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The development of educational gerontology in Ukraine under martial law

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Abstract. The full-scale military invasion of the Russian Federation aggressor country into Ukraine has led to the mobilisation of Ukrainian citizens of the draft age and caused a reduction in the labour market of young and middle-aged specialists. To support the labour market and economy of Ukraine, the need arose to introduce elderly people into the educational system. Therefore, the main aim of this article was to determine the specific grounds for developing educational gerontology during the full-scale military invasion of Ukraine. The data for the research were assessed using quantitative and qualitative methods, including questionnaires, observation, and analysis of data and documents. The study of the main fields of educational gerontology chosen by elderly people revealed the following: digital technology, management, health and wellness, language and culture, creative arts, engineering and infrastructure, agriculture, and logistics and supply. Researchers of educational gerontology in the USA and European countries (including Ukraine up to February 2022) identified the main reasons for the need to include elderly persons in the educational process, namely: loneliness, mental health support, and socialisation. After February 2022, the main reasons for including the elderly in the educational process expanded to include the shortage of specialists in various fields of the economy due to the mobilisation of young and middle-aged adults into the Armed Forces of Ukraine, the tragic loss of life from the bombings of Ukrainian cities and villages, and the outflow of human resources abroad. These circumstances necessitate the development of adult learning strategies and the establishment of a network of educational gerontology institutes, which will provide mental health support for the elderly and include them in the socio-economic environment

Keywords: adult education; digital education; mobilisation; outflow of human resources; learning strategies; country's economic support

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INTRODUCTION

Since the early 1960s, there has been a steady increase in interest in the education and training of elderly people. Education for the elderly is about remaining curious, seeking out new information, and adapting to new challenges and changes. Continuous learning can enhance personal growth, professional development, and overall well-being.

It allows individuals to stay relevant in an ever-changing world, keep their minds sharp, and open up new opportunities for personal and career advancement. Embracing lifelong learning is essential in today's fast-paced and dynamic society. Additionally, acquiring new skills and knowledge can improve job prospects and financial stability, leading to



decreased stress levels and a healthier lifestyle. Moreover, continuous learning contributes to a longer, healthier, and more fulfilling life. Studies have shown that keeping the brain active through activities like reading, learning new skills, and engaging in social interactions can help maintain cognitive functioning and potentially decrease the risk of developing dementia.

Researchers investigating the primary reasons for the development of educational gerontology have identified improvements in the mental health and well-being of elderly people through their inclusion in the educational process. In the USA and Europe, adhering to global trends, a wide range of services is provided to meet the diverse needs and interests of elderly individuals. These services include meal programmes, referral assistance, health services, recreational workshops, volunteering opportunities, learning programmes, employee assistance, and intergenerational activities (Formosa & Galea, 2020). Moreover, N. James & V. Thériault (2020) discovered in their article that despite the global challenge of COVID-19, the adult learning sector, while facing particularly difficult financial conditions, continues to demonstrate its resilience by going above and beyond to provide flexible, learner-centred solutions to keep adults in education and reach the most vulnerable groups. They also found that local authority adult education services produced online responses that reduced isolation and improved mental health and well-being. Recent studies have discussed learning needs in healthy and active ageing. This study reports on consultations with prospective students, employers, older people, and academics regarding the knowledge areas to be included in the course. An anonymous online survey gathered data from participants and stakeholders in Ireland, Slovenia, Austria, Portugal, Finland, and Greece. Participants ranked the importance of 14 broad knowledge areas and linked topics. The influence of participant characteristics on decisions was examined using multivariate regression modelling. Across all stakeholder groups (total sample $N = 757$), health promotion was most often deemed very important (80%), followed by psychology (73%), and social inclusion and engagement (71%) (Wiggin *et al.*, 2023). Researchers in the field of educational gerontology aspire to improve the quality of education and, beyond that, the quality of life for seniors, addressing unique challenges they face as they age (Boeren, 2018; Menéndez *et al.*, 2018). Furthermore, E. Boeren (2018) sought to better understand the situation in educational gerontology by reviewing journal articles reporting on research in this field. Differences in methodological strengths and weaknesses between formal education and educational gerontology were discussed, followed by a data mining exercise on 1,089 journal articles published in *Adult Education Quarterly* and *Studies in Continuing Education*.

Moreover, a group of scientists, led by S. Menéndez *et al.* (2018), conducted a systematic review of scientific literature published between 1980 and May 2017 across various databases (ProQuest Psychology Journal, ERIC, Sociological Abstracts, and Social Science Citation Index),

from which 1,663 works were extracted. By analysing the articles and their main themes, they identified a specific profile of educational gerontology students, their reasons for attending (health and well-being, social inclusion and engagement), the perceived benefits of attending, and several factors that could be optimised in research in these areas of formal education, particularly the methodological aspects. Empirical research focusing on university programmes designed for older people in Europe is currently at an early stage and requires further development. Educational gerontology is a field that also focuses on the health and well-being of seniors. It includes a wide range of topics, encompassing age-related health conditions, social issues, and healthcare services for senior adults.

