TEACHER READINESS FOR DIGITAL TRANSFORMATION OF THE EDUCATIONAL PROCESS

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Abstract

The article presents an analysis of the problem of readiness of higher schoolteachers for online education. The modern system of higher education in the context of digital transformation is undergoing a transitional period due to the need to modernize the educational space and the formation of sufficient digital literacy of scientific and pedagogical workers of the university, since at present their successful professional activity is impossible without the productive and innovative use of information and communication technologies that constitute the foundation for professional development of teachers. This process involves not only the constant wide dissemination of knowledge and information, their transformation into digital educational products, but also the presence of the teacher's ability and readiness to effectively organize the educational process in new conditions. According to the authors of the article, the digital readiness of teachers in education should become the subject of systematic scientific analysis. During the study, the authors of the article analyzed Russian and foreign experience on the organization of conditions for the formation of readiness of a modern university teacher for educational activities in a digital environment. The article presents the results of a survey, the purpose of which was to determine the impact of digital educational environment on the professional activities of university teachers and to identify the level of their readiness for digital transformation of educational process.

1. Introduction

Modern society in the period of scientific and technological progress is characterized by the rapid development of digitalization in all spheres of life, including education. The prospects for higher education today are directly linked to the processes of its digital transformation, which is of increasing interest to the academic community. This process is characterized by the integration of digital technologies into all aspects of vocational and pedagogical education, an increase in the availability of various information resources, the introduction of multimedia equipment into the organization of the educational process, which contributes to the creation of an electronic educational environment.

The digital educational environment is a new reality in which all components of the education system interact with the help of new pedagogical digital tools and technologies, which makes it possible to form digital learning content, build individual educational trajectories (Anh et al., 2019).

A special role in the process of digital transformation of higher education is assigned to scientific and pedagogical workers, who are the main subjects of the training process for the digital economy. Hence, there is an urgent need to study the readiness of teachers to work in the context of digitalization of higher education as the most progressive part of the teaching community.

However, despite the significant volume of scientific works of both domestic and foreign scientists devoted to the features of the digitalization of education, the question of the readiness of teachers for professional activities in the digital environment remains open and is considered by researchers to a greater extent at the level of the problem statement. Also, the experience of introducing digital technologies into the educational process cannot be considered studied entirely. In this regard, the research conducted by the authors of this article seems relevant and introduces additional information into the theoretical understanding of the digitalization of education in higher education.

2. Problem Statement

At present, the processes of digital transformation in the field of education are regulated by several state documents, namely: the priority project "Modern digital educational environment in the Russian Federation" and "Strategy for the development of the information society in the Russian Federation for 2017-2030" (Sovremennaya tsifrovaya obrazovatel'naya sreda v Rossiyskoy Federatsii, 2017; Strategiya razvitiya informatsionnogo obshchestva v Rossiyskoy Federatsii na 2017–2030, 2017). According to these documents, the key role of digital technologies is to create conditions for the systematic improvement of the quality of education through the development of the Russian digital educational space.

An analysis of the scientific and methodological literature on the problem under study shows that both Russian and foreign experts recognize the unconditional advantages of a digital educational environment that creates a modern and safe infrastructure that ensures high quality and accessibility of education of all types and levels (Vodneva et al., 2020; Volungeviciene et al., 2019). Information and communication technologies (ICT) make it possible to personalize and differentiate the learning process.

The implementation of digitalization of higher education has actualized the problem of training scientific and pedagogical workers and students who are able to fluently own digital technologies and be successful in the conditions of an electronic social and professional space (Zeer et al., 2020).

The effectiveness of a teacher's professional activity now depends on the level of subject knowledge, also on modern digital tools. Teachers working in the period of digital transformation must have a wide range of digital skills, which imply the ability to solve digital reality problems, use constantly updated digital resources to interact with learners online, think critically and creatively, make decisions in a multitasking environment, be flexible to accept new knowledge and information (Heritage, 2020; Zhestkova et al., 2019).

Researchers identify a few conditions for the formation of the readiness of university teachers for professional activities in the electronic information and educational environment. First, these are objective conditions determined by the conditions of functioning of a particular university and the characteristics of the education system. The second group is subjective conditions as a reflection in the teacher's mind of the process of digitalization of higher education (Donina et al., 2020; Kuzhanova & Klets, 2017; Zhestkova & Fomina, 2019).

Willingness to enter the digital educational environment includes, according to experts, two main criteria: 1) willingness to work in an electronic environment, its acceptance as a space for the implementation of the educational process; 2) willingness to participate in the creation of such an environment, which presupposes the presence of motivational and technological readiness of the teacher. These parameters can be considered as the levels of the teacher's readiness for professional activity in the context of the digitalization of the educational process (Aguayo et al., 2017; Zhuang et al., 2016).

Currently, there is a significant transformation and expansion of the teacher's functions in the educational process, among which the design, organizing, advisory, facilitator, tutoring and supervising functions (Galikhanov & Khasanova, 2019; Liu et al., 2017).

However, as the experience of using digital tools and technologies in universities in different countries shows, not all teachers and students are ready for such transformations, without having the necessary competencies, without having sufficient experience in using digital technologies (Thompson, 2016).

3. Research Questions

- What is the role of the teacher in the modern educational process in the context of digitalization?
- What is the teacher's readiness for digital transformation of the educational process at the university?

4. Purpose of the Study

The aim of the study is to study the features of digital transformation of higher education and obtain objective data on the readiness of university teachers to use digital tools and technologies in their professional activities.

5.   Research Methods

The research used methods of analysis and systematization of foreign and domestic sources on the problem under study. The empirical basis of the study was formed by scientific observation and questionnaires using a structured questionnaire, including closed and open questions.

