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STRUCTURING OF THE COURSE "METHODS OF PREPARING SCIENTIFIC PUBLICATIONS" FOR PHD STUDENTS IN VLE (THE CASE OF LVIV POLYTECHNIC NATIONAL UNIVERSITY)

The article deals with the research into the elements of distance learning in higher education institutions. The aim of the article is to analyse how the "Methods of preparing scientific publications" course for PhD students is organized and structured in the virtual learning environment (VLE) of Lviv Polytechnic National University. The article presents the analysis of the scientific and pedagogical literature highlighting various aspects of the research problem, in particular, the content of PhD students training; innovative methodological approaches to postgraduate training; application of the competence approach; foreign experience in implementing educational and scientific programs at the third level of higher education. It was found that the course "Methodology of preparing scientific publications" belongs to a series of elective disciplines that form general scientific competences and universal skills of the researcher. The structure of the electronic educational-methodical complex "Methodology of preparing scientific publications" in VLE of Lviv Polytechnic National University consists of an organizational unit (containing information about the author; the course syllabus; guidelines for self-study; guidelines for practical work; guidelines for preparation, execution and layout of individual research tasks; a set of lectures; description of the evaluation criteria, a list of recommended reading, glossary, and forum) as well as individual thematic modules (theoretical methodological basics for preparing scientific publications; a scientific text and its types; a scientific text and its syntactic difficulties; preparation for publication of research results: main stages and requirements; dissemination of the research results; scientometric databases Scopus and Web of Science; "predators" in science). Each module comprises a lecture, a presentation for the lecture, a video lecture, training tests, a presentation for the practical class and a practical work. It is concluded that the combination of components in the complex indicate the presence of didactic goals. Thus, the learning activities of PhD students are structured and the aims to be achieved are determined: the knowledge to be acquired; the practical skills to be mastered; the tools to be used to achieve the goals. The thematic learning content is also well structured; the information on the methods of learning is presented, methods of control and self-study are explained, the criteria for evaluating learning outcomes are worked out etc.

Key words: *virtual learning environment (VLE), electronic educational-methodical complex, PhD student, university teacher, "Methodology of preparing scientific publications" course, Lviv Polytechnic National University.*

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СТРУКТУРУВАННЯ КУРСУ «МЕТОДОЛОГІЯ ПІДГОТОВКИ НАУКОВИХ ПУБЛІКАЦІЙ» ДЛЯ АСПІРАНТІВ У ВНС (НА ПРИКЛАДІ НАЦІОНАЛЬНОГО УНІВЕРСИТЕТУ «ЛЬВІВСЬКА ПОЛІТЕХНІКА»)

Стаття присвячена дослідженню проблеми використання елементів дистанційного навчання у закладах вищої освіти. Метою статті є висвітлення результатів аналізу організації вивчення курсу «Методологія під-

готовки наукових публікацій» на основі використання потенціалу віртуального навчального середовища Національного університету «Львівська політехніка». Виконано аналіз науково-педагогічної літератури, що висвітлює різноманітні аспекти проблеми дослідження, серед яких зміст підготовки докторів філософії; інноваційні методологічні підходи до підготовки аспірантів; застосування компетентнісного підходу; зарубіжний досвід реалізації освітньо-наукових програм на третьому рівні вищої освіти. З'ясовано, що курс «Методологія підготовки наукових публікацій» належить до циклу вибіркових дисциплін, що формують загальнонаукові компетентності та універсальні навички дослідника. Охарактеризовано структуру курсу, що складається з організаційного блоку (відомості про автора; робоча програма курсу; методичні вказівки до самостійної роботи аспірантів; методичні рекомендації до виконання практичних робіт; методичні рекомендації до підготовки, виконання та оформлення індивідуального науково-дослідного завдання; курс лекцій; опис критеріїв оцінювання; перелік рекомендованої літератури; глосарій; форум; а також структуру (лекція, презентація до лекції, відео-лекція, тренувальні тести, презентація до практичного заняття та практична робота) та змістове наповнення тематичних модулів (теоретичні основи методології підготовки наукових публікацій; науковий текст та його види; науковий текст: синтаксичні труднощі; підготовка до публікації результатів дослідження: основні етапи та вимоги; поширення результатів наукових досліджень; наукометричні бази даних Scopus and Web of Science; "хижаки" в науці). Зроблено висновки про те, що автор курсу передбачив поєднання усіх компонентів, що характеризуються наявністю дидактичних цілей і структурують діяльність аспірантів та означують орієнтири навчальної діяльності, а саме знання, які повинен засвоїти аспірант; практичні вміння, якими необхідно оволодіти; інструменти, які він може використовувати, щоб досягати цілей. Навчальний контент є добре структурованим, подається інформація щодо способів засвоєння навчального матеріалу, методів контролю і самоконтролю, пояснюються критерії оцінювання результатів навчання тощо.

