportunity to gain professional experience sufficient for a successful start in the independent professional activity. Based on testing and completing the creative task, it was determined that the majority of respondents have only formed some skills and abilities in foreign language communication. At the same time, only 16% of the experiment participants successfully perform it. Certain problems arise with the formation of foreign language competence (over 50%) and country studies competence (over 40%).

During the conversations with the participants of the experiment, it was also established that a significant part of postgraduate students are trying to increase their level of integrative learning, but they need teachers' consultations in order to establish important patterns and apply the acquired knowledge in practice.

The results of the survey show that to some extent, postgraduate students strive for personal and professional self-improvement through the formation of foreign language competence, including English and Polish, which come first for future doctors of philosophy in the history of architecture. Of all those surveyed, 26% of respondents tend to believe that the formation of foreign language competence should be

based on three languages: Ukrainian, English and Polish.

Obviously, this approach is caused by the specifics of research in the field of the history of architecture in those regions where Polish culture has dominated for many years and there is a significant scientific archive in Polish. Some postgraduate students noted that, despite the importance of English, in their work the knowledge of Polish, the Polish scientific vocabulary in particular, was a priority.

Finally, a survey of postgraduate students was conducted on the feasibility of different levels of integrative learning in postgraduate studies (Fig. 2).

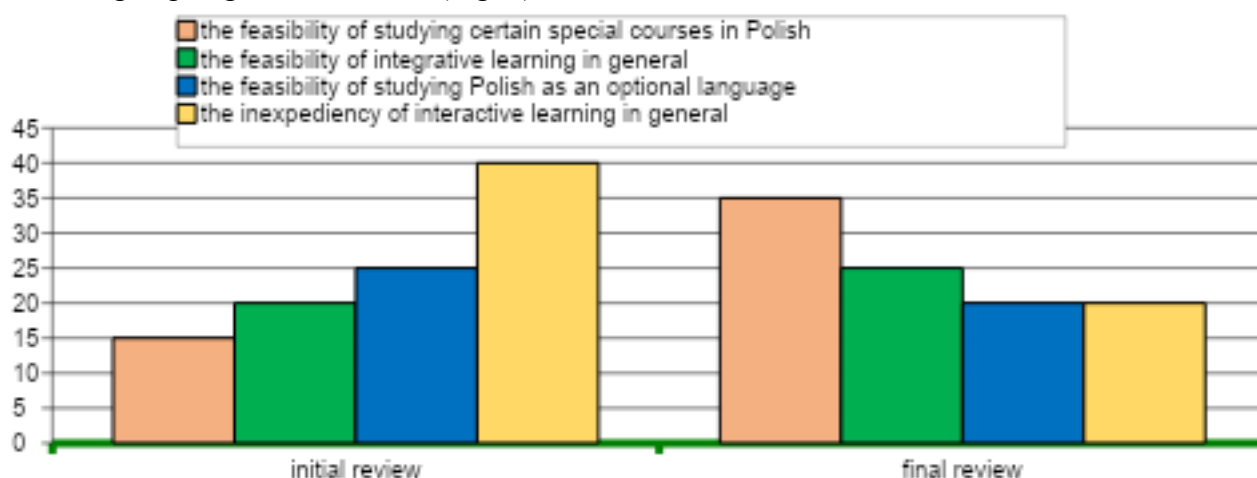


Fig. 2. The feasibility of implementing integrative learning during postgraduate studies

The results of the study show that graduate students have reassessed the importance of both integrative learning in general and its individual areas.

4. Determination of the main aspects of integrative learning for the doctors of philosophy preparation in the field of architectural history.

To substantiate and implement integrative learning, it was necessary to determine its main aspects.

The study was aimed at identifying the motivational aspect of integrative learning for postgraduate students. To establish an understanding of the essence of integrative learning for postgraduate students in the context of the motivational aspect, a questionnaire was used, where the main questions concerned the motives for studying the Polish language and teaching individual courses in Polish.

