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Organizational and pedagogical conditions for teachers' readiness formation to use information technologies and distant learning

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ОРГАНІЗАЦІЙНО-ПЕДАГОГІЧНІ УМОВИ ФОРМУВАННЯ ГОТОВНОСТІ ВЧИТЕЛІВ ДЛЯ ВИКОРИСТАННЯ ІНФОРМАЦІЙНИХ ТЕХНОЛОГІЙ ТА ДИСТАНЦІЙНОГО НАВЧАННЯ

Стаття присвячена дослідженню проблеми формування у педагогів закладів загальної середньої освіти готовності до використання інформаційних технологій та дистанційних форм навчання. Основна увага дослідження зосереджена на педагогах, які працюють у школах та завершили професійну освіту не менше десяти років тому, які вже мають певний досвід педагогічної діяльності та планують розвивати свою педагогічну кар'єру. У статті здійснено аналіз досліджень вітчизняних науковців щодо сутності поняття готовності та компонентів, які її визначають. Зокрема, в результаті аналізу сформульовано узагальнене визначення готовності педагога до провадження професійної діяльності, яким послуговувались у процесі дослідження: професійна готовність педагога – це складне, багатокомпонентне поняття, яке потребує певного формувального процесу, який триває впродовж усієї професійної діяльності вчителя. Готовність або здатність педагога до сприйняття інновацій у професійній діяльності формується зовнішніми та внутрішніми факторами, які повинні, в ідеалі, гармонійно поєднуватись та доповнювати один одного.

Сформульовано та аргументовано організаційно-педагогічні умови формування у педагогів закладів загальної середньої освіти готовності до використання інформаційних технологій та дистанційних форм навчання у процесі професійного розвитку, а саме: наявність державного професійного стандарту вчителя, який визначає інформаційну компетентність вчителя відповідно до його освіти та посади; стійка мотивація до використання інформаційних технологій у професійній діяльності; створення на робочому місті викладача відповідного технічного забезпечення; наявність у закладі освіти інформаційного навчального середовища та відповідного технічного обладнання і програмного забезпечення; система професійного розвитку педагогів закладу освіти щодо використання інформаційних технологій та дистанційних форм навчання у освітньому процесі; професійна свобода вибору форм, методів, технологій та інструментів навчання; належне фінансове забезпечення використання інформаційних технологій та впровадження дистанційних форм навчання у закладі освіти.

Визначено перспективи подальших наукових розвідок за означеною проблемою, а саме аналіз сучасного стану нормативно-правової бази України, яка регламентує та унормовує процес інформатизації та впровадження інформаційних технологій та дистанційного навчання у закладах освіти України; аналіз причин гальмування процесу впровадження дистанційних форм навчання у освітній процес закладів загальної середньої освіти України; дослідження сучасного стану змістового наповнення та організації професійного розвитку інформаційної компетентності педагогів шкіл у закладах післядипломної освіти.

Ключові слова: *професійний розвиток; професійна готовність; інформаційна компетентність педагога; дистанційне навчання; організаційно-педагогічні умови.*

ORGANIZATIONAL AND PEDAGOGICAL CONDITIONS FOR TEACHERS' READINESS FORMATION TO USE INFORMATION TECHNOLOGIES AND DISTANT LEARNING

The article is devoted to the study of teachers' readiness formation to use the information technologies and distant learning. The research focuses on teachers working in schools who have completed vocational education for at least ten years ago as well as have already got some teaching experience and plan to develop their teaching career. The article analyzes the research works of Ukrainian scientists concerning the essence of the concept of readiness and the components that determine it. In particular, the notion of teacher's readiness to conduct a professional activity, which has been used throughout the research, was defined as following: «teacher's professional readiness» is a complex, multicomponent concept that requires a certain formation process throughout the professional activity of a teacher. The readiness or ability of a teacher to perceive various innovations in the professional activity is formed by external and internal factors, which, ideally, should be harmoniously combined and complement each other.

The organizational and pedagogical conditions for the formation of teachers' readiness to use information technologies and distant learning in their professional training have been formulated and substantiated, namely: the availability of the state professional standard of a teacher, which determines the teacher's informational competence according to his/her education and position; a steady motivation to use information technologies in the professional activities; the creation of an appropriate technical support on the teacher's workplace; the availability of an information learning environment and sufficient technical equipment and software in the educational institution; system of teachers professional training concerning the use of information technologies and distant learning in the educational process; professional freedom to choose forms, methods, technologies and teaching tools; adequate financial support for the use of information technologies and the introduction of distant learning in the educational institution.

