

Informal Online Education: Teacher-worker in Modern Conditions

Yuliia Bobrikova

Ukrainian Engineering and Pedagogical Academy

Anna Boiko

National Academy of Educational Sciences of Ukraine

Oresta Karpenko

Drohobych Ivan Franko State Pedagogical University

Mariya Chepil

Drohobych Ivan Franko State Pedagogical University

Halyna Taranenko

Tavria State Agrotechnological University Named After Dmitry Moto

The article is devoted to issues of the development of informal online education. The trend towards an increase in the number of users of informal online courses has gained special development since 2019. As a result of the accumulation of statistics, the share of each direction in the general structure of the education system was determined. According to the results of modeling trends in the development of the education system, trend lines were constructed for each area until 2025. It is determined that informal online education will continue to develop.

INTRODUCTION

In the conditions of modern challenges of active development, informal online education has become available. With the development of Internet resources, access to knowledge bases has become easier. If you have access to the Internet, you can afford to research from anywhere in the world. Such a system has numerous advantages, in particular, saving costs for moving and paying for accommodation in other cities, countries, or continents. In addition, quality education has become more accessible. It is not necessary to pay expensive tuition fees at prestigious universities, it is enough to use their online courses, which are more compact and cheap. In the context of the development of the “lifelong education” system, informal online education has played a decisive role in the formation of the personnel potential of a country. Informal online education has wide availability, coverage of all areas that have access to the Internet, and, most often, narrow specificity. That is, online courses are aimed at the formation and development of specific skills. In particular, online courses can include both hard skills and soft skills training programs. Thanks to the availability of such training systems, they have become very popular in the world, and the developers of

training programs have determined that it is possible to use Internet platforms for the development of their educational courses. Therefore, the development of informal online education is beneficial for the developers of educational services and their consumers, and also has an important role in the development of society, reducing inequality in the world and enabling people from poor countries to acquire new knowledge and skills and develop themselves as individuals, forming intellectual capital your country. The program of informal online education became especially relevant during the quarantine period when access to educational services in an offline format was limited due to the need to reduce people's contacts. Thus, the relevance, practical importance, and place of informal online education in the system of education and social development have been determined.

Taking into consideration the relevance and practical importance of the chosen research topic, the purpose of the research was determined: the search for effective methods of forming informal online programs by teachers to ensure their practical value and the interest of consumers of educational services. To fulfill the set goal, the following tasks must be completed:

- analyze non-formal education systems,
- determine the advantages and disadvantages of non-formal education systems,
- analyze the leading global and domestic platforms of informal online education,
- to determine the algorithms for the formation of quality educational products in the system of informal online education by analyzing the interaction between the teacher and the consumer of educational services.

LITERATURE REVIEW

Determining the values and motives for choosing one or another type of education help to determine the forms of education that can be applied to various external and internal factors. In particular, Cabezudo, A. and Haavelsrud, M. considered the issue of the values of non-formal education, as specific differences from classical educational methods. External conditions were determined as the basic factors of the research. The formation of prerequisites for the development of the lifelong learning system determined the attention to the development of non-formal education systems, in particular, the creation of online platforms for advanced training or retraining. The authors assert a hypothesis about the formation of human consciousness based on the acquisition of knowledge from classical learning methods, and the further development of knowledge and skills through the use of informal methods of online education. The development of the informal education system provides an opportunity to expand the global boundaries of the educational process, that is, not only to learn additional hard and soft skills but also to join the culture, traditions, methods of learning, and thinking of other peoples, which you join at the expense of those courses developed by representatives of other nations countries This allows us to better understand each other, develop tolerance and equal treatment of people from different social strata or different countries. It can even be determined that non-formal education is a form of building alternative thinking: more democratic, independent, and creative, which is especially relevant for authoritarian countries, countries with orthodox religious beliefs and political oppression (Cabezudo and Haavelsrud, 2022).