Researchers M. Formosa & R. Galea (2020) analysed the educational gerontological programme for individuals attending a Maltese senior centre. Pretest-posttest focus groups found the learning programme to be successful in improving learners' levels of personal empowerment and helping to maintain mental well-being. Educational gerontology remains firmly rooted in the "successful ageing" paradigm, which seeks to overcome the challenges associated with the later stages of life, often characterised by ill-health and loss of socialisation. The authors hoped that this research project would act as a catalyst for future studies in educational gerontology, framed within a fourth-age social field. Lifelong learning is the concept of continuously acquiring new knowledge and skills one's entire life, not just during formal education. Additionally, staying physically active, consuming healthy food, getting enough sleep, and managing ageing stress are also important factors in maintaining brain health. This article aimed to summarise research that identifies the main reasons for the existence of educational gerontology around the world, with a focus on creating equitable educational environments for elderly people. It also seeks to explore the specific factors driving the increased necessity for the development of educational gerontology during the full-scale military invasion of Ukraine.

MATERIALS AND METHODS

The academic article employed both quantitative and qualitative methods, including surveys, observation, and data and document analysis. The individual surveys were conducted during the periods 2020-2022 and 2022-2024, using correspondence, Google Forms, and paper questionnaires. The survey included a combination of multiple-choice and open-ended questions to gather both quantitative and qualitative data. The survey was anonymous and contained six questions (sex, age, educational level, place of residence, involvement in the educational process, and field of educational programme). During the survey, all ethical standards of the Declaration of Helsinki (2013) were observed, and all participants were informed about how their provided information would be used. The purpose of the survey was to assess the level of participation in educational gerontology and the selection of fields in educational programmes. Additionally, the study utilised the experiences of the USA,

Europe, and Ukraine in organising educational gerontology systems. An analysis was conducted on 102 questionnaires from elderly individuals filled out during the COVID-19 pandemic. The age range of participants was 60 to 86 years, with an average age of 69 ± 1.2 years. Most elderly individuals (78%) were involved in educational gerontology. The study of participants' educational levels showed that 17.6 % of respondents had doctoral degrees, 29% had higher education, 35.3% had secondary specialised education, and 18.1% had general secondary education. The analysis of place of residence revealed that 74.5% lived in urban areas, and 25.5% in rural areas. Furthermore, during the martial law period, an analysis of 118 questionnaires from elderly individuals was conducted. The study found that the number of men involved had increased by 42%, compared to 26% previously, while the number of women involved had decreased by 36%, compared to 52%. The age range remained 60 to 86 years, with an average age of 69 ± 1.2 years. Most elderly individuals (77.9%) were involved in educational gerontology. The study of participants' educational levels showed that 10% of respondents had doctoral degrees, 31% had higher education, 39% had secondary specialised education, and 20% had general secondary education. According to the figures, the analysis of place of residence revealed that 68% lived in urban areas, and 32% in rural areas. The study also noted that the percentage of rural residents had increased by 32%. In addition, the figures showed a rise in the participation of elderly individuals aged 66-76 years in educational gerontology. After a detailed analysis of each experience, comparisons were made based on sex, age, educational level, field of study, and place of residence. The comparison was based on a set of key indicators, including those from European, USA, and Ukrainian educational gerontology in the following categories: sex, age, educational level, field of study, and place of residence. A statistical analysis was conducted to calculate the quantitative correlation between the main categories of elderly individuals involved in educational gerontology and the range of fields they studied. The study also analysed the international aspect of educational gerontology, focusing on support for older adults who migrated to new countries or communities due to the full-scale military invasion by the aggressor country into Ukraine. The analytical analysis of a survey of employers conducted in 2024 through the Ukrainian platform Robota.ua was used to examine labour market data regarding the shortage of specialists in various fields.

RESULTS

Educational gerontology in Europe is diverse and varies from country to country. A significant number of European countries have well-established systems of educational gerontology or adult education, offering a range of programmes and courses to help seniors further their education and develop new skills. Some countries, such as Sweden and Finland, have a strong tradition of lifelong learning, and adult education is widely accessible. In recent years, there has been a growing emphasis on digital skills and lifelong

learning initiatives across Europe aimed at upskilling adults for the future job market. Additionally, many European institutions also offer education programmes in areas such as language learning, vocational training, management, and personal development. Overall, educational gerontology in Europe plays a crucial role in promoting social inclusion, enhancing employability, and fostering personal growth. It is an important tool for empowering individuals and building a more skilled and knowledgeable workforce. Gerontology includes the study of social, cultural, psychological, cognitive, and biological aspects of ageing. Two main types of gerontology can be distinguished: social gerontology and biogerontology. Biogerontology focuses on the biological aspects of ageing. Social gerontology studies the social aspects of ageing and older adults. It examines how societies perceive and treat seniors, as well as the social factors influencing the ageing process. This field explores topics such as retirement, social support, intergenerational relationships, elder abuse, and ageism. Researchers in social gerontology aim to understand how ageing is impacted by social structures and practices, and how seniors navigate societal changes as they age. Social gerontology involves advocating for policies and programmes that support the needs of older people, such as access to healthcare, social services, housing, education, and employment opportunities. The purpose of social gerontology is to ensure that seniors can age with dignity and receive the support they need to live fulfilling lives. It is also essential to develop the social aspects of ageing and design programmes that offer social engagement, inclusion, and meaningful relationships among older adults. The study of cognitive ageing seeks to understand how cognitive functions change with age and to develop strategies for maintaining cognitive health through educational interventions. According to the UNESCO Institute for Lifelong Learning (2019), adult education can be categorised into three main types: literacy and foundational skills; continuing education and professional training focused on vocational abilities; and liberal, popular, and community education, which highlights the importance of skills for active citizenship. The right to higher education is guaranteed regardless of age, citizenship, place of residence, sex, colour, social and property status, nationality, language, origin, health status, attitude to religion, criminal record, as well as other circumstances. No one can be limited in the right to higher education, except in cases established by the Constitution and laws of Ukraine (The Law of Ukraine "On Higher Education"). In the United States and Europe, adult education programmes serve a diverse range of age groups, including young adults (ages 18-30) who may be looking for high school equivalency or vocational training; middle-aged adults (ages 31-59) who may seek further education for career advancement or personal development; and older adults (60 and above) who may be interested in lifelong learning opportunities or skill development post-retirement. This range of age groups is a general breakdown, and adult education programmes can serve individuals of various ages with different learning goals and needs.

