DOI:10.17951/j.2023.36.3.53-64

ANNALES
UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA
LUBLIN – POLONIA

VOL. XXXVI, 3 SECTIO J 2023

*Berdyansk State Pedagogical University, Faculty of Preschool, Special and Social Education
**Berdyansk State Pedagogical University

ANASTASIIA POPOVA*, YEVHENIIA LYNDINA*, PYLYP POPOV**

ORCID: 0000-0001-5176-0059, kovaleva.anastasia.45@gmail.com
ORCID: 0000-0002-4615-6807, evgeniyalyndinabgpu@gmail.com
ORCID: 0009-007-7458-2081, popov.filipp05@gmail.com

Factors Influencing Scientific Activity of University Faculty Members in Peaceful Pre-COVID-19, COVID-19, and War Periods

Czynniki wpływające na aktywność naukową nauczycieli uczelni w czasach pokojowych przed COVID-19, podczas COVID-19 i w czasie wojny

HOW TO QUOTE THIS PAPER: Popova, A., Lyndina, Y, & Popov, P. (2023). Factors Influencing Scientific Activity of University Faculty Members in Peaceful Pre-COVID-19, COVID-19, and War Periods. *Annales Universitatis Mariae Curie-Skłodowska. Sectio J, Paedagogia-Psychologia*, *36*(3), 53–64. DOI: 10.17951/j.2023.36.3.53-64

ABSTRACT

The article analyzes the scientific activity of university faculty members over the past five years in the context of three periods: before COVID-19, during COVID-19, and during the war in Ukraine. The study was conducted among 26 university faculty members of Berdyansk State Pedagogical University, which is temporarily relocated due to the occupation of the city of Berdyansk. The results show that the most effective period of scientific activity over the past five years was the period of 2021, specifically the second year of COVID-19. The factors that hindered this process during peacetime were analyzed, including excessive workload with organizational and methodological work, and during wartime, emotional exhaustion due to war. The results demonstrate that young university faculty members with less than 10 years of experience are the most active in the field of scientific activity, which did not change and even tended to increase, despite the objective circumstances that affected more experienced colleagues. The alarming dynamics of factors that hinder the scientific activity of university faculty members both in peacetime and in wartime indicate the need to review strategies for university faculty members at the national and university levels.

Keywords: scientific activity; COVID-19; war in Ukraine; university faculty member; university

INTRODUCTION

The scientific activity of faculty members is one of the most significant components of modern scientific progress, which impacts the expansion of scientific knowledge, the development of technologies, the achievement of new advances in various fields of science, and the implementation of innovations in practice. This impact can be tremendous and can contribute significantly to the economic, social, and cultural development of the country.

That is why UNESCO (2008) determined that universities should promote an academic model characterized by the study of problems within their context. At a global level, scientific knowledge produced through active research is crucial for effective activity, as it provides the knowledge and skills necessary to solve problems and progress in society (Adams et al., 2018). It is the basis for evidence-based policy decisions that affect every aspect of our lives (University of Texas at Arlington, 2021). At a more local level, the scientific activity of faculty members has an impact on the quality and prestige of education (Nandi, 2021; Kifor et al., 2023). As "we have entered a society that demands professionals to constantly learn and improve their teaching activities" (Marcelo, 2021, p. 533), a well-organized scientific component is essential. In turn, the organization of a quality scientific component and scientific activity of faculty members requires a set of requirements, including support from university administration, which provides financial support for research and other administrative support. Additionally, a high level of self-organization in the faculty members' work, time-management skills, and constant self-improvement in the field of scientific methods, theories, and practical skills are necessary (Utemov, 2020).

However, faculty members face various challenges during the implementation of their professional activities, which ultimately affect their professional effectiveness. In particular, over the past five years, the world has undergone various dynamic changes that have impacted the effectiveness of teachers. These changes include COVID-19 (Gewin, 2021; Naumann et al., 2022; Pyhältö et al., 2023), Russia's war against Ukraine (Kurapov et al., 2023; Lopatina et al., 2023; Suchikova, 2023; Suchikova & Tsybuliak, 2023), and a constant transformation of Ukraine's educational policy, which affects the list of faculty members' duties and scientific activity, ultimately impacting their effectiveness.

