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*The Self-Study of University Students  
under the COVID-19 Pandemic*

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Samokształcenie studentów w warunkach pandemii COVID-19

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ABSTRACT

The article discusses the problem of self-study as an effective form of online education during the pandemic. There has been conducted a conceptual analysis of the essence and content of self-study. Based on the content analysis, the self-study is considered as a personally and professionally significant self-educational activity, which determines the development of self-organized, self-managed and self-created professional personality. The main emphasis is focused on creating the university online learning environment for effective and successful implementation of students' self-educational activity. The findings from the survey clarify the advantages of e-learning tools in organizing self-study. It is proved that using e-learning tools in self-study is the best way to improve higher education during the COVID-19 pandemic. There have been highlighted the results of the survey of using distance learning and e-learning tools in university students' self-study. The most popular and effective e-learning tools for self-study under the COVID-19 pandemic are described, and the criteria for the development of students' self-learning skills are determined. The main idea of research is improving the university students' self-education process by using effective e-learning tools and preparing students to be self-organized, self-directed, self-managed, autonomous and independent in their learning to achieve high academic outcomes and professional skills.

**Keywords:** self-study; COVID-19 pandemic; e-learning tools; higher education; online education

## INTRODUCTION AND PROBLEM STATEMENT

The COVID-19 pandemic changed the globalized society and forced people around the world to adapt to new ways of working, learning and communicating. But what do these changes mean to the system of education? The global spread of the COVID-19 pandemic severely impacted higher education as universities closed their premises and countries shut their borders in response to lockdown measures. During the lockdown, the rapid transition to distance (blended) learning was the only solution to support academic study. For this reason, self-study as an effective form of education is becoming more widespread in the context of global pandemics. Self-study gives students the necessary knowledge and skills through independent learning, sometimes without the instructor's help. In self-study, the focus is on the student's responsibility for the process of acquiring knowledge. On the one hand, it allows students to decide why and how to study, on the other hand, it forces the instructors to look for new ways to transmit and explain information remotely so that the students receive the necessary knowledge for their future profession. Self-study allows students to identify their learning needs, learning goals, to manage independently their learning, to personalize the content and methods of studying, to choose learning tools and resources flexibly and autonomously. It means that students become more self-sufficient and they are more willing to involve themselves in independent study to achieve high academic outcomes. Under the pandemic, it is important to create an effective online learning environment for students' self-study.

## LITERATURE REVIEW

The literature review contains two aspects based on common themes. The first one deals with clarifying the terminological analysis of the notion "self-study". The second aspect concerns the analysis of using e-learning tools in the self-study process. Findings from the survey helped clarify the advantages of e-learning tools in organizing the self-study.

To describe the concept of "self-study", a large number of synonymous terms is used, namely: "self-regulated learning" (Bjork, Dunlosky, Kornell, 2013; Biwer, Egbrink, Aalten, Bruin, 2020; Hromalik, Koszalka, 2018; Zimmerman, 2008); "self-directed learning" (Geng, Law, Niu, 2019; Hiemstra, Brockett, 2012; Roberson, Zach, Choresch, Rosenthal, 2021); "self-instructional learning" (Andrade, Bunker, 2009); "self-learning" (Gross, 2003; Katan, 2016); "self-access learning" (Dickinson, 1987; Katan, 2016; Wenden, 2002); "independent learning/study" (Derrick, Ponton, Carr, 2005; Healey, 2014); "autonomous learning" (McCombs, 2012; Ponton, Rhea, 2006), etc. It is concluded that a large number of synonymous terms leads to the use of the same concepts by scientists to describe different

pedagogical phenomena and *vice versa*. The thing which is common for all definitions is the process of independent acquisition of knowledge by students, the development of skills necessary for successful mastery of the future profession; indirect management of independent activities (“by tasks”, “without personal participation”); self-management of learning; the need to use mental effort to achieve learning and professional objectives; personal activity, initiative and responsibility for learning outcomes; focusing on motivation for independent learning, etc. General didactic fundamentals of the self-study are substantiated in numerous studies (i.a. Alekseyuk, 1993; Arkhangelsky, 1980; Babansky, 1982; Gromtseva, 1976; Kondrashova, 2014; Kuzmina, 2002; Malykhin, 2009; Maziarz, Skrzypczak, 1980; Shchukina, 1979; Zimny, 2015, etc.).