Educational gerontology refers to the study of ageing and its impact on the educational process. It aims to clarify understanding of how individuals of different ages learn, teaching strategies that meet the needs of elderly learners, and the role of education in promoting healthy ageing. In the field of gerontology, educators work to create inclusive and age-friendly learning environments that support lifelong learning for older adults. This can involve designing curricula that acknowledge the diverse needs and experiences of older learners, as well as incorporating technologies that facilitate learning for individuals of all ages. Overall, educational gerontology seeks to enhance the educational opportunities and experiences of elderly persons. Educational gerontology also refers to the study and practice of designing and implementing educational programs specifically tailored to meet the needs and interests of elders. These programmes are aimed at promoting lifelong learning, enhancing cognitive abilities, and encouraging social interactions among elders to improve their overall quality of life. Educational gerontology seeks to create engaging and stimulating educational experiences that empower individuals to continue growing and thriving as they age by understanding their unique learning styles and preferences.

In Europe, educational gerontology is organised by a variety of institutions and organisations, including universities and colleges, non-profit organisations, government agencies, private companies, and online platforms. Higher education institutions provide a wide range of lifelong learning programmes for elderly persons, including continuing education courses, distance learning programmes and vocational training. A significant number of non-governmental organisations such as the International Association of Universities of the Third Age (I.A.U.T.A.) and community groups like the Educational Gerontology Special Interest Group (SIG) in Europe, offer educational gerontology programmes to support personal and professional development. I.A.U.T.A. unites universities for seniors from all continents. For over four decades, it has championed the cause of the elderly through lifelong education, promoting university exchanges and, most importantly, fostering innovations in education and scientific research to help everyone find their place in society. Furthermore, in Ukraine, the non-governmental organisation "Association of Universities of the Third Age "Clepsydra" was established. The purpose of this organisation is to ensure the sustainable development of the universities of the third age system by involving older people in the socio-economic development of Ukraine and promoting active longevity. In addition, national and government institutions often supply funding and support for senior education initiatives, including language courses, job training programmes and computer literacy classes. Some European businesses (e.g., TechWolf, Reforge, STRIVR) offer workplace training and skills development programmes for their employees to enhance their knowledge and capabilities. Such companies provide skill infrastructure powered by AI and APIs to enhance existing platforms with high-quality skill data. By

integrating with the systems where employees perform their work, TechWolf ensures accurate and up-to-date skill information, enabling organisations to quickly infer the skills of positions, identify gaps, and analyse skills data to discover trends and opportunities for educational development and improvement. This also tracks progress towards the companies' goals. With the rise of digital technology, online learning platforms have become increasingly popular, especially for elderly persons seeking to acquire new skills or knowledge to support their psychological and physical well-being. The European researchers Gwyneth Allatt and Lyn Tett found that skills-related education is prioritised, with a focus on economic growth through increased productivity and accountability. As revealed, educational gerontology in Europe is diverse and inclusive, with various stakeholders working together to provide accessible and high-quality learning opportunities for elderly persons across the continent.

Educational gerontology in the USA refers to educational programmes that help elderly persons improve their literacy, numeracy, and basic skills. These programmes are often offered in community colleges, adult education centres and online platforms. They cover a range of subjects, including English as a Second Language (ESL), GED preparation, vocational training, and computer skills. Educational gerontology is important for helping adults to further their career opportunities, pursue higher education, improve their quality of life, and assist in psychological adaptation. In addition, a group of scientists emphasises the importance of lifelong learning to support citizenship education, enable opportunities for everyone, and foster participation in the complex decision-making processes needed to create a sustainable world (Tang, 2017; Webb *et al.*, 2019). Furthermore, increasing lifelong learning and local problem-solving may be key to dynamic social improvements and ultimately a more stable and successful society (Zhang & Perkins, 2022).