In this regard, it is extremely important to understand the factors that influence the scientific activity of faculty members during times of peace and war. Therefore, the aim of our research is to analyze the scientific activity of faculty members in Ukraine during these periods, and to study the factors that hinder this process. This will enable the development of effective strategies to support and stimulate scientific research activities, provide the best conditions for conducting scientific research, and promote further scientific development.

ANALYSIS OF THE PROBLEM

According to the Law of Ukraine on Higher Education (*Pro vyshchu osvitu*, 2014), faculty members are individuals who carry out educational, methodological, scientific (scientific and technical, artistic), and organizational activities based on their primary place of work in higher education institutions. Article 56 specifies that the working hours of a scientific and pedagogical worker are 36 hours per week (reduced working hours) and include the time spent on performing educational, methodological, scientific, organizational work, and other job responsibilities.

The norms for the amount of time required for these types of work are determined by each higher education institution and are clearly regulated in local university regulations. For instance, Berdyansk State Pedagogical University (*Polozhennia pro planuvannia…*, 2019) has a clear definition of the volumes and limits of variation when planning the working time of scientific and pedagogical staff per 1 staff unit. The volume of hours that a faculty member should devote to science during the calendar year ranges from 18% to 33.5%, which is equal to 400 ± 30% hours. At Oles Honchar Dnipro National University, the volume of scientific work should vary from 25% to 40% – 387–619 hours of annual total load depending on the position of the scientific and pedagogical staff (*Polozhennia pro planuvannia…*, 2021).

At the National University of Life and Environmental Sciences of Ukraine, the Regulations on Planning and Accounting of Scientific and Pedagogical Workers' Work (*Polozhennia pro planuvannia…*, 2021) stipulate that scientific work should constitute 13% of the total working time, which amounts to 200 hours. However, there is also a block of educational, scientific, and innovative activities that make up 9% of the total working time, equivalent to 139 hours. Other universities have their own specificities, with most higher education institutions not prescribing clear norms but providing a general list of types of work that fall under the category of "scientific work". Due to the varying workload of faculty members with different types of work and uneven loads of educational, methodological, and organizational work, it is quite challenging to determine clear time limits. However, an analysis of the normative documentation of universities has made it possible to generalize that, on average, scientific work should occupy no less than 18% of working time. This is based on the assumption that scientific and pedagogical workers should work 1,548 hours per year for all types of work (educational, methodological, scientific, and organizational), with a weekly duration of 36 hours.

The scientific component of the faculty members includes conducting scientific research, publishing scientific articles and monographs, participating in scientific conferences and seminars, supervising graduate students, doctoral candidates, and postdoctoral researchers, reviewing and evaluating scientific works, as well as participating in scientific projects and grants.

For faculty members who work in universities, the research component is an important element of their professional activity. Research productivity is related to the prestige and career growth not only of scientific personnel but also of the university as a whole (Igiri et al., 2021). A university with a high level of scientific component is able to attract both highly qualified academicians and talented students.

Therefore, it is important to study various factors that affect the scientific component and activity of faculty members, while considering various aspects of modern global and national influences.

METHOD AND METHODOLOGY

Participants. The study involved 26 faculty members who hold varying positions and possess different academic degrees and titles. All survey participants voluntarily participated in the study and provided their consent for the processing of information. The sample comprised faculty members from the faculty of preschool, special, and social education of the Berdyansk State Pedagogical University, which is currently temporarily relocated due to the occupation of Berdyansk as a result of Russia's full-scale invasion of Ukraine. Table 1 presents a summary of the participants' data.

Instrument and procedure. The main focus of our research was to determine the most successful and productive period of scientific activity for faculty members and analyze their achievements and accomplishments over the past five years in order to identify the most effective scientific periods in their careers and the factors that hindered scientific activity. The five-year period was not chosen randomly, as this timeframe for Ukrainian faculty members can be conditionally divided into three stages: the period before the start of the global pandemic COVID-19 and national quarantine (2018–2020), the period of the COVID-19 pandemic and national quarantine (2020–2022), and the war between Russia and Ukraine (from February 24 until today).

Taking this into account, the research group developed a questionnaire for faculty members based on key indicators of scientific activity, taking into consideration a 5-year time frame. The questionnaire consisted of 32 questions, 19 of which were open-ended and 13 were closed-ended, scientific reports of the faculty from 2018 to 2022 have become an additional tool for assessment. Subsequently, the research participants were surveyed using Google Forms. The questionnaire was sent through messengers to the personal numbers of the faculty members. All participants agreed to the use of the data obtained in the research. The research was conducted in September 2022, however, the results of scientific reports have allowed for a systematic analysis of scientific work for the year 2022. The data collection process lasted for approximately a month.