Based on the analysis of the diagnostic results, a number of problems and contradictions were identified. A small part of the respondents (4%) does not want to accept the values and cultural traditions of representatives of other peoples at all, both do not know how and cannot react to them.

Another problem was also confirmed: only 10% of teachers are familiar with the problems of integrative learning, both are aware of them and approve of them, but do not have sufficient support, do not have the methods and means of their implementation. Among the participants of the experiment, 30% of postgraduate students are aware of the importance and essence of integrative learning, and express a desire to study the history and traditions of both Ukrainians and Poles and other ethnic groups.

The obtained results indicate the following: 40% of respondents consider the formation of professional knowledge, their intellectual development, and the acquisition of skills and abilities to be the main tasks of professional training. A certain part of the respondents (30%) interpret integrative learning as one of the aspects of the educational process, but assign it a secondary role. Respondents, who were conditionally assigned to the next group (25%), point to the relationship, interdependence of integrative and professional learning. Respondents in this group believe that both processes are important in their own way. Only 5% of postgraduate students believe that integrative learning is the most important task of all links and, accordingly, put it in the first place. Thus, the vast majority of graduate students are motivated to varying degrees towards integrative learning.

Diagnostic measures were aimed at determining the levels of the speech aspect of postgraduate students' integrative education. For this purpose, the level of postgraduate students' knowledge about integrative education was determined; knowledge of the main components of national culture; understanding of the diversity of cultures, the presence of knowledge about the nature of interaction between its different types. Diagnostics of the levels of the speech aspect of postgraduate students' integrative education involved

the performance of creative tasks and surveys.

Analysis of the postgraduate students' answers to questions and their creative works showed that a significant part of them (40%) have a general idea of culture, can name its functions and aspects, but do not always cope with the relevant practical tasks. 30% of those surveyed have not yet formed the concept of bilingual culture. 25% of postgraduate students pay little attention to culture, preferring to acquire exclusively professional knowledge and skills. Only 5% of respondents have a conscious, systematic and generalized idea of bilingual culture; they are able to analyze the situation from many aspects. Their creative works are performed at a high professional level. There are no comments on them either in terms of content or in terms of the method of design and presentation.

Postgraduate students were offered tasks to identify their awareness of the theoretical foundations and features of regional characteristics of national culture. Thus, during the survey, a list of types of activities was offered, among which there should be highlighted characteristic of representatives of a particular region of our country. The processing of the task results revealed that only 10% of postgraduate students correctly correlated types of activities according to nationality. 50% of respondents were confused in the variety of types of activities, which indicates an insufficient level of their knowledge of history, cultural studies, geography and other disciplines. This indicates the focus of the latter's attention on professional disciplines. The remaining respondents (40%) limited themselves to the choice of individual activities that can be called obvious for representatives of a particular region. This means, in particular, an insufficient amount of information on the problem, which, in turn, is related to foreign language competence and the ability of the postgraduate student to use sources in different languages.

During the processing of the research results, it was revealed that traditional approaches to understanding cultural diversity dominate in the practical experience of postgraduate students, as well as the presence of episodic knowledge about the nature of interaction between its various types. They argue their position by the lack of experience in communicating with representatives of other cultures, insufficient knowledge. A significant part of the postgraduate students admits that they rarely thought about such issues.

According to the results of a comprehensive survey of the level of understanding of cultural diversity, four groups were identified: with low, medium, sufficient and high levels, respectively.