The promotion of educational gerontology in the USA is comprehensive and integrated, offering a variety of institutions, programmes and initiatives. The institutions of educational gerontology include community colleges, universities, adult education centres, non-profit organisations and online learning platforms. Universities and colleges in the USA provide continuing education programs for elderly persons, including certificate programmes, professional development courses, and degree completion programmes. Additionally, community colleges offer a wide range of programmes such as adult basic education (ABE), English as a Second Language (ESL), high school equivalency (GED), and vocational training. Adult education centres offer courses and services designed specifically for elderly learners, such as literacy classes, job training, and career counselling. The National Coalition for Literacy and Pro-Literacy supplies resources, advocacy, and support for elderly persons' education programmes throughout the USA. With the rise of online education, numerous platforms offer senior education courses and programmes facilitating

access to educational opportunities for elderly persons from anywhere. The main characteristics of senior education in the USA reflect a commitment to lifelong learning, skill development, community engagement, and psychological support. The main reasons for senior education in the USA include providing opportunities for lifelong learning and skill development for those who did not have the opportunity to complete their education earlier in life or who desire to advance their careers. Additionally, some factors encourage people to join educational gerontology programmes, including loneliness, mental health support, and socialisation. As a result, educational opportunities for elderly persons aim to empower seniors to achieve their personal and professional goals, avoid loneliness and mental health issues, and contribute to society in meaningful ways.

The reasons for the existence of educational gerontology in Ukraine are similar to those elsewhere, such as providing elderly persons with the opportunity to continue their learning and development in addition to formal education, including the acquisition of new skills for personal and professional advancement, improving job prospects, or even pursuing intellectual interests. Educational gerontology is regarded as a means to promote lifelong learning and to ensure that elderly persons have the educational resources needed to adapt to changes in the workforce and society. That is why various programmes and initiatives are offered to different age groups. There are senior learning centres and senior education courses specifically designed for elderly persons who wish to learn new skills, pursue hobbies, or simply keep their minds active. Ukrainian researchers have found that the education of elderly people is an indicator of the cultural, moral, scientific, and technical development of the country. In particular, the Concept of Adult Education in Ukraine outlines the importance of adult education in the country. Ukrainian scholar O. Anishchenko (2021) also notes that Third Age universities operate across all regions of Ukraine as social projects promoting the principles of lifelong learning. The most common areas of study include linguistics, psychology, health, information and

communication, law, economics, the arts, and more. Educational gerontology focuses specifically on understanding the learning needs and capabilities of older adults, typically those aged 60 and older, while adult education is a broader field that encompasses education for adults of all ages. Educational gerontology is more concerned with the unique developmental, cognitive, social, and emotional aspects of ageing, whereas adult education may cover a wide range of topics and approaches for adult learners of various ages and backgrounds. Furthermore, educational gerontology often emphasises promoting positive ageing and enhancing the quality of life in older adults through education and may also focus on professional development, personal enrichment, and literacy skills.

Elderly persons choose lifelong learning in a wide range of fields, such as digital technology, business and finance, management, health and wellness, language and culture, creative arts, personal development, science, and the environment. In the field of digital technology, elderly persons often elect to enhance or continue learning about new technologies, software, and programming languages to stay up-to-date in the rapidly changing digital landscape. Pursuing further education in business management, accounting, economics, or investing can advance their careers or help them start their own businesses. A healthy lifestyle can support learning in educational fields such as nutrition, exercise science, mental health, and holistic wellness. To express themselves creatively, explore new passions, and even find a favourite hobby, elderly persons can choose to learn in areas such as visual arts, music, writing, or design. Learning new languages or deepening their knowledge of different cultures can broaden perspectives and facilitate cross-cultural communication. Similarly, lifelong learners often engage in personal development courses to improve skills such as communication, leadership, time management, or emotional intelligence. Additionally, elderly persons interested in science and environmental issues may choose to develop further education in fields such as biology, environmental science, and sustainability.

Table 1. Characteristics of study participants involved in educational gerontology, 2020-2022

Variable	Number of participants	Involved in educational gerontology	
		yes	no
Sex, n%			
Male	39 (38%)	27 (26%)	12 (12%)
Female	63 (62%)	53 (52%)	10 (10%)
Age, n%			
60-65	46	44 (43%)	2 (2%)
66-70	22	16 (16%)	6 (6%)
71-76	23	13 (13%)	10 (9%)
77-81	7	7 (7%)	0 (0%)
82-86	4	0 (0%)	4 (4%)
Educational level, n%			
Secondary school	18	7 (7%)	11 (11%)

Table 1. Continued

Variable	Number of participants	Involved in educational gerontology	
		yes	no
Secondary special	36	34 (33%)	2 (2%)
High	30	22 (21.5%)	8 (8%)
Doctorates	18	17 (16.5%)	1 (1%)
Place of residence, n%			
Urban	76	72 (70.5%)	4 (4%)
Rural	26	8 (8%)	18 (17.5%)

Source: developed by the authors

The data in Table 1 demonstrate that 78% of respondents were involved in educational gerontology, of whom 26% were male and 52% were female. In exploring the age groups of participants, it was established that the group aged 60-65 dominated, comprising 43%. The smallest age group was that of participants aged 77-81, which constituted 7%. Moreover, there were no participants aged 82-86. Analysis

of the groups according to educational level revealed that the largest group of participants possessed secondary special education (33%), while the smallest group had secondary education (7%). A review of the place of residence indicated that the urban group dominated, making up 70.5%. The data in Table 2 represent the main fields in educational gerontology and the number of participants involved in each.