The prospects for further scientific research on the defined problem are the following: analysis of the current state of the regulatory and legal framework of Ukraine that regulates the informatization and implementation of information technologies and distant learning in Ukrainian educational institutions; analysis of the reasons for the inhibition of the distant learning introduction in the educational process of Ukrainian institutions of secondary education; the study of the current state of content and the organization of professional development of school teachers' information competence in institutions of postgraduate education.

Key words: *professional training; professional readiness; information competence of a teacher; distant learning; organizational and pedagogical conditions.*

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Introduction

Evidence suggests that an essential indicator of the educational system capability to integrate into the world educational process is the conformity of certain components of the national education system to the requirements and standards of the world. «The formation of a post-industrial society at the beginning of the 21st century with global problems which have brought mankind to the brink of survival has changed the views on the world, on the place and role of a person in it, on education» (Ashytok, 2018, p. 16). The level of information technologies usage in the work of a teacher, his/her information competence and culture, the ability to meet the requirements of the digital society is one of the indicators of this correspondence. As Maksymuk states, «the basis for ensuring the high quality of education is the use of effective educational technologies, the integration of the educational process and scientific activities and the involvement of students in it, the individualization of education and upbringing, the creation of a trustful environment of creative cooperation in higher educational institutions, the continuous self-development and self-realization of students» (Maksymuk, 2018, p. 186).

The key driving force for the active implementation of information technologies in the educational process of the country should be the regulatory and legislative framework that regulates it, determines the essence of concepts, mechanisms for its formation, development and implementation, as well as defines the terms and algorithms of interaction between state and other institutions and organizations, which implement the norms of law and regulation. The availability of a coherent and verifiable regulatory framework enables the implementation of educational institutions informatization and informational learning environment formation.

However, this is just one side of the process. It defines the content, organization, financing, conditions, technical and technological support, timing, and expected results of the informatization implementation, but cannot guarantee its successful completion while ignoring the internal factor of this process such as human one, which in fact is a key indicator of its efficiency and effectiveness.

Successful formation of an effective educational information environment of the educational institution is possible at the next stage of the implementation of information technologies in the educational process and is characterized by the provision of appropriate organizational and pedagogical conditions that, in fact, create framework for the systematic use of innovative technologies, new forms and methods of training, etc.

Theoretical framework

The steady motivation of a teacher to use information technologies, innovative forms and teaching methods, in particular, distant one, does not appear immediately, but has being formed for a long time. In order to ensure the sustainability of such a professional need for a teacher of any discipline, it is necessary to initially form a corresponding readiness for innovations perception.

It must be admitted that the essence and content of structural components of professional readiness or readiness for certain professional activities are the main topic of pedagogical discourse. With the development of new technologies, this discourse is being activated, as the dynamic development of a society contributes to the emergence of new factors influencing the content and structure of the concept.

A considerable amount of literature has been published on the problems of readiness for a certain professional activity in Ukrainian pedagogical and psychological science. However, the overwhelming majority of research focuses on the formation of professional competencies and pedagogical readiness of future professionals. Thus, the formation of the professional readiness of future teachers was studied by Havrysh (2006), Dudorova (2014), Zharovtseva (2007), Konovalchuk (2011), Ostapenko (2013) and others. And a small amount of scientific research is devoted to the study of readiness formation and specific competencies, in our case, information ones, of in-service specialists – Dehtiarova (2011), Morze & Vorotnikova (2016), Morin (2016).

The readiness of a teacher for professional activity as a general pedagogical problem, its content, structure and components have been studied by Havrysh (2006), Mukan, Noskova & Baibakova (2017), and Slastenin (2004).

So, in particular, V. Slastenin (2004), considers the teacher's professional readiness as an integrative activity structure that contains the following components: «psychological readiness (focus on activity, work set); scientific and theoretical readiness (possession of a certain amount of pedagogical, psychological and social knowledge required for competent professional activity); practical readiness (formed professional skills); psychophysiological readiness (appropriate prerequisites for mastering professional activity, as well as professionally significant personal competences); physical readiness (compliance of health state and physical development with the requirements of professional activity and ability to work)» (Shukhral, 2015).