Social and economic support is one of the areas of development of democratic societies. The processes of informal education contribute to the development of entrepreneurial activity and revitalize economic processes by creating opportunities for the working population to realize their potential for the development of the country's economy. Accordingly, with the development of economic systems, social systems develop. Increasing the level of social security is one of the results of the implementation of the system of informal online education by increasing the level of education and qualification of the workforce in the country, forming intellectual potential. In the research García-Uceda, E., Murillo-Luna, J.L., and Asín Lafuente, J. the influence of the system of factors on the formation of demand for the offers of the system of informal online education is determined, in particular, the following factors: personal traits of character and mentality, demographic characteristics, norms of perception of informal education in society, requests and needs for entrepreneurial education. As a result of the research, the high relevance of the implementation of informal education processes among young people was determined to ensure

entrepreneurial activity, the development of social entrepreneurship, and the formation of the foundations of financial literacy and business management. Although the research also identified a moderating effect of the introduction of non-formal education in the field of entrepreneurship [García-Uceda, Murillo-Luna, and Lafuente, 2022).

In the research of Abumandour, E.-S.T. the place of non-formal education in the development of natural sciences and engineering specialties is determined. This topic is quite complicated. The training of specialists in engineering specialties involves not only lectures and practical classes, but it is advisable to pay a lot of attention to laboratory work. Laboratory research is possible if certain equipment, tools, specialized software, etc. are available. The study conducted a retrospective analysis of the development of education systems: from clay tablets, on which important information was written, passed from hand to hand, to writing on papyrus and paper. The development of progress determined not only the introduction of technologies directly into production processes but also the technologization of learning processes. In recent times, the field of information and communication technologies has developed greatly, which made it possible to offer a new educational service to the market - e-learning. Electronic training involves the use of virtual methods of obtaining information and information and consulting support during the training period. The authors define methods that allow online learning systems to exist separately from offline methods, that is, even in considering the special conditions for the training of engineering specialists, the possibility of full digitalization of the learning process is assumed. Additionally, the role of the teacher in the online education system has been determined, which is not just a system of information transmission (its search, selection, and relaying), today the teacher is a facilitator who forms students' knowledge acquisition skills. E-learning online has great prospects, as its popularity is growing. In particular, it is this method of training that can maximally satisfy the needs and requests of people studying in the lifelong learning system. Separately, the authors considered the impact of the pandemic on the transition from classical learning processes to the online format due to the closure of educational institutions. The pandemic crisis was the beginning of the formation of a new education system - a mixed format, which may in the future move to an entirely online format. The problems of online system development in engineering education can be solved by using virtual laboratories, virtual reality, transferring access to desktops of personal computers remotely, simulation, and other methods. That is, non-formal education can be applied to engineering and STEM education as effectively as, for example, to humanitarian training. Such education systems in arrangement with classic engineering tasks can provide the formation of critical thinking, creativity, analog thinking, analytical thinking, as well as important digital skills (Abumandour, 2020; Abumandour, 2022).

Assessment of the degree of quality of non-formal education, including in the field, for example, engineering, which, as described above, has certain specific characteristics, determines the use of quality assessment methods. In particular, the proposal regarding the application of the European Qualifications Framework is interesting. This method was used to assess the quality of engineering education in the training of engineering drawing specialists in one of the Italian institutions of higher education. In particular, the methods of combining entrepreneurial and engineering education in the conditions of using online learning methods were determined. Among the online methods, online public libraries were considered, which have numerous courses for training and can cooperate with various public organizations and the public sector for the reason of mobile and flexible responses to changes in the requests and needs of society. Additionally, public libraries are a method of networking, allowing you to gain new knowledge and destroy borders because communication in the system of online libraries can be cross-border, which is the basis of the formation of global tolerance and a form of development of globalization processes (Violante, Moos and Vezzetti, 2020).

Teng, L., Tan, Q., and Ehsani, A. determine the development processes of online informal education as a result of the threats and challenges of the coronavirus pandemic. These challenges consisted of the closure of classical educational institutions and the impossibility of their full functioning, which was solved through the possibilities of online systems. Among the systems of online informal education, it is advisable to consider the possibility of using cloud environments, which allow the processing of large volumes of data and forming powerful platforms for informal online education. The development of non-formal education

support systems with cloud servers and software is an important element in improving the quality of electronic education. The results of the study proved that the use of IT technologies to provide systems of informal online education is a useful component not only of increasing the intellectual level of people at the global level but also of their cultural level and the formation of unique influences on the educational environment. So, the study identified three additional factors in the development of online education: economic, cultural, and qualification (Teng, Tan, and Ehsani, 2022).