Table 2. Characteristics of the range of fields in educational gerontology, 2020-2022

Variable	Number of participants	Digital technology	Range of fields			
			Management	Health and wellness	Language and culture	Creative arts
Sex. n%						
Male	27 (34%)	16 (59%)	4 (15%)	5 (19%)	2 (7%)	0 (0%)
Female	53 (66%)	13 (24%)	8(15%)	10 (19%)	12 (23%)	10 (19%)
Age. n%						
60-65	44	23 (29%)	11 (14%)	1 (1%)	7 (8.75%)	2 (3%)
66-70	16	5 (6%)	1 (1%)	5 (6%)	4 (4.75%)	1 (1%)
71-76	13	1 (1%)	0 (0%)	7 (8.75%)	2 (3%)	3 (3.75%)
77-81	7	0 (0 %)	0 (0%)	2 (3%)	1 (1%)	4 (4.75%)
81-86	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Educational level. n%						
Secondary school	7	2 (28.6%)	0 (0%)	0 (0%)	0 (0%)	5 (71.4%)
Secondary special	34	18 (53%)	1 (2.9%)	7 (20.6%)	6 (17.6%)	2 (5.9%)
High	22	4 (18%)	5 (22.7%)	6 (27.3%)	5 (22.7%)	2 (8.3%)
Doctorates	17	5 (29%)	6 (35%)	2 (11.8%)	3 (17.6%)	1 (6.6%)
Place of residence. n%						
Urban	72	27 (37.5%)	12 (16.7%)	13 (18%)	14 (19%)	6 (8.8%)
Rural	8	2 (25%)	0	2	0	4 (75%)

Source: developed by the authors

The analysis of 80 questionnaires from elderly people who were involved in educational gerontology identified the main ranges of fields in educational gerontology, including digital technology (36%), management (15%), health and wellness (18.75%), language and culture (17.5%), and creative arts (12.5%). Elderly individuals aged 60 to 65 years

chose fields such as digital technology (29%), management (14%), and language and culture (8.7%). Those aged 66 to 70 mainly preferred fields such as digital technology (6%), health and wellness (6%), and language and culture (4.75%). Participants aged 71 to 76 primarily selected fields such as health and wellness (8.75%), creative arts (3.75%),

and language and culture (3%). Individuals aged 77 to 81 largely opted for fields such as creative arts (4.75%), health and wellness (3%), and language and culture (1%). The study of the educational levels of participants revealed that respondents with doctoral degrees mostly chose management (35%) and digital technology (29%). Respondents with higher education primarily selected health and wellness (27.3%) and language and culture (22.7%). Those with secondary special education opted for digital technology (53%) and health and wellness (20.6%), while participants with general secondary education preferred creative arts (71.4%) and digital technology (28.6%). The analysis of place of residence showed that urban residents primarily selected digital technology (37.5%), while rural residents mainly chose creative arts (75%).

In elderly education, the organisation of practical classes varies from traditional practical class settings in several ways, such as flexible scheduling, hands-on learning, individualised instruction, collaborating learning, and a focus on practical outcomes. Practical classes in educational gerontology are typically designed to provide individualised instruction and support to meet the unique needs of each learner. Moreover, flexible schedules are often offered during evenings and weekends to accommodate the busy schedules of elderly learners who may be working full-time or caring for their families. Additionally, practical classes focus on real-world skills and hands-on learning experiences that apply to the learner's professional or personal lives. Such types of learning include activities such as workshops, simulations, and group projects. Furthermore, elderly learners often have diverse backgrounds, experiences, and learning styles. Practical classes often emphasise collaborative learning experiences, where learners work together in groups to solve problems, share ideas, and learn from each other's experiences. In contrast to the traditional organisation of classes, senior education prioritises practical classes aimed at achieving practical outcomes and skills that can be applied immediately in the learner's lives or workplaces.

Promoting inclusion in gerontology education can help elderly people remain intellectually engaged, socially connected, and emotionally fulfilled as they continue to learn and grow throughout their lives. Moreover, designing educational settings and technologies that are accessible and accommodating for elderly persons should encompass

age-friendly environments, considering their unique needs and preferences. The concept of educational gerontology reflects the processes in which elderly people are engaged, both individually and in cooperation with others, and as a result, they integrate their own ways of knowing. Educational gerontology encompasses different areas, such as lifelong learning, cognitive ageing, social gerontology, and age-friendly environments. Lifelong learning promotes continuous learning opportunities for elderly persons to boost their cognitive abilities, acquire new skills, and participate in social activities (Pardasani & Thompson, 2012).

This study also identified key reasons for the increased importance of educational gerontology in Ukraine after the full-scale military invasion of Russia. According to labour market data, the mobilisation of young and middle-aged adults to the Armed Forces of Ukraine, combined with the tragic loss of numerous lives due to the bombings of Ukrainian cities and villages, has created a shortage of specialists in various fields. This lack of specialists is putting a strain on the Ukrainian labour market and economy. This situation has necessitated support for the country's economy by attracting and encouraging elderly persons to enter the labour market and, accordingly, to the educational process. Thus, the development of educational gerontology is very pertinent. Some sectors of the country's economy are generally more affected due to the loss of professionals and the overall impact of the situation. According to labour market statistics, the shortage of specialists is evident in fields such as healthcare, engineering and infrastructure, digital technology, education, agriculture, logistics, and supply. A survey conducted by the Ukrainian platform Robota.ua in 2024 revealed the following data: 32.4% of companies experienced a reduction of specialists by 1-5 employees (13%), while 19.4% of companies reported a reduction of 5 or more employees (20%). 75.1% of respondents noted the existence of a shortage of qualified specialists in the labour market. To overcome this shortage, employers are implementing various measures, including the retraining of employees (53.5%), automation of processes (23.9%), creating programmes for elderly persons (8.8%), and hiring specialists from other countries (3.6%) (What do you need to know..., 2024). The data in Table 3 demonstrate the study of participants involved in educational gerontology during 2022-2024.