Ключові слова: *віртуальне навчальне середовище, електронний навчально-методичний комплекс, аспірант, викладач, курс «Методологія підготовки наукових публікацій», Національний університет «Львівська політехніка».*

Problem statement. The regulatory documents outlining the features of postgraduate training in higher education institutions of Ukraine require fulfilling an appropriate educational and scientific program in a particular specialty as well as doing individual research by PhD students (Cabinet of Ministers of Ukraine, 2016). Higher education institutions are autonomous in forming their own educational and scientific training programs for Doctors of Philosophy, so they exercise this right while training highly qualified specialists, whose knowledge, skills and abilities meet the needs of society, the interests of PhD students themselves, and labor market requirements. Ability to conduct independent research is one of the competences which educational and scientific programs are supposed to develop in PhD students.

The analysis of recent research and publications. It should be noted that the issue of postgraduate training has been reflected in the publications of both domestic and foreign scientists. Thus, in particular, O. Karagodina, O. Pozhydayeva, Ye. Nikolayev, S. Nikolayeva, W. Oldfather, T. Hartjes, and D. Lester study the content of PhD students' education; V. Menyailo, S. Vitvytska, Ju. Nosenko, A. Yatsyshyn, M. McNett, and R. Masciola study innovative methodological approaches to training postgraduate students; O. Spirin, O. Odud, A. Vitchenko, L. Thompson, and J. Chen analyze application of the outcome-based approach; S. Sysoyeva, I. Regeylo, O. Tsokur, I. Yeremenko, and A. Sbruyeva study foreign experience in the implementation of educational and scientific programs at the third level of higher education. Our research attention is focused on the issue of forming the research competence of the future Doctor of Philosophy and the development of their academic culture, which are necessary for both doing scientific research and presenting the research results in scientific publications.

The aim of the article is to present the results of analysing the organization of PhD students' learning the course "Methodology of preparing scientific publications", presented as an electronic educational-methodical complex in the virtual learning environment (VLE) of Lviv Polytechnic National University.

The research results. After analysing educational and scientific programs of training Doctors of Philosophy at Lviv Polytechnic National University it was found that the course "Methodology of preparing scientific publications" belongs to a set of elective disciplines forming general scientific competences and universal skills of the researcher. The aim of the discipline is to form in young scientists competences based on scientific professional knowledge and skills in the field of academic writing, the ability to transform the acquired knowledge to be applied in active research, to use skills on stylistics of academic / scientific writing for logical construction and presentation of their own ideas and the results of creative scientific work in the form of scientific texts.

The study of the discipline "Methodology of preparing scientific publications" involves the formation in PhD students of one of the components of integrated competence: the ability to produce innovative scientific ideas, to master methodology

of scientific and pedagogical activities, to solve complex problems in the process of innovative-research activities as well as professional activities, to conduct original research in the professional field at the national and international levels. In the process of mastering the course, PhD students also acquire the general competence: the ability to present the results of their own research in Ukrainian and foreign languages using modern information and communication technologies, with the account of the norms of the law on intellectual property, professional ethics and academic integrity.