We consider self-study as a personally and professionally significant self-educational activity, which determines the development of self-organized, self-managed and self-created professional personality.

Under the COVID-19 pandemic, it is necessary to create an online learning environment for the effective and successful implementation of students’ autonomous educational activities. Ukrainian scholars (Bykov, Shyshkina, 2018; Morze, Kuzminska, Mazorchuk, 2019; Fedoruk, 2008; Spirin, Oleksiuk, Balyk, Lytvynova, Sydorenko, 2019) explore the scientific and methodological background of the creation the cloud-based learning and research environment in the context of open science priorities. The most important network tools include cloud-based science and education information networks and infrastructures; cloud-based corporate information systems and services; network electronic educational resources and services for data collecting, processing and presentation; educational and scientific laboratories of remote access; language technologies; educational robots, etc. (Bykov, Shyshkina, 2018). Using effective e-learning tools in self-study is the best way to save the academic year during the COVID-19 pandemic (Biwer, Egbrink, Aalten, Bruin, 2020; Chick et al., 2020).

Problematic aspects of distance learning (e-learning) during the pandemic and consequences of the securitization of higher education for post-pandemic pedagogy are explored in researches and reports (e.g. Aristovnik et al., 2020; Aucejo et al., 2020; Buchner, Majchrzak, Wierzbicka, 2020; Marchlik, Wichrowska, Zubala, 2021; Murphy, 2020; Plebańska, Sieńczewska, Szyller, 2021; Pyżalski, Walter, 2021; Roberson Jr., Zach, Chores, Rosenthal, 2021; Roy, 2022; Witkowski, 2020; Witze, 2020; Digital Promise, 2020; National Center for Education Statistics, 2021; OECD, 2020, 2021; United Nations, 2020).

This study used mixed research methods, which consists of the collection and analysis of quantitative data in an online survey (questionnaire with 110 participants: 98 – future foreign language teachers; 12 – instructors) and a review of the literature. According to the results of the survey, there was a positive opinion in favor of using distance learning and e-learning tools in self-study (92.3% of

instructors and 78.2% of students). Students and instructors are accustomed to working with e-learning resources; they recognize their convenience and effectiveness for self-study.

## SURVEY AND RESULTS

This study aims to understand the impact of COVID-19 on university education, but in particular on organizing students' self-study through e-learning technologies and tools. The results show that the self-study in online education under the COVID-19 pandemic is a major challenge that leads to rethinking the distance/blended learning approaches and redesigning the ways of self-study support. The experience of the COVID-19 pandemic has provided an opportunity to critically reflect and consider possible changes to improve self-learning activity.

To improve the quality of the self-learning activity in pandemic conditions, it is important to build the teaching process on the advantages of e-learning tools. The percentage of using e-learning in self-study is growing significantly. Due to Globe Newswire, the global e-learning market is projected to reach USD 457.8 billion by 2026 (*Global...*, 2020). Moreover, with an annual growth rate of 15% from 2020 to 2026, the corporate market will be one of the largest drivers in the e-learning industry. The USA and Europe alone comprise over 70% of the e-learning industry. According to Deloitte's Digital Education Survey, 75% of teachers believe that digital learning content will completely replace printed textbooks within the next decade. Thus, 30–79% of lessons are conducted online using blended learning models; 48% of students consider interactive surveys and quizzes to be the most useful online tools; 60% of students prefer to use separate channels of social networks for learning and personal life (Amarta Karya, 2020). According to a survey conducted by ER-Telecom Holding, 43% of students in the United States find the format of distance education very useful; moreover, 18.5% of students took additional online courses during quarantine (eLearning Industry, 2021).

The COVID-19 crisis has prompted the acceleration and deepening of digitalization in teaching and learning: in the development of courses, teaching, assessment, learning, certification analysis, and more. Table 1 shows the various combinations of on- and offline learning used by universities and their impact on self-study. A likely trajectory might be the development of a hybrid model in which higher education institutions develop a more differentiated range of educational offerings for different target audiences by combining external online provision of self-study development and advanced learning technologies of face-to-face interaction (Roy, 2022).