Table 3. Characteristics of study participants involved in educational gerontology, 2022-2024

Variable	Number of participants	Involved in educational gerontology	
		yes	no
Sex, n%			
Male	61 (52%)	49 (80%)	12 (20%)
Female	57 (48%)	43 (75%)	14 (25%)
Age, n%			
60-65	48	43 (89%)	5 (11%)
66-70	37	28 (76%)	9 (24%)
71-76	25	17 (68%)	8 (32%)

Table 3. Continued

Variable	Number of participants	Involved in educational gerontology	
		yes	no
77-81	6	4 (67 %)	2 (33%)
81-86	2	0 (0%)	2 (100%)
Educational level, n%			
Secondary school	24	14 (58%)	10 (42%)
Secondary special	46	42 (91%)	4 (9%)
High	36	29 (81%)	7 (19%)
Doctorates	12	7 (58%)	5 (42%)
Place of residence, n%			
Urban	80	68 (85%)	12 (15%)
Rural	38	24 (58%)	14 (42%)

Source: developed by the authors

An analysis of 118 questionnaires from elderly people filled out during martial law revealed that there were fewer women in the study – 57 and men – 61, which amounted to 48% and 52%, respectively. The study found that the number of involved men had increased by 42%, while the number of involved women had decreased by 36%. The age range was from 60 to 86 years, with an average age of 69 ± 1.2 years. Most elderly persons (77.9%) were involved in educational gerontology. The study of the educational level of participants showed that 10% of respondents had

doctoral degrees, 31% had higher education, 39% had secondary special education, and 20 % had general secondary education. According to the data, the analysis of place of residence showed that 68% were urban and 32% rural. The study also claims that the percentage of rural residents has risen by 32%. In addition, the number of elderly persons involved in educational gerontology has risen among those aged 66 to 76 years. The data in Table 4 show the main fields in educational gerontology and the number of participants involved in each during 2022-2024.

Table 4. Characteristics of study participants in the range of fields in educational gerontology, 2022-2024

Variable	Number of participants	Digital technology	Engineering and infrastructure	Range of fields Agriculture	Language and culture	Logistics and supply
Sex, n%						
Male	49	18 (37%)	8 (16%)	8 (16%)	10 (20%)	5 (11%)
Female	43	15 (35%)	4 (9%)	0 (0%)	18 (42%)	6 (14%)
Age, n%						
60-65	43	14 (33%)	6 (14%)	4 (9%)	17 (40%)	2 (4%)
66-70	28	9 (32%)	2 (7%)	3 (11%)	8 (29%)	6 (21%)
71-76	17	7 (41%)	3 (18%)	1 (5%)	3 (18%)	3 (18%)
77-81	4	3 (75 %)	1 (25%)	0 (0%)	0 (0%)	0 (0%)
81-86	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Educational level, n%						
Secondary school	14	4 (29%)	0 (0%)	5 (35.5%)	0 (0%)	5(35.5%)
Secondary special	42	14 (33%)	12 (29%)	3 (7%)	7 (17%)	6 (14%)
High	29	11 (38%)	0 (0%)	0 (0%)	18 (62%)	0 (0%)
Doctorates	7	4 (57%)	0 (0%)	0 (0%)	3 (43%)	0 (0%)
Place of residence, n%						
Urban	68	25 (37%)	12 (18%)	0 (0%)	26 (38%)	5 (7%)
Rural	24	8 (33%)	0 (0%)	8 (33%)	2 (9%)	6 (25%)

Source: developed by the authors

The analysis of 92 questionnaires from elderly people who were involved in educational gerontology in Ukraine identified the main areas of the field in educational gerontology during martial law, such as digital technology (36%); engineering and infrastructure (13%); agriculture (9%); language and culture (30%); logistics and supply (12%). According to the labour market demand in Ukraine, the range of fields in educational gerontology has changed. Elderly people aged 60 to 65 years mostly choose fields such as digital technology (33%), engineering and infrastructure (14%), and language and culture (40%). Elderly people aged 66 to 70 years mainly prefer fields such as digital technology (32%), logistics and supply (21%), and language and culture (29%). Elderly people aged 71 to 76 years primarily select fields such as digital technology (41%), engineering and infrastructure (18%), and language and culture (18%). Elderly people aged 77 to 81 years largely opt for fields such as digital technology (75%) and engineering and infrastructure (25%). The study of the educational level of participants showed that respondents with doctorates mostly chose language and culture (43%), and digital technology (57%). Respondents with higher education preferred language and culture (62%) and digital technology (38%), those with secondary special education preferred digital technology (33%) and engineering and infrastructure (29%), and those with general secondary education preferred agriculture (35.5%) and logistics and supply (35.5%). The analysis of place of residence showed that urban residents primarily chose digital technology (37%) and language and culture (38%), while rural residents primarily chose digital technology (33%) and agriculture (33%).