Table 1. Participants' data

Variable	Subcategory	%	N
Age	23–35 years	38.5	10
	35–50 years	38.5	10
	Over 50 years old	23	6
Position	Assistant	15.4	4
	Senior Lecturer	11.5	3
	Associate Professor	69.3	18
	Professor	3.8	1
Work experience	Up to 5 years	7.7	2
	From 5 to 10 years	30.8	8
	More than 10 years	61.5	16
Scientific Degree	Without a degree	26.9	7
	PhD	69.3	18
	Doctor of Sciences	3.8	1
Academic rank	Without academic title	46.2	12
	Associate Professor	50	13
	Professor	3.8	1

Source: Authors' own elaboration.

Research methods. To examine the state of scientific activity and the factors impeding this process, we employed mathematical and statistical methods, including registration, ranking, primary and secondary statistical processing of experimental results, and statistical data analysis. These methods enabled us to process the acquired data and establish quantitative relationships between the phenomena and processes under investigation. Additionally, we utilized graphical methods to visually represent and interpret the results. The interpretation of this data led to the findings presented in the subsequent section.

RESULTS

The analysis of scientific activity results of faculty members throughout their entire professional career and the last five years has shown that the percentage of publications from their total number (1,270 publications for all faculty members) over the last five years is 35.3% (448 publications). This is a significant indicator, considering that most faculty members have been working at the university for over ten years. However, it is important to emphasize the publishing activity of faculty members before the COVID-19 pandemic and the full-scale invasion of Russia in Ukraine, as scientific publishing activity is a crucial component of scientific and faculty activity. According to respondents' feedback and a detailed analysis of scientific activity reports, the most successful period was before COVID-19 and the war in Ukraine. Of the total number of publications over the

last five years, faculty members published 172 scientific works of various formats (87 publications in 2018, 85 publications in 2019). During the COVID-19 period, 188 scientific publications were printed in 2020 and 2021 (69 publications in 2020 and 119 publications in 2021), which on average equals 94 publications per year. We cannot fail to note that in the first year of the pandemic, publication activity significantly decreased due to the necessity of restructuring the format of educational courses, transitioning them to an online format, and faculty members mastering digital tools. In comparison with the second year of the pandemic, this indicates the adaptation of faculty members to the new format of work. In 2022, faculty members published 88 articles. The analysis shows that, from a quantitative standpoint, the least successful period of publication activity for faculty members was the first year of the COVID-19 pandemic, while the most productive period was the second year. The pre-war and wartime periods were more or less equivalent in terms of the number of publications. The identification of the most effective period indicates that the mixed format of work, which was characteristic of that period, stimulated faculty members to devote more time to science by saving time on various organizational work moments, such as travel and meetings at the educational building. The almost equivalent number of publications in the pre-war and wartime periods is related to the fact that even during the war, faculty members understood their responsibility to society. Additionally, the university introduced free publications in a professional journal, which encouraged faculty members to submit their articles for publication (Lopatina et al., 2023)

At the same time, the responses from the respondents to the question "Indicate which period was the most successful for your publishing activity over the past 5 years?" (Figure 1) showed that for a larger number of faculty members, 46.2% of the most successful periods were before COVID-19 and the war in Ukraine. 23.1% indicated that their scientific activity did not change, and for 15.4%, productive periods were COVID-19 and the war in Ukraine. The correlation of respondents' answers with their positions, work experience, academic degrees, and ranks showed that scientific activity among young faculty members who have a scientific degree but do not have an academic rank is higher than among more experienced and high-ranking colleagues. For this category, scientific activity did not change or even became more productive during the period of COVID-19 and the war. Also, a positive or equal trend is typical for teachers who have worked for up to 10 years. This may be related to increased motivation, which is associated with the need for career advancement and the need to obtain the academic rank of associate professor. The presence of which affects status and salary, which is one of the important factors stimulating scientific achievements.