Because of the spread of the Covid-19 pandemic in the spring of 2020, all higher education institutions were forced to switch to distance learning and intensify the educational process based on the use of virtual learning environment resources. Therefore, it seems reasonable to analyse the structure of the course "Methodology of preparing scientific publications" presented as an electronic educational-methodical complex in the virtual learning environment of Lviv Polytechnic National University. Moreover, the presented analysis can be used for the benefit of other teachers as well as can be supplemented by them.

According to the course syllabus, "Methodology of preparing scientific publications" covers 3 ECTS credits (90 academic hours), comprising 26 academic hours of classroom work plus 64 academic hours of students' self-study. The course comprises 7 thematic modules, namely: theoretical foundations of the methodology of preparing scientific publications; the scientific text and its types; the scientific text: syntactic difficulties; preparation for publication of research results: main stages and requirements; dissemination of research results; Scopus and Web of Science scientometric databases; "Predators" in science (Mukan, 2021).

The methodology of teaching any discipline at the level of PhD studies at a modern university involves a set of interrelated elements, including the development of the course content, as well as the tools to be used by the teachers to organize their own activities and the activities of students aimed at achieving the defined learning outcomes: knowledge of the theoretical foundations of academic writing and scientific style; features of the scientific text and its types, the specifics of the scientific text construction and organization, as well as syntactic specifics of constructing sentences and paragraphs; knowledge of the methodology of preparing a scientific article for publication, its organization and design, its promotion in the process of publishing; knowledge of the role and importance of author profiles in the process of dissemination of research results; knowledge of the specifics of using scientometric databases Scopus and Web of Science, the concept of "predation" in science.

The results of the analysis of the educational-methodical complex "Methodology of preparing scientific publications" presented at the VLE of Lviv Polytechnic National University indicate that during the development of the course the author took into account all the requirements for structuring courses in VLE of Lviv Polytechnic National University (2020). "The tool of distance learning – the distance course – is a rather difficult structure in terms of the use of information software. The fact is that the content component is subject to the capabilities of pedagogical technologies that use different methods and tools of teaching, including active ones. Together, the complex of these technologies can determine the learning strategy chosen by the teacher. At the same time, information software tools take on the functions of information delivery, formation of the learning environment, organization of communication and more. Thus the content and quality of education are influenced, first of all, by pedagogical learning strategies, and not by information technologies used for delivery" (Kukharenko, 2007: 4). The following statement deserves the research attention as well: "an educational-methodical complex of the discipline is a system of didactic teaching aids in a particular discipline, the purpose of which is the full implementation of educational and pedagogical tasks formulated by the syllabus of the discipline. The educational-methodical complex of a discipline can also be defined as a set of normative and educational materials on paper and / or in electronic forms, necessary and sufficient for effective implementation by students of the discipline syllabus provided by the curriculum for students of the appropriate educational qualification level in a particular field" (Chepurenko, 2013: 8).

The developed electronic educational-methodical complex "Methodology of preparing scientific publications" consists of two main blocks: organizational and thematic (content) ones. The organizational unit contains the following components: information about the author; the course syllabus; guidelines for students' self-study; guidelines for students' practical work; guidelines for preparation, execution and layout of individual research tasks; a set of lectures; description of the evaluation criteria, a list of recommended reading, glossary, as well as a forum where PhD students and teachers can discuss various issues of organization of the educational process.