L. Parashchenko (2004), while carrying out the analysis of studies devoted to the content and components of the «readiness of a teacher» concept, notes that it is worth distinguishing motivational, orientational, operational, volitional and evaluation components of professional readiness.

While defining the structural components of the «teacher readiness for professional activity» concept, practically all scientists define the motivational and target components, which involve professional guidelines, positive attitude to the profession, interest in it, persistent intentions to devote themselves to pedagogical activities as the most essential ones. The deliberate activity of a teacher, which is described, in a way, as a professional fanaticism, may force him/her to seek new effective forms and methods of work as well as encourage innovation.

Scientists consider the content-operational component, which includes the system of professional knowledge, skills, pedagogical thinking, professional focus, perception, memory, actions and operations, necessary for the successful implementation of vocational and pedagogical activities equally significant. This component allows a teacher to feel free within the discipline taught, to choose the most effecttive forms of teaching, to ensure the educational interaction of participants in the educational process and to control its results.

It should be noted however that due to author's interpretation these components are either separated (Pekhota, 1997), or called differently: content and activity component (Lytvynenko, 2005), content and procedural one (Havrysh, 2006), etc. It is worth mentioning that Trotsko (1997) outlines an orientation component which involves value-professional orientations based on principles, views, beliefs, and willingness to act. Scholars define the evaluative or evaluative-productive (Havrysh, 2006) component, which includes the self-assessment of one's professional training and the relevance of solving professional problems to appropriate pedagogical models, as an important component of the teacher's readiness for vocational and pedagogical activity. Scientists also include the emotional-volitional, psychophysiological (Trotsko, 1997), the integrational (Pekhota, 1997), as well as creative (Lytvynenko, 2005) components into the readiness structure. However, it should be emphasized that different interpretations of this concept do not exclude, but expand and deepen the idea of the phenomenon under investigation (Harkusha, 2013).

Thus, in our research, we will use «teacher's professional readiness» notion interpretation as a complex, multicomponent concept that requires a certain formation process throughout the professional activity of a teacher. The readiness or ability of a teacher to perceive various innovations in the professional activity is formed by external and internal factors, which, ideally, should be harmoniously combined and complement each other.

Aim of the study

The article aims to determine the key organizational and pedagogical conditions for the formation of teachers' readiness to use information technologies and distant learning in Ukrainian public schools.

Results

The teacher's personal awareness and desire to introduce and implement changes is significant or even crucial for the successful implementation of information technologies in the educational activity of any educational institution. In our thorough analysis we have found out that the implementation of information technologies

into educational process will be reasonable, expedient and effective only if a teacher possesses strong internal motivation both to use information technologies in his/her professional activity and to form and continuously develop information competence in combination with the above mentioned external factors.

The introduction of information technologies and distant learning into the teaching process is among the innovations associated with certain factors and circumstances that encourage teachers to leave the comfort zone and master new technologies.

Some objective and subjective factors influence the ability to master information technologies as an educational tool, as well as the ability to effectively choose certain information tools, applications and educational platforms in the teaching process. In particular, this is a teacher's age, his/her previous experience in computer handling and Internet using, the professional environment, the technical equipment of a teacher's and student's workplace, the authority's attitude towards the innovations, a teacher's personal goals in innovations introducing, the ability and conditions for a teacher's development and self-development, etc.

It is worth noting that time when a teacher received his professional qualifications and started his/her professional activity at an educational institution is an extremely important factor. The results of this study indicate that modern students, who are mostly children of the digital era, easily master innovations related to ICT or the Internet, quickly understand the procedures and techniques of their use, learn how to determine their pedagogical capabilities and the feasibility of choosing certain services and applications. However, according to the official statistics, in modern Ukrainian school, almost half of teaching staff, 48.9 %, have more than 20 years of teaching experience, over 22 % work in schools from 10 to 20 years. Thus, almost two-thirds of the teachers did not receive appropriate training on the use of information technologies in teaching at a higher educational institution and are forced to acquire such knowledge, skills and abilities in the process of their professional activity. That is why our research focuses on teachers who already work in educational institutions and completed their studying at higher educational institutions at least ten years ago.

Another important finding is that system changes and the introduction of innovations require substantial and reasoned levers that encourage a wide range of individuals to implement them. In addition, these levers must be both clear and necessary and influence the direct interests of everyone involved in these changes.