The results pertaining to other aspects of the academic activities of faculty members, such as participation in scientific internships and grants, were also found to be interesting. As per the responses of the participants, the highest

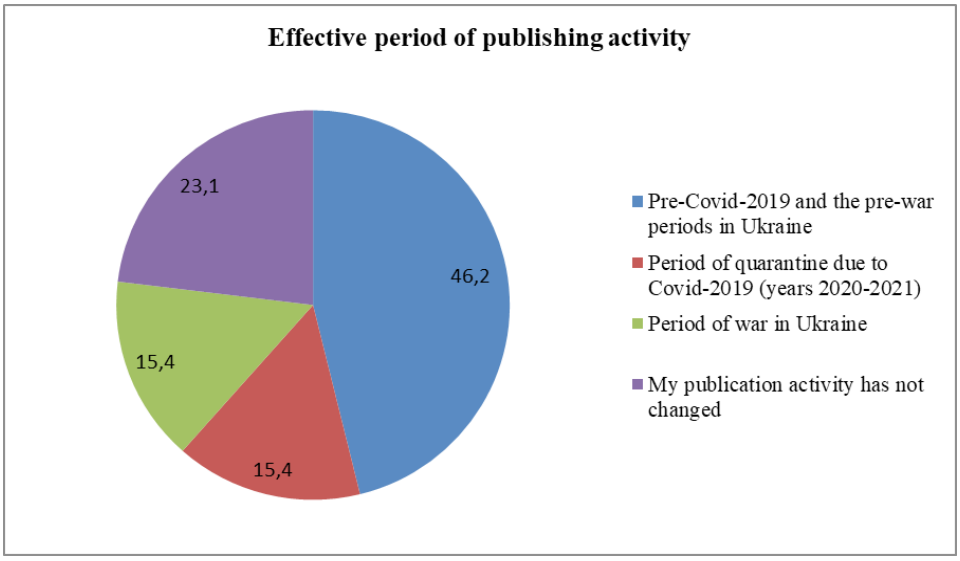

Fig. 1. Respondents' answers to the question "Specify which period was the most successful for your publishing activity in the last 5 years?"

Source: Authors' own elaboration.

number of internships over a span of five years was recorded in 2020 and 2021, which was during the nationwide quarantine brought about by the global COVID-19 pandemic. This trend can be attributed to the widespread adoption of online learning, which enabled faculty members to travel to other countries and gain valuable experience without neglecting their primary responsibilities. Additionally, there are several young faculty members without a scientific degree working at the faculty who are required to undergo such training in order to be considered for the position of associate professor. The involvement of faculty members in grant and project activities increased during this period, which can be attributed to the new opportunities that emerged for Ukrainians and the faculty members' own need for additional income. The relocation of the university from the occupied territory to a new location abroad or to the controlled territory of Ukraine created new requirements for the surveyed faculty members (Suchikova, 2023; Suchikova et al., 2023).

However, to enhance the efficiency of the faculty members' work, it is crucial not only to conduct statistical investigations of quantitative indicators but also to analyze the factors influencing the scientific activity of faculty members. In the context of our study, considering its specificity and duration, respondents were requested to select the most pertinent factors impacting their scientific activity during peacetime and wartime. Figures 2 and 3 illustrate the outcomes of their responses.