Students with high self-management skills are actively involved in learning and can be more successful in online learning (Thang, 2005). An important component of self-study is time management (Hromalik, Koszalka, 2018), which

predicts when to study and how long to study (Andrade, Bunker, 2009). In online education, due to lack of guidance from instructors (Tuckman, 2005), students are expected to have high skills of self-regulation and self-assessment (Deimann, Bastiaens, 2010), especially for time management skills (Rovai, 2003). High-level self-learning skills can minimize distractions in online learning (Andrade, Bunker, 2009; Berezhna, Prokopenko, 2020).

Table 1. Pros and cons of combining the on- and offline learning

Fully online/blended traditional programs	New types of online/blended programs (microcredentials or alternative credentials)	Digitalizing components in campus-based programs
Suited to motivated students with a strong capacity for self-study and self-direction	Suited to motivated students with a strong capacity for self-study and self-direction	Online lectures offer opportunities for economies of scale, sharing expertise and enhanced quality if done well
Well suited to post-graduate and some professional programs	Likely to provide complementary qualifications (certificates, badges), rather than replace traditional programs	Digitalization of routine elements of learning can free up time and space for increased interaction between students and between students and teachers
Less suited to subjects with strong practical components (nursing, medicine, natural sciences)	Can be embedded into traditional programs	
Well suited to students with work and family responsibilities who prefer flexible learning provision		

Source: (Roy, 2022).

According to the results of the survey conducted among the students (98 participants) of Khmelnytskyi National University, regarding the question “What is your attitude to online learning?”, 51.0% of respondents gave positive answers with some comments; 28.6% of respondents liked it; 14.3% of respondents presented the negative point of view; for 6.1% of respondents it was difficult to answer the question. Among the advantages of online learning, the respondents noted the possibility of planning their time to prepare for classes and watch videos and presentations. As for the advantages of self-study, students’ answers were as follows: the opportunity to better plan the time (32.7%); an ability to study anywhere (27.6%); the possibility of forming an individual educational route (42.9%); the flexibility of schedule, forms of learning and use of information resources (38.8%); the development of skills of self-organization and self-management (33.7%); the

structured and better fixation of outcomes (26.5%). However, despite the figures in favor of self-study, this process has significant shortcomings that students noted: the lack of motivation; the lack of personal communication; the lack of a single online platform; the problems with network access. According to the survey on the most widely used online platforms (see Figure 1) and information resources in teaching, videoconference software Zoom was indicated by 76% of respondents, followed by Microsoft Teams (42%) and Skype (33%).

To collect research findings, the survey also included questions related to the best communication, connection and support in self-study. The participants were asked to rate the importance of potential support services and resources on a scale of 1–5 where 1 is the “least important” and 5 is the “most important”. The questions consisted of such items: 1) easy access to online resources (4.74); 2) the connection with an online university (3.22); 3) tips for effective online self-learning (4.56); 4) access to professional content e-forums (4.61); 5) access to university study resources (3.41); 6) access to websites relating to self-education and professional development (3.78); 7) opportunities to view and share postings, stories and the best practice exchange (3.68); 8) exchange of contacts (3.12); 9) conducting interaction with the instructor and mates (3.79); 10) access to “tandem learning” and cross-cultural multi-seminars, workshops (3.52). The results from the survey indicated participants’ desire to use effective support of their self-study.

