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## Possibilities and prospects for the professional development of university teachers in the conditions of digitalization

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### Abstract

**Relevance.** The relevance of the study is due to insufficient study of the issue of implementation of measures to develop the professional competences of university teachers, taking into account available digital technologies and gadgets in the Republic of Kazakhstan.

**Purpose.** This article is aimed at identifying the most promising teacher training programs, taking into account the mass digitization of the educational environment, which can practically lead to an increase in the efficiency of higher education in Kazakhstan and, as a result, contribute to the economic development of the state.

**Methodology.** The leading approach to the study of this problem is the method of a natural experiment, with the help of which it was possible to assess the effectiveness of classical and innovative methods of professional development of university teachers. In addition to the natural experiment method, the article used system analysis, logical analysis, synthesis, deduction, classification, comparative analysis, observation and interviewing of respondents.

**Results.** The article presents the results of a cross-sectional study: the digital literacy skills necessary for a university teacher are described, which allow for the safe and productive use of digital technologies and gadgets, the five spheres of a university teacher's activity are presented, which are constituent elements of a teacher's professional activity, formal and informal ones are disclosed educational events aimed at the development of professional competences, two educational programs were developed and implemented; a comparative analysis of the results of the survey of respondents and their assessment of the effectiveness of the completed programs was carried out, the parameters for evaluating the prospects of the teacher's professional development in the conditions of digitalization were proposed.

**Conclusions.** The materials of the article represent practical value, as in practice they demonstrate the effectiveness of digital technologies used for the professional development of university teachers.

**Keywords:** mass open online courses; teacher's skills; quality of education; organization of the educational process; digital literacy.

### Introduction

The role of a university teacher has always been important and honourable; this is mainly due to the fact that the teacher is a carrier of valuable knowledge, the use of which

can help people create new ideas and technologies. A high level of education of the country's population leads to financial prosperity and the development of entrepreneurship, which also affects other factors of

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economic development: politics, attitude to natural resources, the quality of work of state institutions, the effectiveness of management in all spheres of public and private activity. Updating knowledge and skills in accordance with the latest discoveries is an important element of the work of a university teacher, as well as bringing the format of the educational process to one that meets the challenges of modernity. The issue of digitization of education and digital literacy of all layers of society has long attracted the attention of the scientific community, however, the COVID-19 pandemic has become an incentive for the actual widespread implementation of digital technologies without which the distance learning format cannot be implemented. The expansion of the spheres of application of digital technologies allows talking about the prospects of their use in the process of professional development of teachers.

In the work of D. Zhulamanova [1] considered the issue of professional development of young teachers. The author noted the perspective of the mentoring method, as well as the use of modern approaches and technologies during the training and development of specialists of various profiles. In their study, N.V. Morze et al. [2] developed a system of digital professional training of a university teacher based on the use of digital mini-courses to improve professional competence; the authors assume the availability of courses of different complexity, which would allow to adequately choose a professional development program for teachers with different levels of knowledge and skills. Mass open online courses (MOOC) as a method of professional development of university teachers were considered by scientists O. Bulvinska and I. Kapralova [3]. In the course of the study, the authors conducted a survey that showed a direct correlation between the use of MOOC and the professional qualification of the teacher, which indicates the perspective of this method.

O. Buinytska et al. [4] devoted their work to the development of a personalized method of self-improvement of digital skills among university teachers. The proposed method was based on the use of mini-courses in the format of online training, which, according to the authors, would make it possible to automatically monitor the progress in mastering new knowledge and skills, as well as independently create a training schedule on the online platform. O. Kirdan [5] singles out the mentoring of young teachers by their more experienced colleagues and the possibility of obtaining innovative knowledge and experience working with modern digital devices as the most effective methods of professional development in the conditions of digitalization, among the factors affecting the professional development prospects of university teachers. The results of the research showed that these events will allow teachers' pedagogical skills to be brought to a conceptually new level; a more professional teaching staff will have a positive impact on the quality of education in the country. A. Sghari [6] claims that modern universities need to reconsider their attitude to the use of gadgets and digital technologies, as they are considered a springboard to building a highly effective society. To actively use new technologies, university teachers need to develop digital skills with the help of a modular object-oriented dynamic learning environment, MOOC, small private online courses and other training methods.