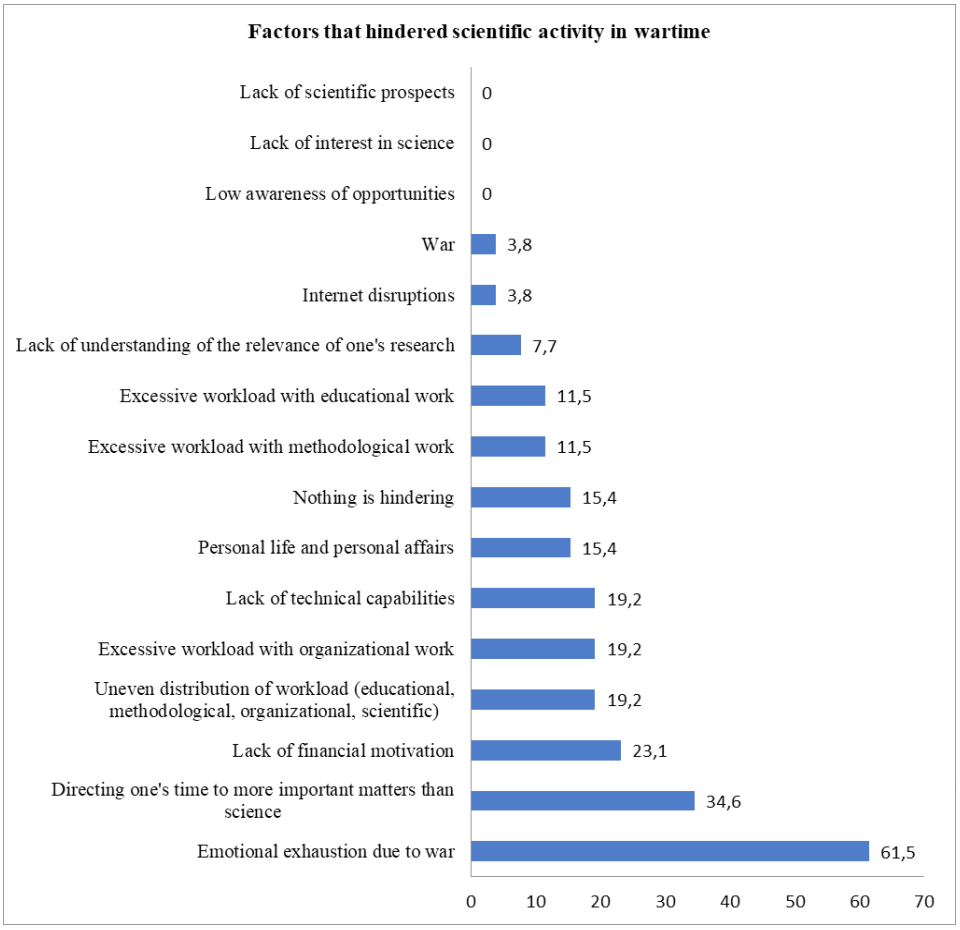

Figure 3. Respondents' answers to the question "In your opinion, what obstacles do you face in your publishing activity during wartime?"

Source: Authors' own elaboration.

The analysis of respondents' answers revealed that the most significant factors hindering scientific activity in peacetime were excessive workload in all types of work (educational, methodological, organizational, and scientific) – 42.3%. Additionally, limiting factors were excessive workload specifically in organizational (38.5%), methodological (19.2%), and educational (19.2%) types of work. As most faculty members hold multiple roles such as heads of departments, deputy deans, or public positions in the Council of Young Scientists or lead various professional-oriented groups, respondents (19.2%) identified the lack of financial motivation as an important factor in scientific activity, especially in conditions of low wages, as it is a crucial means of stimulating scientific work.

Personal affairs and family life were also significant factors that affected scientific activity, according to respondents (23.1%), as there was a lack of stability and predictability in various life situations.

An analysis of the factors that hinder the publishing activity of scientific and pedagogical workers during wartime shows that the primary factor reducing scientific activity is emotional exhaustion due to the war, accounting for 61.5% of the cases. The second equally important factor is the lack of financial motivation, which accounts for 34.6% of the cases. The war and the need for faculty members to leave occupied territories create new financial problems and the need to find additional ways to earn money, which reduces the possibility of devoting time to science. Excessive workload with various types of work, according to respondents, has taken a back seat compared to peacetime, where it was the main factor reducing scientific activity. Personal and family matters, which account for 15.4% of the cases, are important military factors that hinder science. It is entirely understandable that arranging household matters in a new place and adapting to a new environment also require time. Another equally significant factor is the workload with methodological work, which accounts for 15.4% of the cases. The transformation of education into a format where not all participants in the educational process can be present in online classes due to anxiety, fading, and other objective circumstances, requires the restructuring of educational courses and additional workload on faculty members (Suchikova & Tsybuliak, 2023).

Most respondents stated that financial incentives are the most desirable reward and motivation for increasing their scientific activity when they were asked "What motivates you to increase your scientific activity?" The second most relevant factor that would have a motivating value is payment for scientific publications by the university. The third is victory in the war, emotional and mental peace. The fourth is work optimization, which involves creating multidisciplinary teams to work on articles and projects. If we cannot influence victory in the war, we can ensure a budget policy review of the university. This is possible through the availability of various financial funds and commercialization of scientific activities, work optimization, and creating multidisciplinary teams through competent management and quality ergonomic approaches in university management.