Continuing the analysis of the factors of development of informal online education systems, it is advisable to turn to research Gashi, A., Zhushi, G. and Krasniqi, B. The authors developed a research model that includes the following factors:

- the usefulness of online learning methods,
- ease of use of online learning methods,
- IT support of online learning methods,
- determining the self-efficacy of online learning methods,
- determining the availability of online learning methods,
- a perceived opportunity for interaction and flexibility by combining online learning methods.

The developed integrated multi-factor model allows for determining the system of factors for meeting the needs of learners and the realization of these needs through the possibilities of informal online education [Gashi, Zhushi, and Krasniqi, 2022).

Continuing the study of influencing factors on informal online education, it is advisable to combine this analysis with the analysis of the mechanisms of student involvement in the system of informal online education. The analysis was carried out based on the definition of obstacles in education due to the coronavirus pandemic. A sociological survey was conducted regarding the possibilities of the development of informal online education. As a result of the survey, it was determined that 65.6% of students mostly use mobile phone technology to search for information and in their educational activities: educational applications, programs, and social networks with useful content, for example, profile pages or opinion leaders. 53.4% of students participated in e-learning for the first time during the beginning of the pandemic, which indicates the growing attention to such learning methods precisely because of complex external challenges. Based on the conducted survey and data analysis, possible models for the development of the informal online education system were determined (Perera and Abeysekera, 2022).

In addition to significant advantages, online education has its own shortcomings and implementation problems. By modeling the results of a sociological survey using hierarchical multiple linear regression, it was determined that among the main problems of the implementation of online learning, the respondents identified: accessibility to educational courses, quality of educational service provision, and support of teachers in the learning process. In the study, it was determined that in addition to technical problems with the implementation of online education, the role of the teacher in the education system is important for the respondents, because the teacher provides the main function in the system of providing educational services (Looi, 2022).

Therefore, the question of the value and motivation of learning is relevant. Based on the analysis of the processes of implementation of informal online education, the authors developed a model of value orientations of the educational process in the online format, which included the following factors:

- ensuring the quality of the educational process in the conditions of online learning,
- values formed because of training,
- processes of internal discipline for self-regulation of learning,
- processes of ensuring the internal motivation of teachers and students,

These factors as key elements of the model in the formation of motivation and value of learning in the online format for teachers and students were proven empirically and confirmed through the analysis of importance maps. As a result of the research, a design-implementation-result life cycle model was developed, which is the basis for the formation of a qualitatively new attitude of stakeholders to the process of online informal education (Kumar, 2022).

METHODOLOGY

The research uses methods of grouping and generalization to determine the general characteristics of the system of informal online education. Data from statistical analysis and sociological surveys are accumulated to determine trends in the development of informal online education. To determine the relevance of the issue the degree of its practical significance, and to determine the opinion of consumers of educational services regarding the use of informal online education, the method of a sociological questionnaire survey in electronic form was used. A total of 500 respondents took part in the survey. The survey was conducted online using Google Forms. The target audience of the survey was people aged 18 to 60, 60% of respondents were women, and 40% were men. The survey was conducted among people from different social groups: students, office workers, business owners, managers, freelancers, and other professionals. Respondents recognized the level of earnings they have today on a scale of up to \$100 per month, \$100-500 per month, \$500-1000 per place, \$1000-3000 per place, and more than \$3000 per month. Active use of Internet resources and social networks was defined as a mandatory condition for respondents. The results of the survey and their analysis are presented in the “results” section. The analysis of the development of online platforms for informal education, in turn, made it possible to determine the trends of the development of informal education. As a result of the analysis of development trends, the induction method was used, and the advantages of using non-formal education methods and the analysis of expected results for consumers of educational services were highlighted. Based on the analysis by using heuristic methods of cognition, an algorithm for forming an online informal course for learning was developed. The place and role of the teacher in the system of building informal online education are separately highlighted.

RESULTS

As a result of the analysis of the most popular educational platforms of informal online education in the world and Ukraine, numerous features were identified, and numerous hypotheses were put forward. The raw data for analysis are presented in Table 1.