The thematic block is represented by 7 modules, each of which includes a lecture, a presentation to the lecture, a video lecture, training tests,

presentation for a practical class and a practical work. According to the results of the analysis, the structure of the electronic educational-methodical course "Methodology of preparing scientific publications" involves lectures and practical classes. "A lecture is the most economical way to transmit and assimilate educational information, ie intellectual culture of generations, placed within the pedagogical forms of learning. One of the features of the lecture is the ability of the teacher to present a large amount of educational information in a logically systematized form (Machynska, Stelmakh, 2012: 12). Lectures perform certain functions, including methodological, which consists in the formation and application of a scientific approach to teaching the discipline. The educational function lies in formation of the personality of the future specialist through developing a complex of universal and professional values and attitudes. It is clear that the lecture performs an informative function as well, which is to form a system of knowledge specific to the preparation of scientific publications, dissemination of research results and contributes to the construction of an individual system of knowledge of PhD students. Another major function of the lecture is developmental one, which should be understood as the development of cognitive activity of future Doctor of Philosophy. Orientation function is implemented to guide the student in the flow of information obtained from various information sources (Machynska, Stelmakh, 2012).

There are different classifications of lectures. They are divided into traditional (introductory, informational, final, reviewing) and non-traditional (a mini-lecture, a problem lecture, a lecture-conference, a lecture-round table, a lecture-conversation, a lecture-dispute, a video lecture, an interactive lecture etc.). Depending on the availability of technical aids, lectures are classified as pure, traditional, multimedia and video lectures (Major, Harris, Zakrajsek, 2015).

Regarding practical classes being part of the course "Methodology of preparing scientific publications", it should be noted that the practical class is a form of organizing the learning process that involves detailed study by students of theories, concepts, ideas covered by the course. The organization of practical classes, primarily, aims to create an academic environment in which PhD students form and develop empirical skills, as well as implement in practice the acquired knowledge. During the practical classes, the teacher organizes control over the level of knowledge acquisition, organizes discussions, debates, opinion exchanges, when students assimilate, consolidate, or apply the theoretical knowledge they gained from lectures and self-study.

It is necessary to single out the types of practical classes according to their purpose. These are practical classes for acquisition of new knowledge, consolidation, and application of the received knowledge, generalization and systematization of knowledge, testing of the acquired knowledge and skills, as well as combined classes, during which a set of functions is performed. According to scientists, the main tasks of practical classes are: deepening and refining the knowledge acquired from lectures and during self-study; forming intellectual skills and abilities of planning, analysis and generalization, mastering the skills of organization of professional activity; accumulating initial experience for organisation and management of production; mastering the basic skills of leadership, management and self-management (Ortynsky, 2009).

Within the course being analysed, practical classes are aimed at developing the skills of future Doctors of Philosophy to find, analyse, interpret information and form a knowledge base; to produce scientific texts for various purposes based on the use of professional knowledge, own ideas, analysis and development of the source base of the research with the account of the culture of academic integrity; to prepare a scientific article for publication with the use of modern information and communication technologies to form the source base of the research; to use scientometric databases Scopus and Web of Science.

Due to the spread of the Covid 2019 pandemic, the learning material presented in the virtual learning environment is supplemented with video lectures to provide the opportunity to master the learning material independently with the support of the teacher.

The final part of the complex "Methodology of preparing scientific publications" contains a survey for PhD students to identify their opinions on the advantages and disadvantages of organizing the learning process, their remarks on the course content, teacher's pedagogical skills and possibility to interact with the teacher while studying the course, as well as to clarify comments, recommendations, and wishes for improving the course.

Conclusions. Thus, the electronic educational-methodical complex "Methodology of preparing scientific publications" for PhD students in VLE of Lviv Polytechnic National University contains all the necessary elements of the distance course, which make up a system of interconnected and interdependent components. The complex is characterized by clear and distinct structure and functionality and can be used to organize the educational process in both remote and blended formats. We conclude that the author

of the complex provided a combination of such components which demonstrate the presence of didactic goals, in particular, the activities of PhD students are structured and the guidelines for their learning activities are determined: the knowledge to be acquired; the practical skills to be mastered; the tools to be used to achieve the goals. The complex contains the structured learning content; information on the methods of learning, methods of control and self-control, explanation of the criteria for evaluating learning outcomes and other components.

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