The study considers the professional development of teachers as one of the ways of accelerating the economic growth of the state due to the direct influence of this factor on the volume and quality of knowledge obtained by students of higher education institutions. Based on the reviewed works, this study focused on identifying the most promising training programs taking into account the mass digitization of the educational environment, which can be used to acquire new professional knowledge and skills of university teachers in practice. In addition to it, the attention was paid to the development of digital competence of teachers as a method of increasing the efficiency of interaction with digital technologies/gadgets in the process of acquiring professional competences.

## **Materials and Methods**

To study the digitalization of the educational environment from the point of view of opportunities and prospects of professional development for university teachers, valid research methods were used during the work, namely: system analysis, logical analysis, methods of synthesis and deduction, classification, comparative analysis. To check the effectiveness of the developed methodology, aimed at the professional development of teachers, the methods of natural experiment, observation, and surveying of respondents were used.

With the help of the deduction method, the topic of the study and the desired design of the study were determined. Thus, the format of a cross-sectional study was chosen, which made it possible to assess the effectiveness of the developed strategy for improving professional competences. The method of logical analysis was used to clarify a number of definitions necessary for further work. The natural experiment method was applied to a sample of teachers (N=38) from universities in Kazakhstan (Al-Farabi Kazakh National University, Turan University, Almaty Technological University); their participation was voluntary. During the natural experiment, the sample was divided into two groups: control (n1=19) and experimental (n2=19). The participants were offered a training program aimed at the professional development of university teachers. The control group attended offline events aimed at improving professional competences, while the experimental group used various online courses and learned how to work with digital technologies and gadgets. All participants of the experiment signed agreements that guaranteed them confidentiality. The survey of respondents was conducted at the end of the experiment and was aimed at revealing the respondents' personal subjective assessment of the effectiveness of the training they received according to how their competence increased in various areas of professional activity, namely: transfer of knowledge, improvement of the quality of higher education, introduction of innovations, establishment of professional interpersonal relationships (networking), development of an entrepreneurial university.

The comparison method was used to study the results of the survey of respondents. With its help, the differences between the survey results of the experimental and control groups were considered. The method of observation was used in this paper with the aim of revealing the positive and negative effects of each of the proposed programs, which in the long run will make it possible to create the most

balanced program for the development of professional competences. The classification was applied at the stage of determining formal and informal methods of professional competence development. This method made it possible to identify two global paths of professional development for university teachers: with the help of third-party methods previously organized by the university or the state, or on your own initiative, creating your own unique learning environment with the help of available information and networking.

The system analysis in this work was used to consider the professional development of university teachers as a set of skills in a number of areas of professional activity, covering both academic and pedagogical knowledge, as well as personal qualities of the teacher. With the help of the synthesis method, in this study, it was possible to combine the information obtained during the work, which allowed to look at the professional development of teachers in a comprehensive way and to draw conclusions about the need for the harmonious development of the teacher in all professional spheres, as well as the development of his/her leadership qualities.

## Results

The high quality of higher education guarantees the training of professional personnel. Timely modernization of the educational sphere can significantly improve the quality of education, thereby stimulating the flow of qualified labour to the labour market. This perspective is indicated by the experience of state leaders in the field of higher education: in the USA, the reform of access to higher education made it possible to reduce inequality in society, provided equal opportunities for the poor and the rich, which as a result had a positive effect on the labour market and the efficiency of the state's internal economic activity [7; 8]. This study will focus on the second method of indirect influence on the economy of the state, namely, the professional development of university teachers. Relying on trained university teachers, the state can influence the following factors of economic growth: the volume of qualified labour on the labour market; productivity; creation of new jobs and growth of population employment; establishing connections between the sphere of education and business: formation of entrepreneurial universities; introduction of innovations in organizational and production processes of enterprises; an increase in the amount of money coming to the country's budget from universities; an increase in the number of open doors useful for society; sociocultural development of society.