Respondents with a high level of orientation (25%) are sufficiently familiar with the peculiarities of the culture of other ethnic groups, they can identify them by types of activities, values or historical monuments on their territory. They understand the differences between different cultures and can boldly hold a conversation with representatives of other peoples, join the process of communication. 30% of postgraduate students are familiar with the issues of cultural identification only theoretically, therefore they do not dare to join a dialogue, citing ignorance of the speaker's language of a given type of culture (medium level). 35% of postgraduate students are poorly oriented in the diversity of cultures, however, having the appropriate level of knowledge of foreign languages and a high level of communication, they try their hand at debating issues with representatives of other cultures (sufficient level). They use traditional communication schemes, basic rules of morality and etiquette. Graduate students with a low level of knowledge (10%) are not only poorly oriented in issues of cultural diversity, but also rarely participate in acts of intercultural communication.

Thus, the diagnostic examination of graduate students revealed partial knowledge of culture as a social phenomenon, elementary knowledge of the main components of national culture and, accordingly, insufficient understanding of the diversity of cultures and their interaction.

Therefore, the next stage of the experiment was devoted to the value aspect of graduate students' integrative education. Among the criteria there were studied: possession of basic values and norms of culture; understanding of the role and place of national culture among other world cultures; perception of common and difference between different cultures of a multicultural society.

A number of tasks related to the perception of common and difference between different cultures of a multicultural society made it possible to distribute graduate students into 4 levels as follows: low - 13%; sufficient - 38%; average - 28%; high - 18%. The latter can reveal common and distinctive features of representatives of several cultures, to note the peculiarities of a multicultural worldview in different historical eras. Thus, the diagnostic examination of postgraduate students revealed insufficient mastery of basic values and norms of culture, the level of understanding of the role and place of national culture among other world cultures, and certain difficulties in understanding the common and distinctive features between different cultures.

Therefore, we consider it appropriate to address the issue of integrative learning, which will

contribute to increasing the postgraduate students' multicultural level.

5. Summary review

Thus, the diagnostic examination revealed a sufficient level of readiness of the doctors of philosophy training in the field of architecture for integrative learning, as well as a rather low self-assessment of the knowledge of postgraduate students regarding its implementation. Based on the data, generalized assessments of the integrative learning of postgraduate students were obtained:

1. speech preparation of doctors of philosophy in the field of architecture;
2. motivation for the implementation of integrative learning;
3. cultural aspect of the implementation of integrative learning;
4. situational component (implementation of integrative learning under certain conditions and in certain cases);
5. personal component (subjective opinion about the implementation of integrative learning).

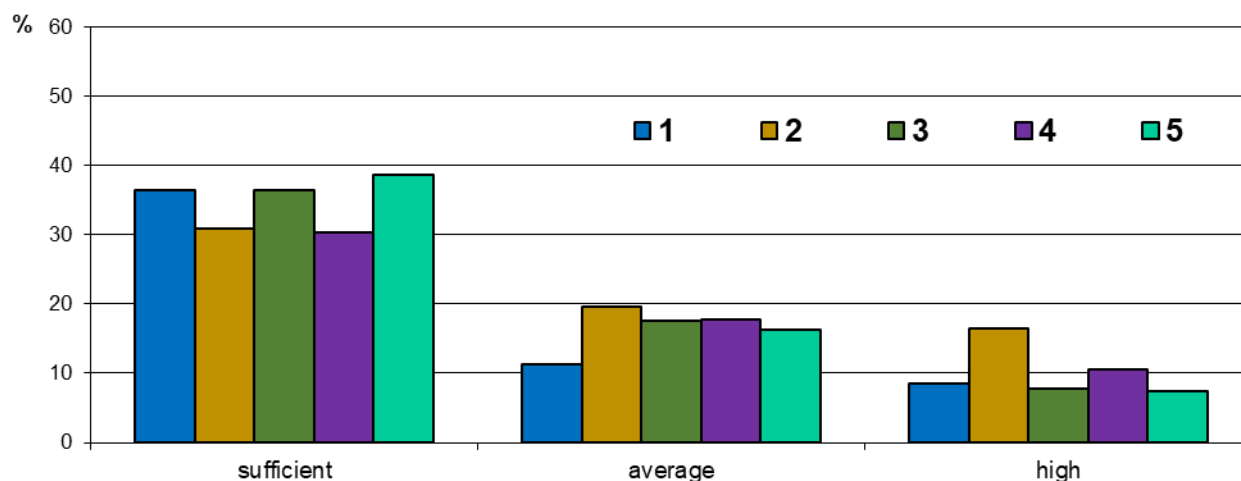


Fig. 3. Generalized assessment of postgraduate students' integrative training

The analysis of the obtained data allows us to draw a conclusion about the feasibility of implementing integrative learning in the process of doctors of philosophy training in the field of architecture.