CONCLUSIONS

Therefore, in the modern and dynamic world we currently live in, it is important to consider all factors and obstacles that affect the scientific component and the activity of faculty members. Taking into account the relevance and importance of this process, it is crucial to focus on the fact that young faculty members are the most motivated and productive, regardless of different periods and events. Therefore, effective personnel policies and university support programs should

be directed towards them. Additionally, it is worth considering effective work organization. Research shows that a mixed format of work, which includes both online and offline learning, is the most effective for the scientific activity of faculty members. This format saves time, which is extremely important in a world where the demands and responsibilities of faculty members are constantly increasing. It is also important to pay attention to the demands and working conditions of faculty members, which indicate excessive organizational and methodological workloads that hinder active scientific activity. In the context of military conditions, it is crucial for university administrations to focus on the mental and emotional health of faculty members. Clear regulation of work, working hours, and rest, as well as dosing of workload and introduction of rules of corporate culture aimed at respecting the personal space of faculty members, is appropriate. Quality recovery and understanding of their own value for the university will contribute to the increase in scientific activity of faculty members and, as a result, to the increase in the prestige of universities.

The research conducted does not cover all aspects of the scientific problem. However, its results can be useful for faculty members, universities, scientific institutions, and government bodies dealing with the support and development of the scientific sphere. Understanding the peculiarities of scientific activity during pre-war and wartime periods can contribute to the creation of effective strategies and policies for universities aimed at supporting faculty members and their scientific research even in extraordinary circumstances, taking into account all components of their activities.

REFERENCES

Adams, J., Avraamidou, L., Bayram Jacobs, D., Boujaoude, S.B., Bryan, L., Christodoulou, A., Zembal-Saul, C. (2018). *The role of science education in a changing world*. Lorentz Center Leiden.

Gewin, V. (2021). Pandemic burnout is rampant in academia. *Nature*, *591*(7850), 489–491. **DOI:10.1038/d41586-021-00663-2**

Igiri B.E., Okoduwa S.I.R., Akabuogu E.P., Okoduwa U.J., Enang I.A., Idowu O.O., … Onyemachi, D.I. (2021). Focused Research on the Challenges and Productivity of Researchers in Nigerian Academic Institutions Without Funding. *Front. Res. Metr. Anal.*, *6*. **DOI: 10.3389/frma.2021.727228**

Instruktsiia z planuvannia robochoho chasu naukovo-pedahohichnykh pratsivnykiv Dniprovskoho natsionalnoho universytetu imeni Olesia Honchara, No. 240 [Instructions for planning the working hours of scientific and pedagogical workers of Oles Honchar Dnipro National University, No. 240]. (2021). https://www.dnu.dp.ua/docs/osvitnya/Instrukcia_Planuvannya_rob_chasu_NPP_2021.pdf [in Ukrainian].

Kifor, C.V., Benedek, A.M., Sîrbu, I., & Săvescu, R.F. (2023). Institutional drivers of research productivity: a canonical multivariate analysis of Romanian public universities. *Scientometrics* 128, 2233–2258. **DOI: 10.1007/s11192-023-04655-z**

Kurapov, A., Pavlenko, V., Drozdov A., Bezliudna, V., Reznik, A., & Isralowitz, R. (2023). Toward an Understanding of the Russian-Ukrainian War Impact on University Students and Personnel. *Journal of Loss and Trauma*, *28*(2),167–174. **DOI:10.1080/15325024.2022.2084838**

Lopatina H, Tsybuliak N., Popova A, Bohdanov I., & Suchikova Y. (2023). University without Walls: Experience of Berdyansk State Pedagogical University during the war. *Problems and Perspectives in Management*, 21, 1–11. **DOI: 10.21511/ppm.21(2-si).2023.02**

Marcelo, C. (2001). Aprender a enseñar para la Sociedad del Conocimiento. *Revista Complutense de Educación*, *12*(2), 531–593.