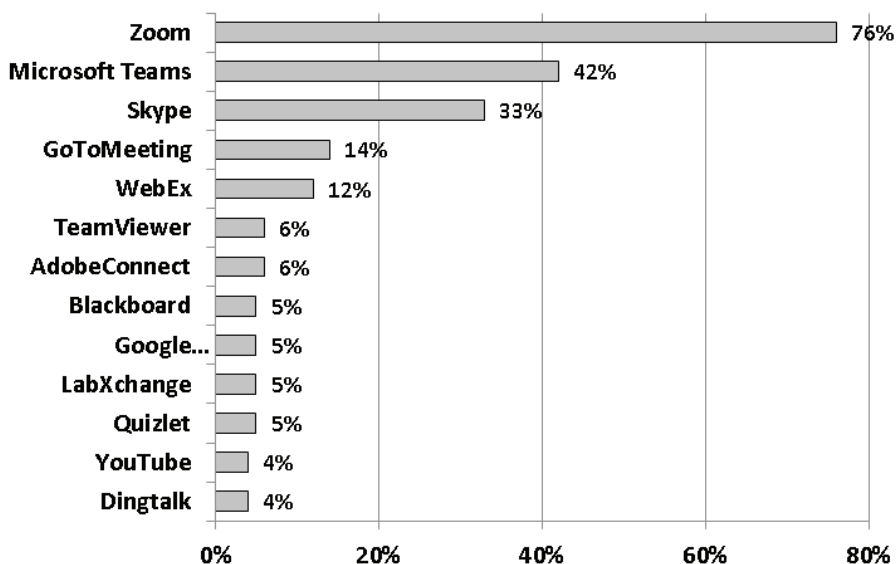


Figure 1. Main online platforms used for learning communication

Source: Author’s own study.

Many higher education institutions in Ukraine have implemented a software platform Moodle with the use of educational and methodical material (presentations, videos and text material). Students were asked to answer questions about the convenience and effectiveness of using Moodle to prepare for practical classes (73.8%), self-study (64.2%), current (68.6%) and modular (65.4%) control, and only 5.4% of respondents did not see a positive result from using the platform. The results show an increase in the level of self-educational activity of students obtained through the use of the Moodle platform. Answering the question “Did you receive enough information from the Moodle?”, more than half (60.2%) had some comments on the quality of the materials, 25.5% of respondents were completely satisfied with the materials and only 14.3% of students did not like it. To deepen their knowledge, 66.3% of students used additional materials to prepare for classes, 27.6% of respondents sometimes used additional materials, and 6.1% of respondents did not use them at all. The survey indicated the students’ demand to improve the quality of teaching materials and increase access to open learning communication (space) and tools for self-educational activity. In particular, the survey showed that all students were familiar with Top-8 educational platforms, but 62% of students noted the lack of experience (self-learning skills) in using e-learning tools for self-study (see Figure 2). At the same time, 98% of students expressed interest in participating in platforms for self-educational purposes. In the research, the platforms Coursera, Edra, Prometheus, TED were considered, which offer authentic training courses in foreign languages.

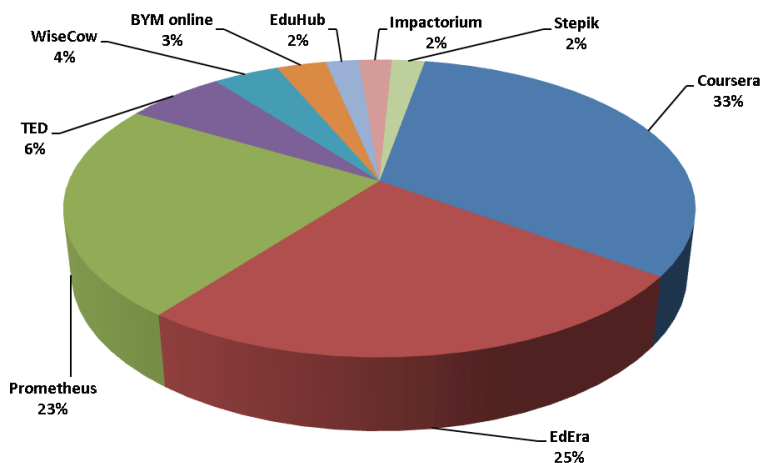


Figure 2. Students’ experience in using e-learning platforms for self-study  
Source: Author’s own study.

## DISCUSSION

Thus, based on the survey results referring to the improvement of self-learning skills, students should be introduced to the basic process of self-regulation that facilitates online learning. This process often includes setting goals, planning, self-motivation, flexible use of study strategies, or self-assessment (Hiemstra, Brockett, 2012). Self-regulating students can set short- and long-term goals for training, plan to achieve their objectives, motivate themselves and focus on the learning progress. They can also apply numerous teaching methods and adjust them when there is a need to independently monitor progress, seek help from others and evaluate their progress based on their results. However, instructors need to understand that methods that work best for one student, are not always suitable for others (Bjork, Dunlosky, Kornell, 2013). The high level of IT communication opens new opportunities for the development of adequate means of using e-learning tools for self-educational activity. So, the main task of the instructor is not only to equip students with modern knowledge but also to teach them to acquire this knowledge independently.