Discussion

Teachers see ways to optimize the practical implementation of integrative learning, primarily through educational and methodological developments; exchange of experience; advanced training courses; specialists training; teachers' independent creative search.

The readiness of postgraduate students for professional activity implies, as a mandatory component, a focus on professional self-knowledge, self-improvement. Its basis is the need for self-education, the formation of skills and abilities for independent work, the presence of self-control, adequate self-assessment of their preparation, corrective activity in the process of mastering the profession as an important condition for mastering other professionally important skills and abilities.

The comparison with the results of other authors shows that the problem of integrative education in the doctors of philosophy training in architecture has not yet been considered in the pedagogical literature.

Overall, our results are consistent at a conceptual level with the positions of educational scholars who study this problem at the level of higher education institutions, lyceums, colleges, and secondary schools.

Conclusions

The solution to the problem of introducing future doctors of philosophy in the field of the history of architecture involves providing the future architect with the opportunity to study some of the special disciplines in Polish.

The substantive aspect of the study was the professional competencies of the professional direction,

which are formed within the framework of the discipline "Restoration of architectural monuments and urban planning, reconstruction of architectural objects".

Teachers increasingly understand integrative education as a tool for forming an individual's holistic vision of the world, but they complain about the lack of mechanisms for its implementation. A significant percentage of postgraduate students understand the need to take into account the multicultural space in which a person is educated as a future professional.

A positive result of the implementation of the author's ideas is that as a result, the future doctor of philosophy in architecture will have expanded opportunities for professional development: work in the state archives of Ukraine and Poland; direct communication with representatives of Polish nationality, who can provide important interesting information; access to family archives, in Polish; etc.

It is obvious that the requests of other national minorities are also relevant in Ukraine, however, in the conditions of the Western region, it is the Polish language that has an undoubted priority. At the same time, a number of related problems require further research, in particular, the integrative training of postgraduate students of other professions.

The results we obtained can be particularly used in practice as educational materials, questionnaires, recommendations, etc.

However, we note that this study is widely-spread due to its specificity, since it concerns only one of the national minorities in Ukraine (Poles), as well as the doctors of philosophy training in architecture.

At the same time, the conceptual ideas of our study allow us to use a number of provisions and partially educational materials for the postgraduate students training of other professions.

The impact of martial law in Ukraine also imposed certain limitations, in particular, changes in the education system, legislative changes, changes in learning conditions (distance education), etc.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this study, including financial, personal, authorship, or any other, that could affect the study and its results presented in this article.

Use of artificial intelligence

The authors confirm that they did not use artificial intelligence technologies when creating the presented work.