Three main paths were identified, with the help of which the professional development of a university teacher takes place, namely: transfer of experience (coaching), reflection and self-education. Each of these methods requires the use of various educational methods and approaches, and their compilation guarantees more effective mastering of new knowledge. The transfer of experience is an important tool for the professional development of teachers. If we are not talking about the latest developments and scientific discoveries, this method shows its effectiveness in all communities. For example, the transfer of pedagogical skills can occur during the working process, while familiarization with scientific

discoveries or new equipment requires attending accredited lectures or practical classes. Scientists call the transfer of knowledge from more experienced teachers to their younger colleagues one of the most effective methods of professional development [9]. Reflection as a way of knowing one's own pedagogical experience is required for every teacher. A reflective university teacher is inclined to improve his work methods and thus guarantee an improvement in the quality of education and introduce various innovations into the educational process. Self-education as a way of learning has become especially widely used by teachers with the development and availability of the Internet. Modern technologies make the process of self-education much easier than a few decades ago, which also implies the need to study new ways of obtaining knowledge [10].

Today, the digitization is an element of the process of transition to digital capitalism, which is characterized by the digitization of all spheres of human life. Digitization can also be considered as a method of finding and making optimal decisions, which, in the long run, will lead to general economic well-being [11]. Effective use of digital technologies and gadgets for the purpose of professional development requires university teachers to improve their digital skills. In a broad sense, a teacher's digital competence is based on the ability to effectively apply digital technologies in one's professional activities, both from the point of view of the teaching process and for the development of one's own professional skills. Sufficient awareness of existing digital technologies and gadgets can allow a university teacher to implement more thoughtful planning of the educational process, using the most suitable methods and tools for solving actual educational problems [12; 13]. The use of digital technologies and gadgets for the professional development of university teachers requires the formation of the following digital literacy skills:

- creation of a safe digital environment using various hardware and software methods of personal data protection (passwords, double authentication, antivirus);
- working with information: the ability to search for information and digital content, critically evaluate and filter data, create a logical and effective storage system;
- creating your own digital content; this skill can be implemented at several levels of complexity, from processing digital content publicly available on the Internet to developing your own using various software or programming;
- networking as a skill of digital literacy should be considered from the point of view of the teacher's ability to establish productive communication and interaction with colleagues, scientists, and students through digital channels: social networks, e-mail or any other online platforms. Participation in online events (conferences, seminars, lectures) can also be considered as digital networking;
- the ability to independently solve emerging technical problems, determine technological needs and implement innovations.

The professional development of a university teacher should be aimed at developing the skills necessary for the teacher to fulfil his or her job duties. The following spheres of activity of a university teacher were determined, which

are constituent elements of professional activity: transfer of knowledge; improving the quality of higher education; introduction of innovations; establishing professional interpersonal relationships, networking; development of the entrepreneurial university. Events aimed at the professional development of university teachers are divided into formal and informal. The first are supervised and implemented on the basis of a higher education institution or may be initiated by the Ministry of Education or other official government structures. Informal events have the character of private initiatives and are not directly related to the official activities of the university. The development of elements of the professional activity of university teachers should take place both with the help of formal and informal events, which allows achieving a balance between the extent to which the university and the state are interested in the professional development of teachers, as well as the personal initiatives and actions of teachers. Strengthening such an element of professional development as the transfer of knowledge using formal methods includes the use of MOOC or offline courses accredited by the university/state, attendance at thematic conferences. Informal events include participation in professional communities (offline or in social networks) with the aim of transferring experience and exchanging information.

Improving the quality of higher education is an important task for every employee in this field and requires special diligence from teachers. Formal events aimed at developing this element of the professional activity of a university teacher are focused on creating a highly effective professional environment with the help of accredited courses, seminars, conferences, symposia and other events aimed at training in the development of effective educational programs [14]. In addition, online or offline tutoring can become one of the formal methods of improving the quality of higher education. Informal events in this case will consist of the teacher's participation in professional discussions, as well as independent consideration of methods for improving current educational programs.