The mobilisation and displacement caused by the conflict have led to a relocation of human resources away from critical sectors, exacerbating shortages and creating new challenges in Ukraine and neighbouring regions. This migration poses a new challenge for educational gerontology as it introduces complexities in providing education and support for older adults who have migrated to new countries or communities. Refugees may face language barriers, cultural differences, and a lack of access to resources tailored to their needs. Educational institutions and programmes in gerontology need to adapt and develop strategies to address the unique needs of this population, such as providing language support, culturally sensitive educational materials, and community resources to help elderly migrants integrate and thrive in their new environment. The primary reasons for migration can vary significantly based on individual circumstances, but some common factors include seeking better economic opportunities, escaping conflict or persecution, pursuing education or job opportunities, reuniting with family members, and searching for better living conditions. Economic factors such as poverty and a lack of job prospects are often cited as major drivers of migration, along with political instability and environmental factors such as natural disasters or climate change. The socio-economic inclusion of Ukrainian refugees in their host communities is crucial for their psychological and economic

well-being. Over the past two years, socio-economic inclusion has been strengthened for refugees.

The vast majority of refugees (74% women and 26% men) went abroad in the spring of 2022 (Ukrainian refugees. Future abroad and plans for return, 2024), during the first wave of mass migration, and hoped to return home within a few months. However, due to the dangerous situation in Ukraine, the duration of migration increased significantly, which necessitated further adaptation in the new country. Barriers to returning to Ukraine include loss of housing, the native settlement's occupation, deterioration of the security situation, and power outages. The best adaptation in the new country was facilitated by factors such as foreign language proficiency, knowledge of a demanded profession, relocating the family together, the presence of useful connections and friends, and the opportunity to join volunteer activities. Conversely, the most common obstacles in the adaptation process include ignorance of the foreign language, performing low-skilled work, and differences in mentality, culture, and lifestyle.

Among female migrants who were forced to go abroad, approximately 24% are women aged 60 and over. Unfortunately, the number of female migrants may increase significantly due to the ongoing fighting within Ukraine, which leads to the destruction of housing, enterprises, and institutions, thereby reducing the number of available jobs. Since female migrants need to support their families, particularly in economic terms, they must adapt as quickly as possible to socio-economic inclusion in countries that have become a refuge for migrants from Ukraine. These circumstances contribute to the development of global educational gerontology, which, through educational support, helps the elderly integrate into the socio-economic environment of the country that has sheltered the refugees. In particular, educational gerontology promotes the development of areas such as linguistics and IT technologies.

The scientific research presented in this paper builds upon the findings of leading scholars. The earliest recorded interest in education for older adults dates back to the 17th century in Jan Amos Komensky's (also known as Comenius) book "Pampaedia", where he introduced a model of lifelong education. Although Comenius' approach to education was normative and moralistic, the significance of his work lies in the fact that it was the first to systematically consider older adults as learners. He proposed self-directed learning as a suitable didactic method for adults (Kern, 2018). Nearly 300 years after Comenius, Wilma T. Donahue (1900-1993) at the University of Michigan revisited the topic, encouraging psychologists to study examples of educational activities for older adults in formal university courses on "adaptation to ageing", and presented innovative telecourses (lifelong programmes) such as "Living in the Later Years: Hobbies Put to Work" (Donahue, 1951). Meanwhile, in Germany, Otto Friedrich Bollnow (1903-1991) took an anthropological orientation, widening the focus on public education and defining the role of education in the older ages. Otto Friedrich Bollnow coined the term gerontology

and understood it as the “theory of education of the elderly” (Bollnow, 1962). American and European researchers devoted their works to a lesser extent to the health of older people and a greater extent to the factors influencing elderly learning. The American scientist David Peterson, in his article, described a model of Educational gerontology and launched a scientific journal with the same name (Peterson, 1980). He characterised his model of older adult education as a “field” with three key features: educational opportunities for interested individuals, public education about ageing, and the education of professionals and practitioners (Peterson, 1980; Volkova *et al.*, 2021). Educational gerontology became, for the next few decades, the main paradigm of older person education and was implemented as an important basis for further research. This model was developed with Frank Glendenning, David Battersby, and Michael Formosa. For three decades, scientists from the USA and Europe discussed the advisability and priority of the use of the terms Gerontology and Educational gerontology (Glendenning, 1989; Lemieux *et al.*, 2000). Some researchers considered that the field of elderly learning should be categorised into five models: Educational Gerontology, Gerontology, Geragogy, and integral permanent education (Kern, 2018). Thus, in German works, the term Gerontology or even Geragogy can be found, whereas in English papers, educational gerontology is used. The French scientist Philippe Carre, in his work, presented educational gerontology as an international science (Carre, 1981). The scientist believed that the goal of lifelong education is inclusion, ensuring that learning opportunities are available to everyone who wishes to pursue education (Carre, 1981). Additionally, in the study of P. Carre and A. Lemieux, the differences between education for young people and education for older adults were discussed, including whether elderly education should be separated. Furthermore, they argued about the differences in the aims and goals between pedagogy, andragogy, and gerontology (Carre, 1981; Lemieux *et al.*, 2000; Formosa, 2017). The scientist Dominique Kern analysed nine models of older adult education from seven different countries and three continents (North America, Europe, and Australia) and focused on the differences between older adult education and education for younger people (Kern, 2018). The article by the scientist Molly Andrews presents an alternative model for examining social activism as a lifelong engagement, particularly in lifelong education (Andrew, 2017). Some researchers have found that educational gerontology promotes emancipatory learning and social change (Hachem *et al.*, 2017). Additionally, recent researcher L. Tett (2023) has demonstrated the specific impact of lifelong learning on mental ill health; moreover, an approach based on the resources and skills within communities and individuals is effective because it promotes resilience that maintains and sustains health. The advantages of lifelong learning for the mental health of elderly persons have been conducted by M. Formosa, D. Kern, S. Webb, and Y. Zhang. Thus, socialisation and links in an educational environment form experiences in