That is why we consider that developed and approved in the nearest future state professional standard of a teacher, which will include the mandatory requirements for the digital competence of a teacher, depending on his/her education and position, as well as determine the perspectives and requirements for the development of informational competence and culture of a teacher for his/her further professional career has to be the primary organizational condition for the formation of a teacher's readiness and his/her realized need for the use of information technologies in the educational process. In our opinion, the well-grounded and structured

state professional standard, formed on the basis of current legal acts and which takes into account the Strategies and Concepts of the development of Ukrainian education, will give the possibility to radically change the teachers' attitude towards the use of innovative pedagogical technologies, as well as stimulate the mastering and practical application of acquired skills into professional activity.

The introduction of a state professional standard for teachers and a new Regulation on the certification of pedagogical staff, which should be developed on the basis of a teacher's professional standard, will prevent injustice in the process of further certification and will become the driving force for the professional development of teachers who want to make their professional careers.

It is interesting to note that as long as the state lacks professional standard and attestation system that is based not on the formal figures of seniority, but rather on the assessment of the conformity of professional competences with the defined requirements in combination with professional achievements over a certain period, we will not be able to effectively advance any systemic reform, and innovations will be implemented chaotically and for a long period of time and, as a result, will not be completed.

The findings suggest that the introduction of innovations related to information technologies is much easier perceived by teachers of informatics and sciences, where a teacher has a certain level of formed information competence and the computer is used as a means of training and acquiring certain practical skills, for example, programming, computing, etc. This process is much more complicated with the teachers of the humanities and social sciences, since for the perception of such innovation a teacher needs to have at least a sufficient level of information literacy and a desire to develop it in the future.

The transformation of initial computer skills, caused by the personal consumer needs, into a teacher's conscious professional need to design and use the capabilities of information technologies, Internet services and distance platforms in the educational process requires long-term system training and support. We believe that a persistent motivation to use information technologies in professional activity is one of the obligatory organizational and pedagogical conditions for forming a teacher's readiness to use remote teaching technologies. Ideally, it should be constantly supported by the administration of the educational institution and other structures, positive examples of colleagues, other means and resources. However, such support should not be obsessive and aggressive and cannot become an influence or coercion.

The current study has found that the creation of an appropriate technical support at a teacher's workplace that will enable him/her to use the computer and the Internet in the teaching process is an essential organizational condition. Currently the problem of providing educational institutions with computer equipment and the Internet remains significant for institutions of general education, institutions of vocational education and certain institutions of higher education. The research proves that the vast majority of educational institutions do not have decent material resources that would give them the possibility to purchase modern computer equipment, update

the existing software and pay for high-speed Internet. Thus, more and more teachers and students use their own devises (laptops, tablets, smartphones). This is typical for most educational institutions abroad, where stationary computer workplaces, as a rule, are equipped in libraries, special classes for students independent work, some teaching rooms, and private devises are used in the classrooms. However, classrooms in educational institutions abroad (Germany, Italy, USA) are supplied with multimedia equipment and the Internet that teachers can use.

The following organizational condition for the formation of teacher's readiness to use information technologies and elements of distant learning is, in fact, the existence of an information learning environment, an appropriate technical equipment and software in an educational institution. In particular, in order to create an information learning environment, a collective decision of the pedagogical staff and a common willingness of teachers, students and parents to systematically use information technologies in different educational processes are sufficient. You just have to start doing it using your own mobile phones or tablets. However, for further development, compiling and storage of various educational content, and the provision of interaction between the participants of the educational process, the use of distant learning forms, etc., appropriate technical equipment, software and personnel which provides the viability of the information system are required. To succeed, a distance learning platform should be deployed and available software and services that support the distant learning system should be provided at the educational institution. Also, the pedagogical council ought to approve and regulate the existence of a distant learning form or its elements in accordance with the Ukrainian current normative legal acts.

The system of pedagogical professional development concerning the use of information technologies and distant learning forms in the educational process is the following organizational and pedagogical condition closely connected with the development of teacher's information competence. Such organizational and pedagogical condition includes the organization of systematic teacher's training and related thematic courses, seminars, workshops, etc. It is essential that such training takes place on the regular basis and over short periods of time, since information technology is being rapidly developed and updated, and teachers' knowledge and skills should meet the needs of modern digital society. Teachers may choose the subject and form of training, as far as they precisely know the real learning needs, personal inclinations and preferences that promote effective learning. Furthermore, a teacher always correlates his/her needs for mastering new technologies with the working environment. Therefore, only a teacher can consciously choose a certain training course or other forms of his/her professional development, taking into account many important factors. Under such conditions, a teacher simply needs to be offered a wide range of opportunities, content, and forms of training.