Modern realities of digitalization are a promising condition for the introduction and development of innovations in higher education. Formal methods of teaching teachers to introduce innovations into the educational process are based on the use of various accredited programs: courses, seminars, conferences, symposia, etc. In addition to it, in the context of the introduction and development of innovations in higher education, an important role is played by the opportunity to participate in research or scientific activities, which allows teachers to practically study innovations and methods of working with new technologies. Various activities related to the study of innovations with the help of brainstorming, scientific games, visiting places where you can get acquainted with innovations (technologies and gadgets), participation in communities (online and offline) refer to informal methods of professional development in the field of innovations.

Networking and establishing productive communication with students and other teachers are an essential part of the work of a university teacher [15]. The development of communication skills often occurs with the

help of informal methods, namely through participation in the scientific community (online and offline) and joint scientific activities. Formal methods are reduced to accredited courses aimed at developing pedagogical skills, seminars, or lectures dedicated to networking. Entrepreneurial University is a promising form of educational institution aimed at preparing graduates to run a business, which has a positive effect on the state's economy. To this end, teachers should also be part of the university's entrepreneurial ecosystem. Formal methods consist of accredited courses, seminars, lectures, etc., and informal methods consist of participation in business communities or self-management of business activities. It is worth noting that in states that are aimed at the development of entrepreneurial universities, state teacher training programs are being created, which has a positive effect on the volume of formal training methods [16; 17].

The harmonious development of the five skills described above (transfer of knowledge, improvement of the quality of higher education, introduction of innovations, establishment of professional interpersonal relationships/networking, development of an entrepreneurial university) among university teachers is the key to more effective performance of their work duties and, as a result, quality training of students and promotion the prestige of higher education in Kazakhstan. Trained highly professional young personnel have the potential to develop the state's economy through the creation of start-ups and the attraction of foreign direct investment, or by developing existing medium and large businesses. The development of an entrepreneurial university as part of the professional activity of a university teacher may include the transfer of practical skills of running a small business to students. Considering the professional development of university teachers from the point of view of financial expenses for their employers (regardless of whether it is a private or state university), it is possible to predict the payback of this type of expenses due to an increase in the rating of the university, the success of its graduates, positive feedback from students and, as a result, increase in the prestige of the educational institution.

The first stage in the process of developing professional skills is the definition of needs and the identification of the current level of knowledge, which can be realized based on the experience of the teacher, his/her scientific works, testing, surveying, or assessment by students of the professional competences of their teacher [18]. Further, given the received information, the necessary training format for the teacher should be determined. This can be a long-term or short-term course of lectures (including MOOC), practical training; training can be aimed at improving academic, pedagogical competences, or both at the same time [19]. In some cases, the most effective format is coaching or participation in scientific activities in a group with more experienced colleagues. During the conducted research, the control group of teachers used the following formal and informal methods of professional development:

- attending lectures, seminars, courses, conferences, or other offline events aimed at developing the professional competences of university teachers;
- independent work on the curriculum;

- participation in discussions with colleagues, discussion of promising methods of improving higher education, its quality, and the vector of further development;
- reflection.

The experimental group, in turn, was offered the following methods of professional development, taking into account the current conditions of digitization:

- MOOC as an alternative to classic educational events in an offline format;
- exchange of information with teachers regarding the experience of using digital technologies and gadgets in the educational process;

- practical classes aimed at acquiring skills in using digital technologies and gadgets in the educational process;
- creation of a curriculum for students, in which digital technologies and gadgets would be used.

After the experiment, the participants of the control and experimental groups were asked to evaluate the effectiveness of the programs from the point of view of their satisfaction with the program and the extent to which their professional competence increased in the areas of knowledge transfer, improving the quality of higher education, introducing innovations, establishing professional interpersonal relationships (networking), and developing an entrepreneurial university. The survey results are shown in Table 1.