References

1. Aronin L. Singleton, L. (2019) What is Multilingualism? Twelve lectures in multilingualism. 2019. P. 3-34. <https://doi.org/10.21832/9781788922074-003>
2. Bialystok E., Fergus I.M. Craik, and Gigi Luk. (2012). Bilingualism: Consequences for Mind and Brain. *Trends Cogn Sci.* Apr; 16(4): 240–250. <https://doi.org/10.1016/j.tics.2012.03.001>
3. Bialystok E., Tej K. Bhatia, William C. Ritchie. (2012). The Impact of Bilingualism on Language and Literacy Development. <https://doi.org/10.1002/9781118332382.ch25> Citations: 11
4. Bialystok, E. (2021). Cognitive effects of bilingualism: An evolving perspective. In W. S. Francis (Ed.), *Bilingualism across the lifespan: Opportunities and challenges for cognitive research in a global society* (pp. 9–28). Routledge/Taylor & Francis Group.
5. Cummins, J. (2022). Rethinking bilingual education: Language immersion and language maintenance in multilingual societies. *Journal of Multilingual and Multicultural Development*, 43(5), 587-600.
6. Diaz Mendoza, M.A., De La Hoz Franco, E., & Gómez Gómez, J.E., (2023), Technologies for the Preservation of Cultural Heritage. A Systematic Review of the Literature, *Sustainability*, 15(2), 1059; <https://doi.org/10.3390/su15021059>.
7. Drobakha, L. (2021). National-kulturelle Besonderheiten der Weltanschauung im sprachlichen Weltbild (The national cultural worldview's peculiarities in the language picture of the world). *Linguistica Silesiana*, 42. 307–331. <https://doi.org/10.24425/linsi.2021.137242>
8. Garcia, O., & Wei, L. (2021). *Translanguaging: Language, bilingualism, and education*. Palgrave Macmillan.

9. Kolomiets, A. M., et al. (2022). Methods of Forming the Future Designers' Readiness for Professional and Scientific Research Activities. *The New Educational Review*, 68, 48-59. <https://doi.org/10.15804/tner.22.68.2.03>
10. Mamat, N., Hashim, A. T., Razalli, A. R., & Awang, M. M. (2022). Multicultural Pedagogy: Strengthening Social Interaction Among Multi-Ethnic Pre-School Children. *The New Educational Review*, 67, 56–67. <https://doi.org/10.15804/tner.22.67.1.04>
11. Mandel, B.R., & Lambert, P., D. (2020) International Arts/Cultural Management: Global Perspectives on Strategies, Competencies, and Education. *The Journal of Arts Management, Law, and Society*. 50(4–)5, 249–266. <https://doi.org/10.1080/10632921.2020.1771495> .
12. Naparan, G. B., & Gadong, A. I. (2021). The Roles of Elementary Teachers in Addressing Cultural Indifferences in the Classroom. *The New Educational Review*, 64, 188–197. <https://doi.org/10.15804/tner.21.64.2.16>
13. Nocus, I. (2024). Bilingualism of Children in Different Multilingual Contexts. MDPI.
14. Porter, L., Vazquez Cano, M., & Umansky, I. (2023). Bilingual Education and America's Future: Evidence and Pathways. Civil Rights Project - Proyecto Derechos Civiles.
15. Said, F. F. S. (2024). Bilingual Language Education as Key to Sustainable Knowledge Production for the Knowledge Economy in the Gulf. In S. Baroudi & M. D. Lytras (Eds.), *Transformative Leadership and Sustainable Innovation in Education: Interdisciplinary Perspectives*. Emerald Publishing.
16. Sánchez-Pérez, M. M., & Manzano-Agugliaro, F. (2021). Worldwide Trends in Bilingual Education Research: A Half-Century Overview.
17. Seiko, N., Sytniakivska, S., & Pavlyk, N. (2021). Technologies in bilingual training of social sphere specialists. *Social work and social education*, 2(7), 240–250. [https://doi.org/10.31499/2618-0715.2\(7\).2021.244844](https://doi.org/10.31499/2618-0715.2(7).2021.244844)
18. Skupa, M., Sukolova, D., & Pavlov, I. (2021). Ethical Competences of Trainers Continuing Professional Development. *The New Educational Review*, 63, 191–202. <https://doi.org/10.15804/tner.21.63.1.15>
19. UNESCO (2024). Multilingual Education: A Key to Quality and Inclusive Learning.
20. Xia, T., An, Y., & Guo, J. (2022). Bilingualism and creativity: Benefits from cognitive inhibition and cognitive flexibility. *Frontiers in Psychology*.