which learners maximise their involvement and learning. Furthermore, taken together, the concepts of learner involvement and positive psychology may have direct implications for building psychological well-being for learners, which can help in overcoming the multiplicity of challenges the elderly learner confronts (Beattie, 2022). Another group of scientists in their research pays attention to personal development as a priority. The life circumstances of older adults, such as having fewer responsibilities, may mean that economic and educational advancement are not their main priorities, with personal growth often being the most significant outcome of their participation (Babb *et al.*, 2021). Sometimes, however, participants prioritise employment outcomes above the elderly learner’s own goals (Allat & Tett, 2019). The Ukrainian scientist O. Anischenko, (2021) considers that among the most common fields those that have linguistic, psychological, health, information and communication, legal, economic, artistic, and other directions can be distinguished. This study, as well as previous ones, identifies the most common fields of educational gerontology, such as digital technology, engineering and infrastructure, agriculture, language and culture, and logistics and supply. Furthermore, this article identifies the main reasons for the necessity of developing educational gerontology during the full-scale military invasion in Ukraine, such as decreasing stress levels, supporting mental health, and ensuring the assistance of the country’s economy by attracting and encouraging elderly persons to the labour market.

The obtained research results regarding the necessity of developing well-established systems of educational gerontology or adult education in Ukraine to provide support for the psychological well-being of seniors, and for the country’s economic assurance. Furthermore, taking into consideration the large number of refugees from Ukraine growing every six months, there is a need to create international programmes for elderly people’s education support, offering a range of programmes and courses to help seniors further their education, develop new skills, become integrated into the socio-economic environment, and ensure psychological well-being assurance.

CONCLUSIONS

The main reasons for developing educational gerontology in Europe and the USA are to provide opportunities for lifelong learning and skill development for persons who did not have the opportunity to complete their education earlier in life or who aspire to advance their careers. In addition, there are some additional reasons prompting people to join educational gerontology programmes, including loneliness, mental health support, and socialisation. Likewise, the same reasons exist for educational gerontology in Ukraine, such as providing elderly persons with the opportunity to continue their learning and development in addition to formal education, including the acquisition of new skills for personal and professional advancement, improving job prospects, or even pursuing intellectual interests.

Furthermore, the study also identified additional grounds for the increasing necessity of educational gerontology in Ukraine after the full-scale military invasion of Russia. Among these additional reasons are the consequences of Ukraine. This situation has created a shortage of specialists in various fields, such as healthcare, engineering and infrastructure, digital technology, education, agriculture, and logistics and supply. Such circumstances require the development of innovative strategies for addressing the educational, health, and social needs of elderly persons as the main supporters of the Ukrainian economy and labour

market. The direction of further research can be used in creating healthcare and rehabilitation programmes, as well as workplace training and skills development programmes.

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CONFLICT OF INTEREST

The authors declare that no potential conflict of interest may affect the objectivity or results of the research presented in this study.

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Розвиток освітньої геронтології в Україні в умовах воєнного стану

Анотація. Повномасштабне військове вторгнення країни-агресора РФ в Україну призвело до мобілізації громадян України призовного віку та спричинило скорочення на ринку праці спеціалістів молодого та середнього віку. З метою підтримки ринку праці та економіки України виникла необхідність у залучення людей похилого віку до освітньої системи. Тому основною метою статті було визначення особливостей розвитку освітньої геронтології під час повномасштабного військового вторгнення в Україну. Дані дослідження були оцінені за допомогою кількісних і якісних методів, включаючи анкетування, спостереження, аналіз даних і документів. Індивідуальне опитування було організовано протягом 2020-2022 та 2022-2024 років шляхом листування, гугл-форми, паперової анкети. Дослідження основних галузей освітньої геронтології, які обирають люди похилого віку виявило такі: цифрові технології, управління, охорона здоров'я та благополуччя, мова та культура, культура і мистецтво, інженерія та інфраструктура, сільське господарство, логістика та постачання. Дослідники освітньої геронтології США та країн Європи (включно з Україною до лютого 2022 року) з'ясували основні причини необхідності розвитку інклюзії літньої людини в освітній процес, а саме: самотність, підтримка психічного здоров'я, соціалізація. Після лютого 2022 року до основних причин необхідності залучення людей похилого віку до навчального процесу додався дефіцит спеціалістів у різних галузях економіки країни внаслідок мобілізації громадян молодого та середнього віку до Збройних Сил України, численні трагічні загибелі внаслідок бомбардування українських міст і сіл, відтік людських ресурсів за кордон. Ці обставини вимагають розробки стратегій навчання дорослих та мережі освітніх геронтологічних інститутів, які сприятимуть забезпеченню підтримки психічного здоров'я людей похилого віку та їх включенню в соціально-економічне середовище

Ключові слова: освіта дорослих; цифрова освіта; мобілізація; відтік людських ресурсів; стратегії навчання; підтримка економіки країни