After analyzing the results of using the Internet resources in students' self-study during the pandemic, we concluded that the use of educational platforms increases self-learning motivation, and, thus, the effectiveness of the educational process; ensures the development of special competencies; facilitates students' self-learning activity; helps to create an atmosphere of cooperation; provides for instant self-assessment and self-regulation; ensures updating new knowledge and skills, etc.

The most popular and effective e-learning tools for self-study during the pandemic are: information and reference software (online encyclopedias, dictionaries, etc.); information and search software (multimedia portals containing texts, audio recordings, methodological instructions); demonstration software (PowerPoint, Prezi, CorelDRAW, etc.); educational software (learning management system, self-learning platforms, MOOC platforms, e-textbooks); tutorial software (instructional resource, self-guided and self-paced tutorials). There are free e-learning resources used by instructors and students to create didactic material, e.g. to learn and teach a foreign language (Class Tools, Purpose Games, Jigsaw Planet, Quizlet, Master Test, Online Test Pad, Kahoot!, Class Maker, Hot Potato, Rebusl, Busu, Duolingo, Livemocha, Mango, Lingorami, Memorize, BBC Learning English, Lingualeo, TED, Tandem, Macmillan English Campus, etc.). Didactic e-learning tools allow the use of video recordings, online videos, audio recordings, etc., which contribute to the inclusion of the students in the active perception of authentic conversation, lectures, messages, stories, dialogues with native speakers. For example, Google Docs, VCASMO, or Prezi allow students to create presentations and record the progress for viewing and analyzing; submit a presentation on the site; joint with foreign colleagues in creating a presentation (Andrade, Bunker, 2009).



The experience of working with e-learning tools testified to their effectiveness and efficiency in self-development, self-learning and learning. The combination of online platforms, interactive and problem-based learning technologies opens up new opportunities for both teaching and self-learning activities.

The advantages of e-learning include mobility (access to training programs anywhere and anytime); interactivity (simultaneous access to the course of an unlimited number of students); informality (the learning process takes place in a comfortable environment); cost-effectiveness (reduce training costs); individual approach (ability to personalize learning for each student) (Murphy, 2020).

We proved that when organizing self-study, it is essential to use the conceptual (structural) model (see Figure 3). In the stage of experimental research, the effectiveness of the model was verified. During the formative stage of the experiment, the criteria, indicators, and levels of students' self-learning skills were determined. They were grouped by the following characteristics: *cognitive* (self-knowledge, self-observation, self-understanding); *organizational* (self-forecasting, self-planning, self-organization, self-management); *reflexive* (self-analysis, self-assessment, self-regulation); *individual* (self-awareness, self-determination, self-actualization, self-realization); *motivational* (dominant motives, interests, demands, desire). The changes in levels for each indicator included comparing data before and after the formative experiment. Based on the analysis of the results of the formative experiment, it has been found that the number of students with a high level of self-learning skills increased by 34.8%. The educational progress of students can be ensured only through coordinated self-educational activity and applying innovative e-learning tools.

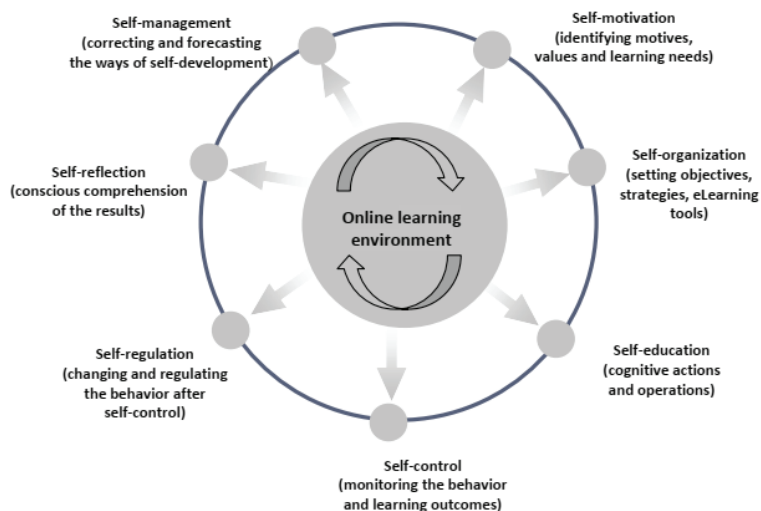


Figure 3. Structural model of university students' self-study  
Source: Author's own study.