TABLE 1
CHARACTERISTICS OF THE LARGEST EDUCATIONAL ONLINE PLATFORMS IN THE WORLD AND UKRAINE

	Course users	Courses	Certificate	Years on the market
Prometheus	2 million	300+	1,3 million	8
Coursera	107 million	4000+	113 million	10
DIA. Digital Education	More 3 million	6 directions	2434620	3
Educational hub – EduHub.in.ua	25000	20+	15000	3
BYM online	165221	82	80809	5
Educational Era	4800	95	without certificates	3
WiseCow	unknown	8 directions	without certificates	3
Impactorium	5000	5	3000	10

Based on the results of the analysis, it was determined that the beginning of the development of online informal education in the world began about 10 years ago. In Ukraine, business companies and the state began to actively develop non-formal education courses in 2018, the greatest activity was observed in 2019-

2021 during the pandemic and the transition of most processes to a digital format, and from 2022 after the start of full-scale military aggression, since such courses have become relevant due to the loss of work by many people and the need for retraining for remote work or finding new ways of earning.

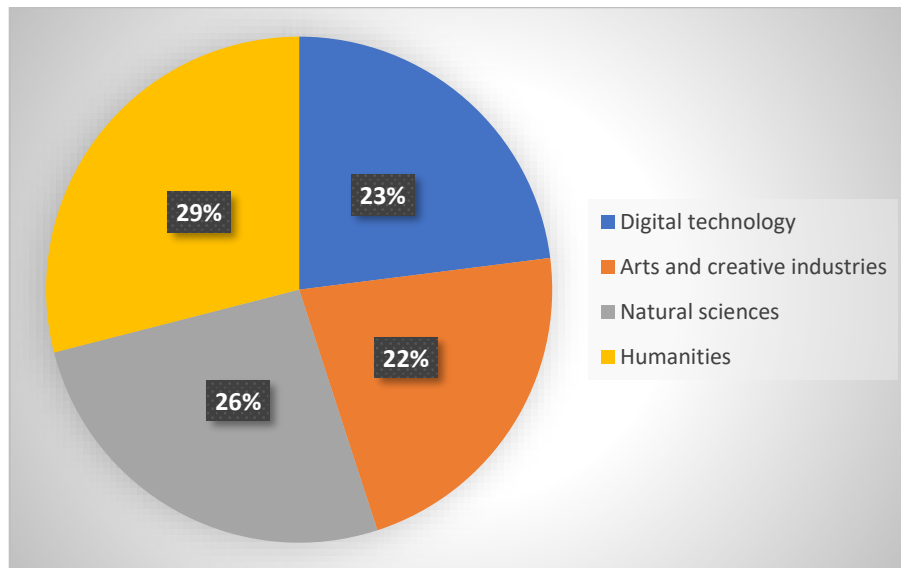
The analysis of the largest online platforms of informal education allowed us to determine the following advantages:

- non-formal learning platforms represent both separate courses that can provide improvement of specific skills, and combine courses into programs that have a comprehensive nature and allow not only to improve qualifications but also to obtain new qualifications even without prior basic training;
- the courses of many online platforms are free, that is, available to everyone who has access to the Internet. The cost of paid courses is significantly lower than similar offline educational offers;
- for educational institutions, such platforms with free courses are presentation platforms for their full courses and make it possible to increase the image component and attract a larger number of consumers of educational services to paid products;
- platforms of informal online education make it possible to apply for courses in the process of offline learning for other educational institutions, that is, to provide students with additional opportunities or to strengthen the innovative component of courses and programs already available in the educational institution, that is, they open opportunities for cooperation;
- the platforms are flexible to the gadgets from which the consumer of the educational service can undergo training, the interface is available and adapted for personal computers, laptops, netbooks, tablets, and smartphones;
- the opportunity to study for free in leading educational institutions and leading scientists of the world,
- the possibility of remote access from anywhere in the world,
- the possibility of advanced training or retraining at any age, gender, social status, etc.

Certain limitations for taking a course of informal online education can be limited access to the Internet, and lack of knowledge of English, which is the main language of course recording.

The analysis of the course structure of the leading online platforms of non-formal education in the world made it possible to determine the fate of the areas of study that are presented in educational programs - the results are presented in Figure 1.

