Organization of Independent Work of Students of Higher Pedagogical Universities of Ukraine by Means of Moodle

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Summary

This study aimed to determine the effectiveness of the Moodle system in the organization of independent work of students of pedagogical profile.The purpose of the article is to analyze the Moodle platform as an innovative element of educational and pedagogical strategies and a component of the educational and methodological content for the self-study of students.Methodology is divided into clusters: general scientific (analysis, classification), ICT methods (modeling, informatization), and philosophical (synergetics). The study revealed the reorientation of Moodle from an auxiliary element to an alternative format in the organization of independent work of student teachers. Prospects for further scientific research determined in the interest of all participants in the educational process in the further development of Moodle as an effective tool for self-education of future teachers.

Keywords: *Moodle, innovative education, ICT in education. violations of rights in educational cyberspace.*

1. Introduction

Online learning is now mainstream in the educational space. The reason for this is socio-cultural realities (primarily the COVID-19 pandemic and full-scale military aggression in Ukraine), which led to the transition to a distance-learning format. Providing such a model of learning requires the use of tools that will provide the learning process in the technological, information, and communication, and educational-methodological manifestations. Information and digital resources have formed several formats of organization of e-learning, and different positioning of subjects of the educational process (Srivastava & Srivastava, 2021). Learning management systems (LMS) is an effective mechanism that concentrates the necessary capacity on educational platforms, providing the educational process. The Moodle platform has proven to be an effective learning resource, especially in the cluster of students' independent work. The concept of e-learning is a valuable solution in education because this format does not replace the overall traditional educational system, but integrates into it (Athaya, Nadir, Sensuse, Kautsarina & Suryono, 2021). Scientific research on the organization of students' independent work in Moodle system notes the effectiveness of this format (Kadirov & Shukurov, 2020). Practically oriented component of the implementation of students' independent work predominantly was not actualized directly in the full-time educational process. The lion's share was supplied with formats that provided for such components:reducing the teacher's involvement in the student's learning activity.

• increasing the autonomy of student learning.

• the need for tools to organize distance learning as an optimal format of students' independent work.

The self-training of applicants for higher teacher education has always stood out for the need for non-standard educational solutions. One such solution is the system of distance learning Moodle, gradually approved in curricula and educational strategies. Universities of the pedagogical profile are an interesting object of scientific research on the organization of students' independent work in the system Moodle.

Research Aim consists in the formation of teaching-methodological and practice-oriented instructions in the process of organizing students' self-study using the Moodle platform. The objectives of scientific exploration involve the analysis of self-study of students at pedagogical universities based on innovative educational strategies, one of which is the use of LMS.

The materials used in the analysis of the features of independent work of students of pedagogical universities are mainly methodological developments for students, including: topics, target priorities, ways of acquiring hard skills & soft skills, sources of information, and organizational structure of self-study. Posting such resources on the Moodle distance learning platform for a long time was at the sole discretion of the university administration, the structural unit (faculty, department, course), or a particular teacher. The project of scientific exploration is to identify elements to unify teaching and learning materials for students' independent work in Moodle. Of course, educational, and informational content will be different, but the structured nature of the materials will allow organizing the learning process in accordance with the educational strategies of training pedagogical and humanities professionals.

Theoretical Framework or Literature Review. Independent work of the student is quite a specific cluster of the working curriculum of training specialists. Most of the pedagogical overload is usually allocated to this part of the educational process (Makruf, Rifa'I & Triana, 2022). At the same time, this segment mostly does not involve direct interaction between the applicant and the tutor, even in the format of full-time training. Independent work is a certain autonomous learning activity on the part of both the tutor and the student (Al Soub & Amarin, 2021). However, in the absence of direct educational interaction in the classroom, a special model of cooperation of subjects in the educational process is formed. Under such conditions, the key role in organizing students' independent work is played not by traditional educational strategy (teacher's pedagogical experience and student's subordination), but by innovative tools (De Medio, Limongelli, Sciarrone & Temperini, 2020), which allow providing efficiency of a self-training system. One of the most in-demand educational resources to ensure the availability and effectiveness of student self-study is the Moodle platform (López-Chila, Llerena-Izquierdo, Sumba-Nacipucha, 2021). In a practically oriented dimension (Simanullang & Rajagukguk, 2020), Moodle is used as a site for adaptive learning, promotes academic virtue issues, and introduces artificial intelligence into the educational process (Gamage, Ayres & Behrend, 2022). The functionality of the distance learning server allows the teacher to successfully coordinate the learning activity of the student, and the applicant - to fully implement the process of acquiring the necessary knowledge and skills (Cabero-Almenara, Arancibia & del Prete, 2019).

2. Methods

Considering Research Methodology contains several clusters:

• General scientific methods, through which a general understanding of the functioning of the Moodle platform, which focuses on the self-organized dimension of students' learning activities, is formed. Comparative and system analysis provides an understanding of the difference between the traditional learning system and the innovative format presented by Moodle system. The classification method allows to distinguish the student's independent work and determine the principles of its organization.