**Table 1.** Evaluation of the effectiveness of professional development programs

Criterion	Experimental group	Control group
Transfer of knowledge	8.5	8.3
Improving the quality of higher education	8.7	7.7
Implementation of innovations	9	4.2
Establishing professional interpersonal relationships, networking	6.4	7.9
Development of an entrepreneurial university	8.7	5.6
Average rating	8.3	6.7

The overall effectiveness of professional development methods with the use and study of digital technologies was rated higher by the respondents than the program based on traditional methods of obtaining information. The teachers evaluated the quality of learning, the skill of introducing innovations in the most different ways. This fact can be explained by the presence of practical employees in the experimental group, aimed at studying and using digital technologies and gadgets. At the same time, the criterion “establishing professional interpersonal relations, networking” was evaluated above by the control group, which indicates the importance of communication in an offline format for the formation of professional competences of teachers.

The professional development of a university teacher cannot be focused exclusively on academic knowledge related to him or her subject, it should equally concern the development of the teacher's personality from the point of view of acquiring or developing interaction skills, leadership qualities, maintaining personal interest in research activities and transfer of this interest to students [20]. Reflection and empathy are necessary qualities for a teacher, the development of which depends, among other things, on the opportunity to feel oneself in new circumstances and conditions. Digitization of the education sphere and the need to keep up with these changes contributes to the personal development of teachers and allows you to put yourself in the place of a student when faced with completely new technologies and, thus, through reflection and empathy, transform the curriculum and improve the quality of higher education in Kazakhstan. Prospects for the professional development of a teacher in the conditions of digitalization should be evaluated according to the following parameters:

- the academic level of the teacher;
- personal qualities of the teacher, his/her approach to students, perception of his/her role;

- the quality and availability of methods for improving professional competences;

- the level of academic and pedagogical knowledge and skills of a coach conducting professional development courses;

- the teacher's position in the educational community.

The effectiveness of the program used for the professional development of teachers should be evaluated according to how the teacher can apply the acquired knowledge and skills in practice. The success of university students and their assessment of the teacher's work are significant indicators. It is also necessary to organize state monitoring aimed at identifying the influence that university graduates have on the state's economy. Digital technologies as a way to achieve the goal of professional development provide many opportunities. In order to take advantage of these promising technologies, university teachers need to meet the criteria of self-efficacy in relation to digital technologies and gadgets. Self-efficacy in this context is expressed in the ability to interact with digital technologies and gadgets, to fully use the opportunities provided by these sources of information for one's everyday and professional activities. The ability to choose a digital technology and/or gadget in a balanced and reasoned way and include it in the training plan also indicates a sufficient level of pedagogical skill and digital literacy of the teacher.

## Discussion

Mass open online courses were considered in his work by N. Sultana et al. [21]. Against the background of the positive results from the application of this approach noted in the study, the authors pay special attention to how limited the practice of MOOC is today in higher education institutions of countries that are not recognized as leaders in the development and implementation of innovations in education. In order to improve this indicator, in the study of N. Sultan and his colleagues, a strategy was developed

to popularize MOOC among teachers and university administrations. The proposed measures include: organization of feedback for course participants, involvement of teachers in the development of MOOC, learning from other educational institutions that successfully use MOOC, organization of meetings to explain to more mature teachers the prospects of using MOOC, as well as involvement of experts in the field of information technologies, which could individually provide assistance to teachers in the process of passing MOOC in the context of possible problems with modern technologies. These methods of popularizing open online courses are also relevant for teachers from Kazakhstan; the active spread of this self-learning method can bring the professional competence of teachers to a qualitatively new level, since the practice of MOOC does not require physical attendance at lectures, and in some cases, it can be free, which is especially relevant in states with low wages for workers in the educational sector.

Mental stability and job satisfaction are important aspects of the successful professional activity of teachers; these aspects also significantly affect the pace and efficiency of professional development (especially in the new conditions of digitalization). Research by H. Zhang [22], in which the scientist conducted a survey of more than 2000 teachers, showed the high importance of the presence of remuneration for the applied efforts for university teachers. Receiving a reward showed a positive effect on reducing anxiety and stabilizing the mental state of respondents. In order to guarantee a balance between effort and reward, the author developed a system for maintaining the psychological contract, which can also be an important element when building a system of professional development of university teachers in the conditions of digitalization. The presence of a proper response to the efforts made by teachers (for example, when acquiring new digital skills) can stimulate better and easier transformations in the education sphere of Kazakhstan [23-25].