Nandi, E. (2021). Governance, Performance and Quality in Higher Education: Evidences from a Case Study. *Contemporary Education Dialogue*, *19*(1), 37–58. **DOI:10.1177/09731849211056380**

Naumann, S., Matyjek, M., Bögl, K., & Dziobek, I. (2022). Doctoral researchers' mental health and PhD training satisfaction during the German COVID-19 lockdown: results from an international research sample. *Sci Rep*, 12, 22176. **DOI: 10.1038/s41598-022-26601-4**

Polozhennia pro planuvannia ta oblik osnovnykh vydiv roboty pedahohichnykh ta naukovo-pedahohichnykh pratsivnykiv Berdianskoho derzhavnoho pedahohichnoho universytetu, No. 56 [Regulation on the planning and accounting of the main types of work of pedagogical and scientific-pedagogical workers of Berdyansk State Pedagogical University, No. 56.] (2019). https://bdpu.org.ua/wp-content/uploads/2020/03/Navantazhennia_BDPU_2019_sayt.pdf [in Ukrainian].

Polozhennia pro planuvannia ta oblik roboty naukovo-pedahohichnykh pratsivnykiv NUBiP Ukrainy, No. 7 [Regulations on the planning and accounting of the work of scientific and pedagogical workers of National University of Life and Environmental Sciences of Ukraine, No. 7]. (2021). https://nubip.edu.ua/sites/default/files/u187/polozhennya_pro_oblik_2021.pdf [in Ukrainian].

Pro vyshchu osvitu [On Higher Education, No. 1556-VII]. (2018). http://zakon.rada.gov.ua/laws/show/1556-18 [in Ukrainian].

Pyhältö, K., Tikkanen, L., & Anttila, H. (2023). The influence of the COVID-19 pandemic on PhD candidates' study progress and study wellbeing. *Higher Education Research & Development*, *42*(2), 413–426. **DOI: 10.1080/07294360.2022.2063816**

Suchikova, Y. (2023). A year of war. *Science*, *379*(6634), 850. **DOI: 10.1126/science.caredit.adh2925**

Suchikova, Y., & Tsybuliak, N. (2023). Universities without walls: global trend v. Ukraine's reality. *Nature*, *614*(7948), 413. **DOI: 10.1038/d41586-023-00380-y**

Suchikova, Y., Tsybuliak, N., Lopatina, H., Popova, A., Kovachov, S., Hurenko, O., & Bogdanov, I. (2023). Is science possible under occupation? Reflection and coping strategy. *Corporate Governance and Organizational Behavior Review*, *7*(2), 314–324. **DOI: 10.22495/cgobrv7i2sip10**

UNESCO. (2008). Declaración y Plan de Acción de la Conferencia Regional de Eduacion Superior de America Latina y el Caribe. http://www.unesco.org.ve/documents/DeclaracionCartagenaCres.pdf

University of Texas at Arlington. (2021). *Importance of Science Education in Schools*. https://academicpartnerships.uta.edu/articles/education/importance-of-science-education.aspx

Utemov, V.V. (2020). Assessment of Science Education Teachers' Quality Work. *European Journal of Mathematics and Science Education*, *1*(1), 1–13. **DOI: 10.12973/ejmse.1.1.1**

ABSTRAKT

Artykuł analizuje działalność naukową nauczycieli akademickich na przestrzeni ostatnich pięciu lat w kontekście trzech okresów: przed COVID-19, w czasie COVID-19 oraz w czasie wojny w Ukrainie. Badanie przeprowadzono wśród 26 nauczycieli akademickich Państwowego Uniwersytetu Pedagogicznego w Berdiańsku, który jest czasowo przesiedlony w związku z okupacją miasta Berdiańsk. Z uzyskanych wyników wynika, że najbardziej efektywnym okresem aktywności naukowej w ciągu ostatnich pięciu lat był rok 2021, a konkretnie drugi rok COVID-19. Analizie poddano czynniki utrudniające ten proces w czasie pokoju, w tym nadmierne obciążenie pracą organizacyjną i metodyczną, aw czasie wojny wyczerpanie emocjonalne wywołane wojną. Wyniki wskazują, że najbardziej aktywni w zakresie działalności naukowej są młodzi nauczyciele akademiccy ze stażem poniżej 10 lat, która nie uległa zmianie, a nawet miała tendencję wzrostową, pomimo obiektywnych okoliczności, które dotknęły bardziej doświadczonych kolegów. Niepokojąca dynamika czynników utrudniających aktywność naukową nauczycieli akademickich zarówno w czasie pokoju, jak i wojny wskazuje na potrzebę przeglądu strategii dla nauczycieli akademickich na poziomie krajowym i uniwersyteckim.

Słowa kluczowe: działalność naukowa; COVID-19; wojna w Ukrainie; nauczyciele akademiccy; uniwersytet