FIGURE 1
SHARE EDUCATIONAL AREAS IN THE COURSE STRUCTURE



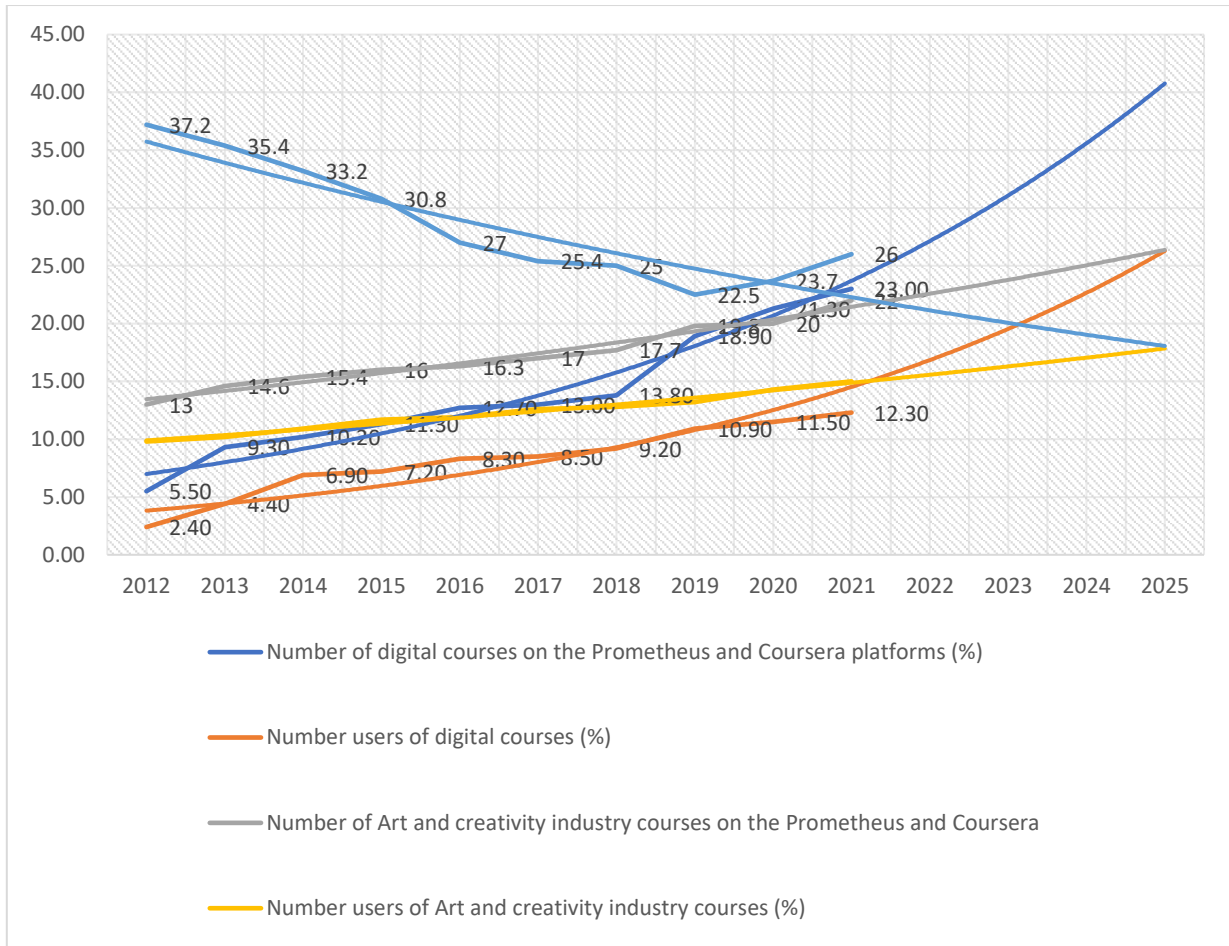
As we can see from the results of the grouping of indicators of the structure of courses on the leading educational online platforms, the relative equality of the directions of educational programs with the advantage of humanities has been determined. Also, it is worth noting that the number of online non-formal education courses and their popularity among users has a rapid upward trend, which is confirmed by statistical data (See Figure 2).

Analyzing the trends in the development of courses in the informal education system, a trend line was built by the previous analysis of statistical data for 2012-2021. The results of the analysis showed trends in the number of online courses on informal education platforms and an increase in the number of users. The highest growth rates were demonstrated in 2019-2021, which relates to the pandemic and the need to find formats for remote learning and work, changing qualifications, and digitizing the skills already available to employees.