Professional development using the factor of interpersonal interaction between colleagues was considered I. Noben et al. [26] in a paper dedicated to the departmental project of improving the qualifications of university teachers. The authors argue that establishing connections between colleagues contributes to the professional growth of teachers, and the presence of stable connections often positively correlates with extensive experience as a university teacher. Based on the results of the considered study, it is possible to conclude that even in the conditions of remote work, teachers need to create conditions for interaction. One of the ways of communication between employees can be social networks. The organization of special chat rooms or communities for teachers from the same department will allow maintaining communication between them, sharing knowledge and involving young teachers in discussions. In addition, it is possible to create special Internet platforms on the basis of universities, focused on the exchange of experience and communication between teachers.

The adaptive cycle in the form of successive, continuously repeating stages of reorganization, growth, preservation, and liberation in the process of developing the professional skills of teachers was considered I.

Kinchin [27] in his study of the professional development of university teachers through an ecological prism. It is worth noting that the concept of the adaptive cycle is universal and can be used to describe any processes and skills in a person's professional and personal life. During the research, the scientist identified four main adaptive cycles that have a direct impact on the professional development of teachers, namely: cycles of training, research, leadership, and management. The development of skills necessary for the qualitative deployment of each of the described cycles is a direct task of the professional development program. It is also important that the program covers these professional competencies of the teacher to an equal extent, not ignoring, for example, the development of personal qualities or management skills and devoting more time and attention to the academic activity of the teacher.

I. Gast et al. [28] conducted a semi-structured interview with ten teachers during their study of the influence of professional development of young university teachers on their psychological well-being. The following forms of educational activity aimed at improving the qualifications of teachers were selected by the scholars: seminar, reflection, receiving feedback, learning from professionals and participation in the community of other teachers. The results of the survey showed that each of the described forms of educational activity had a positive effect on one or more constituent elements of psychological well-being in working conditions. These include: self-acceptance, the ability to work independently, goal setting, relationships with colleagues, and personal growth. Thus, applying the set of described forms of educational activity can have a positive effect on the professional development of teachers. The conditions of digitalization of the educational process are not recognized as an obstacle to the application of each form of educational activity: for example, participation in the community of other teachers can be organized with the help of online platforms, social networks, methods of interactive interaction between colleagues, etc. Stimulating reflection does not presuppose any specific conditions, but rather depends on the information content of the materials provided to the teacher. Seminars, training from professionals and feedback can be considered an integral part of modern education and, accordingly, are provided in a distance learning course for university teachers [29-31].

K. Goswami [32] considers the professional development of teachers as an element of the development of an educational institution and the entire system of higher education in the state. In her work, aimed at studying and assessing the need for training university teachers for professional development, the author emphasized the significant positive impact of government assistance (programs, grants, etc.) on the effectiveness of teachers and their level of professional development. The program of the Indian government described in the work in the context of improving the professional competence of teachers is aimed at their training with the help of the most modern methods and tools. Thus, the government of India guarantees the transfer of innovative knowledge from teachers to students, which positively affects the innovative development of India and promotes the training

of professional personnel with the most relevant knowledge and skills.

Support of the education sector from the government is an important factor in creating a unified system and mechanism of professional development for university teachers. The development and implementation of governmental programs of professional development aimed at the development of digital skills on the basis of universities of Kazakhstan will allow building and implement a unified program of professional development with the involvement of the state material and technical base, as well as facilitate cooperation with leading countries in the field of education and allow adopting the experience of digital transformations from first hand [33]. The synergy of state bodies and the scientific community can become the most effective way to improve the quality of higher education. The result of such interaction can be an increased level of training of students and their effective professional activity for the benefit of the state economy [34; 35].