While introducing distant learning, and developing distant learning platforms as well as providing opportunities for people living in remote regions, and taking into account that the distant learning form enables equal access to quality educa-

tion, it is necessary to provide teachers with the opportunity to improve teaching skills by using the elements of distant learning. To succeed, teachers first should be provided with basic knowledge concerning the work at distant learning platform, as well as be given the possibility to improve already acquired skills in solving the current problems of the individual teacher.

It has been found that this complex condition is closely related to other organizational and pedagogical conditions, a teacher's professional experience and competences. Realization of this condition involves not only training courses for distant learning teaching, but, first of all, forming a teacher's persistent belief in the necessity of using the distant form of educational material presentation and organization of training. That means that the implementation of this condition involves not only the acquiring of knowledge, skills and abilities of distant learning, the planning of distant learning courses and electronic teaching materials, but also teacher's confidence in effectiveness of this form of training.

Therefore, in order to ensure this organizational and pedagogical condition, the professionalism of mentors providing teaching is extremely essential, since they will work with adults who have certain fears and prejudices, professional experience, stable professional position, individual needs and requirements that are closely related to the specific realities of their professional activity. Thus, teachers should be highly qualified practitioners possessing a high level of informational culture, who have been trained on a distant learning basis, created their own distant learning courses and teaching materials. It is also especially important, that their courses have not only been implemented in the educational process but have also confirmed their effectiveness in practice.

The findings also suggest that it is essential to provide systematic teaching on thematic courses: mastering the Internet services and their pedagogical capabilities; acquaintance with remote teaching platforms, their features and possibilities, principles of distant work; skills of combining pedagogical techniques while using information technology as a learning tool, etc.

Teachers should have the appropriate professional freedom to choose forms, methods, technologies and teaching tools, which can be considered as another pedagogical condition. The implementation of this condition is prescribed in the Law of Ukraine «On Education» (2017) and a number of documents regulating the implementation of the New Ukrainian School. This provision formed the basis of many normative documents that are currently being developed, in particular, in the draft Laws of Ukraine «On Comprehensive General Secondary Education», «On the Education of Adults», etc.

In addition, the teacher's ability to influence the process of choosing and equipping classes, software purchases, the use of information resources that are freely accessible, etc. is significant. It should be noted that in the context of the active development and implementation of information technologies and the Internet applications in the educational process, the teacher's awareness of personal information protection, copyright, avoiding and preventing hacker attacks becomes extremely

important. Thus, it's crucial to know how to safely use the Internet and convey this information to students. It has been found that such training is provided without practical exercises in reality. Consequently the teaching should be based on the necessity to recognize and avoid the threat.

The results of the study indicate that planning of lessons and teaching materials with the help of information technologies, and distant courses, or the organization of blended learning with distant learning elements requires additional teacher's efforts, his/her free time, and consequently needs further motivation. An appropriate financial support for the use of information technologies and the introduction of distant learning in the educational institution is defined as principal organizational condition. The realization of this condition is in the state competence, which should differentiate the system of teachers' labor remuneration, due to the effectiveness of their work and the use of modern pedagogical technologies and forms of education. Actually, this organizational condition is closely linked to the first condition we have already defined and described as the rapid introduction of a state professional standard of a teacher.

Conclusions

The successful development and implementation of innovations in an educational institution is predetermined by the basic need for changes at the state level (declared in the relevant legislative acts and regulated in normative-regulatory documents), the awareness of necessity and expediency of the implemented changes at the level of the educational institution and the diligent target oriented work of all participants of the educational process. Thus, the organizational and pedagogical conditions for formation of teachers' readiness for the use of information technologies and distant learning in the educational process require further research in the following aspects: 1) analysis of the current state of the regulatory and legal framework of Ukraine that regulates the informatization and implementation of information technologies and distant learning in Ukrainian educational institutions, 2) analysis of the reasons for the inhibition of the distant learning introduction in the educational process of Ukrainian institutions of secondary education. To sum up, the current state of content and the organization of professional development of school teachers' information competence in institutions of postgraduate education needs further investigation.

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