## CONCLUSIONS

Due to the impact of COVID-19, the higher education system needs to be transformed and adapted to new learning environment. It is necessary to develop new approaches and models of the self-educational process. The adaptability of students and teaching staff to the specifics of e-learning involves the acquisition of digital and other related (self-learning) skills. Research and teaching staff should improve their pedagogical skills, develop new online courses and programs taking into account the students' self-learning, etc.

Self-study is a complex process, which consists of: self-motivation (identifying motives, values and learning needs); self-organization (setting objectives, strategies, e-learning tools); self-education (cognitive actions and operations); self-control (monitoring the behavior and learning outcomes); self-regulation (changing and regulating the behavior after self-control); self-reflection (conscious comprehension of the results); self-management (correcting and forecasting the ways of self-development); self-creation through self-learning, self-development, and self-evolution. This is an independent activity aimed at continuous improvement of professional level, which includes gaining the universal experience; methodological, general scientific and special knowledge; subject skills and abilities; the learning tools, innovative teaching methods and technologies necessary for the purposeful improvement of self-learning activities, and is the basis of continuing education (certification training). The main components of students' self-study are: defining the objects of self-education, awareness of its essence, understanding its necessity; designing of the expected results; self-planning; management of actions directed at achieving aims; self-control and self-esteem.

The didactic possibilities of e-learning resources can be briefly defined as follows: strengthening the motivation to self-study; intensifying of students' self-learning activities, strengthening their role as a subject of learning activities (the ability to choose the sequence of studying the material, determining the extent and nature of the assistance, etc.); individualizing the learning process; diversifying educational tasks; creating a learning environment that provides students' "immersion" in the imaginary world; providing immediate feedback and reflection; reproducing the self-educational activity. The use of e-learning tools activates students' self-educational activity, providing them with modern authentic material, increases student motivation and the efficiency of the learning process, provides access to information resources, creates a new educational space, i.e. a virtual environment.

The implications of this paper are threefold. Firstly, it clearly shows how the COVID-19 pandemic impaired the education. Secondly, it outlines the university students' needs during self-study. Finally, it shows that investments in e-learning are priority to place universities in a better position to provide self-study.

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## ABSTRAKT

W artykule omówiono zagadnienie samokształcenia jako skutecznej formy edukacji online podczas pandemii. Dokonano conceptualnej analizy istoty i treści samokształcenia. Na podstawie analizy treści samokształcenie traktowane jest jako osobowo i zawodowo istotne działanie samokształceniowe, które warunkuje rozwój samoorganizującej się, samzarządzającej się i kreowanej przez siebie osobowości zawodowej. Główny nacisk został położony na stworzenie uczelnianego środowiska uczenia się online dla efektywnej i skutecznej realizacji samokształcenia studentów. Wyniki ankiety pozwalają określić zalety narzędzi e-learningowych w organizowaniu samokształcenia. Udowodniono, że korzystanie z narzędzi e-learningowych w samokształceniu to najlepszy sposób na poprawę jakości szkolnictwa wyższego podczas pandemii COVID-19. Podkreślono również wyniki ankiety dotyczące wykorzystania narzędzi kształcenia na odległość i e-learningu w samokształceniu studentów. Opisano najpopularniejsze i najskuteczniejsze narzędzia e-learningowe do samodzielnej nauki podczas pandemii COVID-19 oraz określono kryteria rozwoju umiejętności samokształcenia uczniów. Główną ideą badań było usprawnienie procesu samokształcenia studentów uczelni wyższych poprzez wykorzystanie skutecznych narzędzi e-learningowych oraz przygotowanie studentów do samoorganizacji, samokierowania, samzarządzania, autonomii i niezależności w nauce w celu osiągnięcia wysokiego poziomu akademickiego oraz umiejętności zawodowych.

**Słowa kluczowe:** samokształcenie; pandemia COVID-19; narzędzia e-learningowe; szkolnictwo wyższe; edukacja online