Table 1. Educational and methodological arsenal in the field of education "Pedagogy"

Higher education institution	Structural subdivision	Working curricula in the field of knowledge "Pedagogy"	Presence of the student's self-study segment	Correspondence of the SRS educational-methodical materials to the teacher training curricula	Readiness to integrate the existing methodological arsenal into the innovative learning model through the Moodle platform
Drohobych Ivan Franko State Pedagogical University	Department of General Pedagogy and Preschool Education	+	+	+	+
Hlukhiv National Pedagogical University of Oleksandr Dovzhenko	Department of History, Law and Teaching Methodology	+	+	+	+
Kyiv National University of Culture and Arts	Department of International Relations	+	+	+	+
Bilotserkivskiy institute of continuous professional education	Department of Pedagogy, Psychology, and Management	+	+	+	+
Donbas State Pedagogical University	Department of Pedagogy and Teaching Methodology	+	+	+	+

Source: authors' own development

• innovative special pedagogical methods defining theoretical and practical dimensions of Moodle system functioning as an important resource for organizing students' self-study. STEAM-methodology is actively used in the distance learning system and provides an effective synergy of the creative and technological components of education, achieved through the integration of sciences (Martín-Páez, Aguilera, Perales-Palacios & Vílchez-González, 2019). The use of the Moodle platform as a resource for students' self-study actualizes soft-skills-oriented methodologies (Abdula, Baluta, Kozachenko & Kasim, 2019).

• philosophical-synergetic methodology, providing the study of the problem of self-organization as a fundamental principle of the organization of the student's independent work. Synergetics implies coherence and interaction - principles actualized in the course of distance learning

Data Gathering and Analysis

The platform for scientific exploration was the teaching materials of pedagogical structural units of Ukrainian universities (see Table 1). Data collection was carried out by monitoring of information and digital resources in higher educational institutions of Ukraine and analysis of the ability (technological, organizational,

personnel) to implement the organization of students' independent work on the basis of Moodle platform. Analyzing the indicators of educational and methodological resources in the structural units in which the training of pedagogical specialists is carried out, it is worth noting the following features of the organization in the segment of independent work:

• availability of educational and methodological cluster of independent work as a mandatory element of the curriculum with a clear structure, objectives, and expected results (acquiring appropriate professional and flexible skills);

• mandatory correlation of self-study components with the general components of the curriculum, which ensures effective synergy in the process of training highly qualified specialists;

• non-alternative readiness to form relevant resources based on the educational platform Moodle in these institutions of higher education, based on the demand for relevant resources among applicants for higher teacher education.

3. Results and Discussion

Features of Moodle system functioning in the segment of the organization of independent work of the applicant's pedagogical specialty are highlighted in Figure 1.
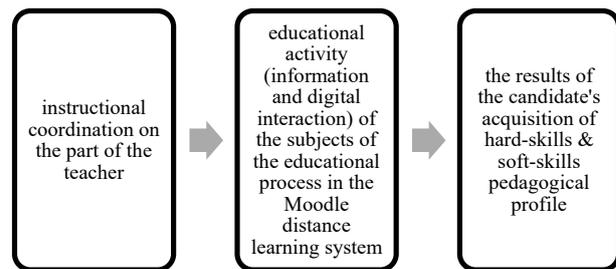

Figure 1. Educational methodological algorithm for organizing students' independent work with the help of the Moodle learning platform

Source: authors' own development

As we see, the information and digital space is a favorable environment for the organization of the educational process and implementation of the program

elements of the independent work segment. The advantage of Moodle system is the actualization of synergistic potential, which is a key principle of organizing students' independent work. For students acquiring the profession of teaching, the segment of independent work is a learning format through which both fundamental professional skills and flexible socio-cultural skills are formed. The practice-oriented value of the Moodle system manifests itself in the development of important components of the pedagogical specialty and the opportunity to realize the individual potential in the learning process (in Figure 2).
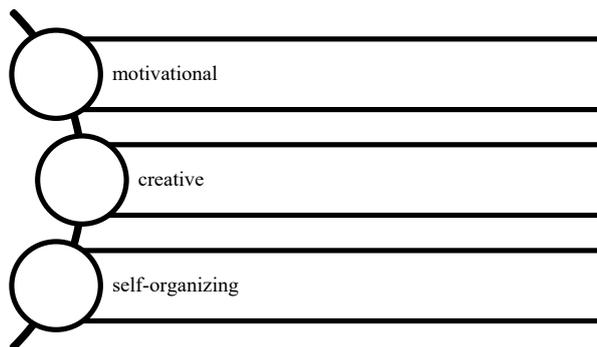

Figure 2. Teaching instructions that are updated for the student when mastering independent work on the Moodle distance learning platform

Source: authors' own development

As a result of self-study in Moodle, the student has the opportunity to use innovative formats for obtaining the necessary information. In addition, the learning process on the Moodle server is represented by a variety of practical learning clusters (educational audio and video content, progressive systems and forms of control and self-control, integration of educational arsenal of teacher training in general education modern strategies). Moodle system can use new elements of educational information and digital space. In particular, gamification as technological innovation to increase student engagement in learning activities is widespread on the e-learning platform (Hasan, Nat & Vanduhe, 2019). Recent studies show that students are increasingly expressing support for the use of Moodle and similar learning management systems (Pérez-Pérez, Serrano-Bedia & García-Piqueres, 2020). At the same time, the organization of students' independent work with the help of a distance learning system raises some controversial points related to the harmonization of the traditional educational model, which still dominates in the modern Ukrainian educational space, with the innovative formats of the educational process organization. First of all, we should note the urgent need for a deep analysis of the information component. Moodle platform in general is a favorable platform for the coverage of information flow of different

nature. At the same time, if there are no problems with quantitative indicators of information flow, then qualitative indicators require special attention through two main aspects.