The trend lines were built until 2025. The type of construction of existential trend lines was chosen, which is more flexible and reflects possible corrections of the change. It was determined that the number of non-formal education courses on online platforms will increase soon. Humanities and natural sciences courses will be the most popular, but the share of such courses in the total number will decrease. Growth indicators will show courses in the arts and creative industries. The greatest growth is predicted for digital courses, which can be explained by the following factors:

- digitization and automation processes are actively developing,
- digital processes are actively implemented in the business environment,
- digital skills make it possible to work remotely from anywhere in the world,
- the implementation of digital skills does not require special software, a separate laptop, and access to the Internet,
- the development of the Internet and social networks, digitalization of all spheres of life determines the relevance and practical value of digital skills as an element of competitiveness in the labor market.

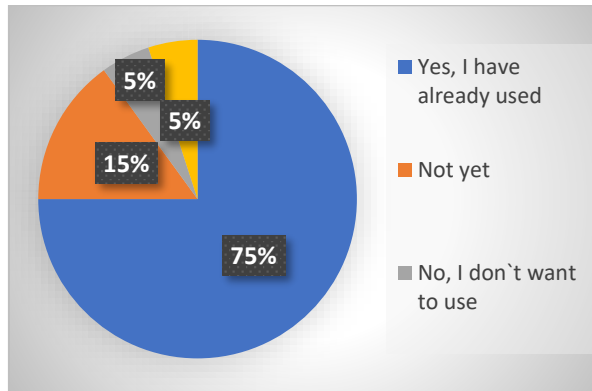
FIGURE 2
DYNAMICS OF THE POPULARITY AND NUMBER OF COURSES AND THEIR USERS ON
INFORMAL ONLINE EDUCATION PLATFORMS



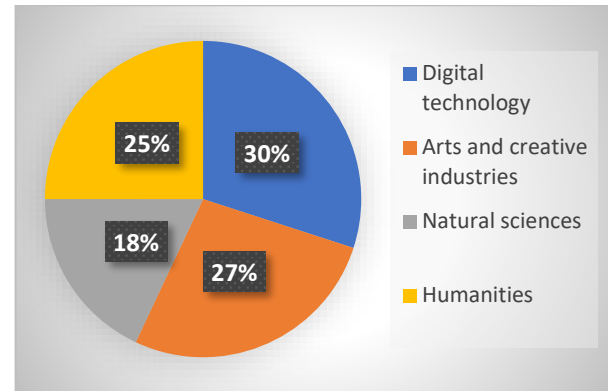
Note: broken down by the results of the platform analysis Coursera and Prometheus

The results of the analysis of statistical data on the development of informal online education platforms also confirm the results of a sociological survey that was conducted as part of the study. The results are presented in Figure 3.

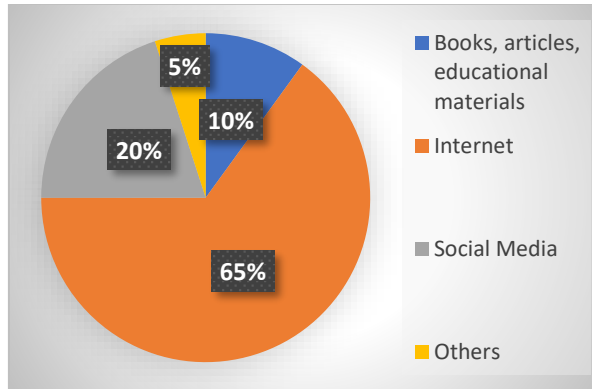
FIGURE 3
RESULTS OF A SOCIOLOGICAL SURVEY



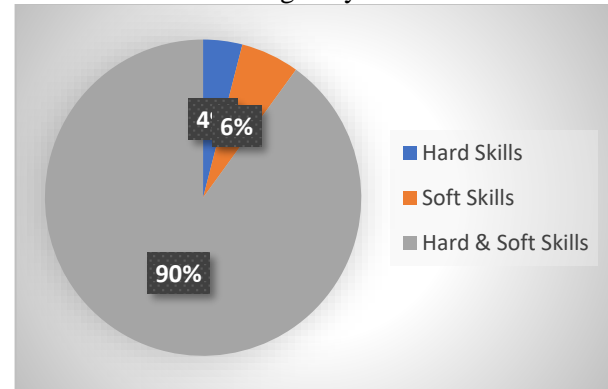
a) Do you use online non-formal education resources?



b) What areas of online non-formal education are most interesting for you?



c) What are the most used sources of knowledge for you?



d) What skills do you consider most necessary?