Methods and prospects of using information technologies for the professional development of teachers were studied by Q. Xiao [36]. In his work, the author of the study disclosed the working method of the open-source Moodle learning platform, which allows you to manage online courses. Having analysed the capabilities of the Q. Xiao's platform developed a new methodology aimed at the professional development of university teachers based on the interactive capabilities of the platform. The results of the considered research indicate the possibility and need to update the methods of teaching teachers on already existing educational platforms. Introducing the practice of receiving feedback from a mentor into the professional development process or changing the standard content of lectures depending on individual needs can become an impetus to increase the effectiveness of the program used and improve the results among teachers. The reviewed works indicate numerous methods of improving professional competence available today. Applying one or more of the methods described above requires teachers to be open and willing to learn and apply new practices.

## Conclusions

This paper demonstrated the prospects of using digital technologies and gadgets in the educational process as one of the elements of ensuring the professional development

of university teachers and part of the curriculum for students. Since this study was aimed at identifying the most effective methods of interaction with digital technologies and gadgets for the purpose of professional development as part of the economic development of the state, promising formal and informal training methods were identified and empirically tested. The use of mass open online courses as a way of obtaining information in an accessible form, as well as practical classes, which allow teachers to acquire practical skills in working with software and gadgets, have shown themselves to be the most positive. The teachers who took part in the study in the experimental group noted that comfort was an important distinguishing feature of their training – most of the training took place in an online format (often in recordings), which made it possible to usefully distribute personal time and made training easy from a psychological point of view.

This study of digitalization in the context of the professional development of university teachers helped to reveal the prospects of using digital technologies as a means of economic development of the state, which indicates the need to improve the digital literacy of teachers not only to improve their own professional qualities (academic and pedagogical), but also in everyday life. Nevertheless, this study revealed a lack of interpersonal communication in a group focused on the use of digital technologies and gadgets, which indicates the need for future studies to review the scope of the used training methods and add offline seminars/workshops focused on the formation and development of communication skills and leadership qualities from teachers. The revised professional development program can be a way to improve the quality of higher education in the Republic of Kazakhstan, as well as increase the digital competence of the country's population, which can lead to a quantitative increase in professional labour resources, which, in turn, will positively affect the economic development of Kazakhstan.

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## Conflict of Interest

None.

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## **Можливості та перспективи професійного розвитку викладачів університетів в умовах цифровізації**

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### **Анотація**

**Актуальність.** Актуальність дослідження обумовлена недостатньою вивченістю питання реалізації заходів з розвитку професійних компетенцій викладачів університетів з урахуванням доступних цифрових технологій і гаджетів в Республіці Казахстан.

**Мета.** Метою даної статті є визначення найбільш перспективних програм підготовки викладачів з урахуванням масової цифровізації освітнього середовища, які на практиці можуть призвести до підвищення ефективності вищої освіти в Казахстані і, як наслідок, сприяти економічному розвитку держави.

**Методологія.** Провідним підходом до дослідження даної проблеми є метод природного експерименту, за допомогою якого вдалося оцінити ефективність класичних та інноваційних методів професійного розвитку викладачів університету. Крім методу природного експерименту, у статті використано системний аналіз, логічний аналіз, синтез, дедукцію, класифікацію, порівняльний аналіз, спостереження та опитування респондентів.

**Результати.** У статті представлено результати крос-секційного дослідження: описано навички цифрової грамотності, необхідні викладачеві університету, які дозволяють безпечно та продуктивно використовувати цифрові технології та гаджети, представлено п'ять сфер діяльності викладача університету, які є складовими елементами професійної діяльності викладача, формальними та неформальними, розкрито освітні заходи, спрямовані на розвиток професійних компетентностей, розроблено та впроваджено дві освітні програми; проведено порівняльний аналіз результатів опитування респондентів та їхньої оцінки ефективності реалізованих програм, запропоновано параметри оцінювання перспектив професійного розвитку вчителя в умовах цифровізації.

**Висновки.** Матеріали статті становлять практичну цінність, оскільки на практиці демонструють ефективність цифрових технологій, що використовуються для професійного розвитку викладачів університетів.

**Ключові слова:** масові відкриті онлайн-курси; навички викладача; якість освіти; організація навчального процесу; цифрова грамотність.