• Absence of direct control from the teacher and complete autonomy of the student's activity, which significantly increases the responsibility of both parties (both in terms of the quality of information content presentation and in the aspect of its processing);

• Dynamism of information, which is changing and transforming at lightning speed in terms of traditional education, which causes a certain mismatch between theoretical content and practice-oriented skills.

The Moodle distance learning system has demonstrated its effectiveness in solving these difficulties. The principles of the Moodle platform are flexibility and dynamism. Since the content used by the subjects of the educational process requires updating in the online format, all teaching and learning materials also undergo changes and improvements in real-time. This approach confirms the advantages of this format because it does not need to be coordinated with the program elements of the curriculum work. Consequently, the information component is an important cluster in the organization of students' self-study and received clear theoretical and methodological instructions and practical algorithms in Moodle. The flexibility and dynamism of Moodle is evident in all clusters of learning activities (López-Chila, Llerena-Izquierdo, Sumba-Nacipucha, 2021). First of all, it is important for the system of control and self-monitoring, when we mean the issue in the segment of independent work. An important indicator of the effectiveness of any system is the subjects' awareness of the principles and features of its work. In this context, we can state a high level of ICT literacy and the presence of appropriate digital skills among both students and teachers. In addition, higher education institutions are increasingly focusing on equipping the educational process with advanced information and digital systems. Such indicators contribute to the actualization of independent work and the transformation of this segment from a passive status to an active model of specialist training. Another component causing the need for correlation is communicativeness. Students' independent work does not imply intensive communication with the tutor, at the same time, a complete cessation of interaction at the teacher-student level is also unacceptable. In such circumstances, the distance learning platform Moodle is the optimal segment for coordinating communication between the subjects of the educational process. In particular, the teacher based on Moodle can not only broadcast educational and methodological resources but also coordinate the actions of the student. The applicant, in turn, while maintaining the

autonomy of the learning activity, can always, if necessary, get the necessary instructions and guidance from the mentor directly in the Moodle system. This is how the main function of students' independent work is realized - learning activity and development of individual professional qualities. The moral and psychological component is the factor that largely determines the priorities of e-learning implementation. Despite the absence of direct live contact between the teacher and the student, e-learning defines new formats of interaction. Communication is provided both directly on the platform (forums, chats, comments) and through auxiliary resources (social networks, messengers). Inefficient use of time is one of the main problems facing the traditional model of education in today's dynamic world (Simanullang & Rajagukguk, 2020). With Moodle, the instructor and student can regulate time for learning activities.

The constructivist approach is a relevant methodological setting that defines virtual learning management systems as the most sought-after format of modern education (Cabero-Almenara, Arancibia & del Prete, 2019). Note that the Moodle platform is undergoing continuous improvement and updating. In particular, the MoodleRec plugin allows generating the necessary learning content by structuring it into appropriate clusters (De Medio, Limongelli, Sciarrone & Temperini, 2020). The continuous process of improvement of the learning management system necessitates further research on Moodle. Among the priority prospects of research is the manifestation of the features of the organization of independent work of students of pedagogical profile on the platform of Moodle. One of the important aspects contributing to the popularization of the e-learning system is its compliance with the axiological principles of modern socio-cultural space. Students' independent work, in addition to the formation of hard-skills, also provides soft-skills. Moodle format has all the necessary resources (software, technological, informational, visual) needed to acquire the professional level of a teacher. The educational model of e-learning actualizes the study of fundamental pedagogical disciplines and correlates with the principles of socialization (Makruf, Rifa'I & Triana, 2022). Despite the total and pervasive impact of digitalization, education retains human dimensionality as the dominant principle (Al Soub & Amarin, 2021). For the pedagogical cluster, human-measurability is an important factor. Consequently, since e-learning in Moodle supports the trend of human dimensionality, this format will continue to be in demand in higher education institutions.

5. Conclusion

Independent training of the student requires proper educational, methodological, organizational, and information-technological support. Learning management systems, in particular, the Moodle platform is the optimal platform for the implementation of program requirements for self-study of applicants for higher teacher education. Information and digital resource provides informative, communicative and educational, and methodological functions of the educational process. At the same time, an important advantage of the Moodle system is its flexibility and dynamism. This makes it possible to ensure the fundamental principles of innovative educational strategy: coordinating role of tutor and autonomous learning activity of the student. Such constants of independent work in the curriculum meet the realities of modern socio-cultural space and form appropriate professional and flexible skills of a future teacher.

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