As a result of the sociological survey, it was determined that 75% of respondents already use informal online education systems, and another 15% have the desire but have not yet tried to use online educational platforms. Only 5% of the surveyed respondents answered that they are not at all interested in using online non-formal education methods. 85% of the surveyed respondents noted that they get useful information from the Internet and social networks, so they are the target audience for informal online education courses. The trend line, which was developed because of the statistical analysis of online educational platforms, is confirmed by the data from statistical surveys. 30% of respondents said they were interested in studying digital careers courses, and 27% prioritized the arts and creative industries. At the same time, most respondents (90%) determined that the combination of hard skills and soft skills is optimal in the education system.

Analyzing trends in the development of online education and informal training courses, and requests of potential consumers of educational services, it was determined that the role of the teacher in the educational process is changing somewhat. The analysis of literary sources made it possible to determine that the main role of the teacher in the learning process is the development of students' skills for cognition, search, selection, and processing of information. In the conditions of the development of innovative technologies, educational processes are being reformatted from requests for information submitted to requests for the development of skills in its search and processing. A large amount of information in open access has made learning processes accessible, however, if a person is not able to select relevant information, analyze it and draw conclusions useful for his further qualification, then mastering such information becomes impossible. Therefore, the role of the teacher is to develop such teaching methods that would allow the learner to

improve himself after acquiring basic knowledge and skills. Also, it is expedient to divide the educational activity according to the results into two large groups: training of soft skills and training of hard skills. Today, an important task, even in the formation of methods for the development of hard skills, is to supplement them with methods for training photo skills. Because in conditions of high competition in the labor market, processes of globalization, technological development, public activity, and competitiveness in the labor market can only be ensured by a balanced training of future specialists.

Based on the hypotheses put forward in the article, it is advisable to develop the following algorithm for the implementation of teachers' tasks in the system of forming the development of informal online education, in particular:

- determination of the target audience of the online course,
- definition of goals, tasks, and motives of the target audience before taking the courses,
- analysis of market requests for specialists in the directions for which courses are prepared,
- setting goals and objectives of the course, defining the mission and vision of education,
- structuring of skills that the learner should acquire after completing the course,
- development of the course structure,
- determination the topic of lectures and practical classes,
- recordings of materials in video, audio, written format or preparation for webinars, online classes, etc.,
- analysis of the results of the classes,
- elimination of shortcomings and improvement of the course by implementing the results of the analysis of reports into practice.

Therefore, the algorithm makes it possible to apply a cyclical system of processes for ensuring the educational process, which is a continuous system of improving the quality of educational courses of informal online education through constant analysis and transformations by the requirements of society and direct consumers of educational services.

DISCUSSION

As a result of the conducted research, trends in the development of informal online education were determined. The issue of determining the quality of online and offline education remains a debatable aspect of the research. The article puts forward a hypothesis of relatively high quality of online education if students have a responsible attitude towards the educational process. However, proving the practical value of online education can be explored in future studies. In the conducted analysis, the quality of online education is determined by the result of the analysis of statistical data from 2012, which indicate a constant increase in the number of users of informal education courses and their place in the labor market.

CONCLUSION

As a result of the conducted research, the role and place of informal online education in the system of training specialists for the modern labor market were defined. It has been determined that the popularity of informal online education courses is constantly growing, which is confirmed by trends toward an increase in the number of users of online courses. This trend has become especially relevant since 2019 in the context of the pandemic. Therefore, it is possible to determine trends in the growth of the share of users of informal online education in the general education system, which, according to the results of the projection of the trend line, will take place in the future. The role of the teacher in such an education system is, first, to provide education seekers with methods of learning, selection, analysis, and assimilation of information that is relevant to each profession or required qualification. The article developed an algorithm for the implementation of the pedagogical function in the system of informal online education.

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