The respondents who took part in the survey (in the amount of 114 people) belong to different age groups and are mainly represented by teachers of social and humanitarian disciplines. The authors do not disclose the name of the university to preserve the anonymity and objectivity of the results.

The survey of scientific and pedagogical workers was devoted to identifying their attitude to the digitalization of higher education, assessing the positive and negative consequences of the introduction of digital technologies, analyzing changes in teaching work with a focus on the integration of digital content, determining the scale of the use of digital technologies in the practice of teachers, identifying new functions experienced difficulties, external and internal motives that induce teachers to participate in online learning, and self-assessment by teachers of readiness for productive work in a digital educational environment.

6.   Findings

Let us present the survey results for the most representative positions. The study showed that 60% of teachers have a positive attitude towards digitalization of the educational process, 34% took a neutral position, only 5% of respondents expressed a negative attitude, but 92% of all respondents emphasized the need to use digital technologies. 71% of survey participants feel they are ready to master digital educational technologies, 29% believe that they are only partially ready to master new technologies. However, only 37% of respondents noted that the university creates conditions for the development of a digital educational environment, and 60% of teachers believe that such conditions are not at the proper level today. Only 36% of the respondents are familiar with the local regulations of the university that regulate the activities of the teacher in the digital environment. Also, 63% of teachers noted that the university administration encourages the use of electronic educational resources.

84% of teachers include information and communication technologies (ICT) in their teaching activities all the time, 16% - in fragments. 43% of teachers have been doing this for 3-5 years, 31% for 1-2 years, and 26% for 6-15 years. Moreover, the overwhelming majority (71%) of the respondents experience personal satisfaction with the use of ICT, 8% are forced to use them, 11% did not give an unambiguous answer. At the same time, 55% of respondents rated their level of ICT proficiency as "good" (on a 5-point scale), 31% rated themselves "satisfactory", 10% of respondents showed excellent skills, 3% of teachers rated themselves as "unsatisfactory".

Most respondents (81%) indicated that they sometimes have difficulty working with digital content. Among the main difficulties, the following were indicated: technical (50%), psychological (21%), organizational difficulties (38%), insufficient digital literacy (31%). It is important to mention that 91% of respondents note that the use of digital technologies significantly increases the workload on teachers.

All respondents indicated the need for advanced training in the use of digital technologies. 86% of respondents have already completed training on the use of digital content in educational activities, 36% on the use of cloud technologies, 26% - on the use of ICT in the profile of the subjects taught, 13% - not in the profile of their work.

Educators pointed to the changing role of the educator in the context of online education. On the one hand, the authority of knowledge disappears, the teacher is forced to do double work, the time spent on preparing for classes increases, the teacher's working day becomes even more irregular, personal boundaries are violated, there is no live communication, the possibilities of educational influence are reduced, the teacher ceases to be unique and the only source of information, emotional tension increases. On the other hand, according to the respondents, the teacher is more involved in the process, has the opportunity for self-development, mastering new educational tools, the role of the teacher becomes more guiding and controlling, a large share is assigned to self-education of students.

The respondents identified the most important professionally significant qualities of a teacher's personality for successful work in a digital educational environment, including digital literacy (73%), time management (63%), stress resistance (55%), communication (39%), striving for self-improvement (44%). The main advantages for teachers in using the electronic educational environment were noted: increased flexibility and effectiveness of the educational process through the introduction of new knowledge and technologies (50%), ease of saving and updating the content of educational materials, access to them at any convenient time (42%), open educational content, the ability to develop new information educational resources (42%), access to publications of electronic library systems (42%), familiarity with discoveries and novelties in the subject area (36%), the ability to exchange information and experience in real and deferred time with representatives of the professional community (26%).

Motivating factors for the use of ICT were named: the need to follow modern trends in the infocommunication paradigm of education (60%), motivation for professional growth (50%), personal interest in testing new digital technologies (42%), requirements from the university administration (39%), requirements of the Federal State Educational Standard of Higher Education (34%).

Among the factors hindering the development of digital educational content, the following were noted: the lack of material incentives (50%) and material and technical equipment at the university (44%), harm to health and great fatigue when working in front of the computer (44%), large time and intellectual costs for mastering and implementation of ICT (34%), the difficulty of adapting the discipline to the digital format (31%), insufficient knowledge of computer technologies (13%), the forced reduction of time and effort to use traditional methods (10%).

In their activities, respondents use the following capabilities of the digital educational environment: network communication of teachers and students in various online environments (68%), participation in Internet forums of various levels (conferences, seminars, symposia) (55%), use of information related to educational or scientific activities of the university (47%), taking advanced training courses in an online format, participating in training webinars (47%), creating their own digital content (36%), using electronic educational resources posted on federal educational portals (36%) , obtaining information regarding the social activities of the university (15%). The resources of the Internet (76%), e-mail (71%), online conference (66%), electronic educational materials and specialized software (63%),

digital reference material (57%), computer testing and control systems (55%), electronic library resources (52%). 86% of respondents indicated that they have access to the electronic information and educational environment from anywhere, both on the territory of the university and outside it.

Teachers most often use digital educational resources in preparation for and during classes, for organizing students' independent work (68% for each of these answers), for diagnosing the level of student learning (52%), for posting their developments in the information environment of the university (50%), for self-education (44%), for paperwork (39%). Note that digital technologies used by teachers are mainly focused on supporting their own actions in planning the educational process and material, providing infographics, improving control of the educational process.

The results of the study showed that, despite the intensive development of digital technologies and teaching aids by teachers, the conditions for the formation of professional readiness to work in a digital educational environment are not fully created, both due to the insufficient development of the digital educational environment of the university itself, and due to the low the level of teachers' mastery of digital competencies.

7. Conclusion

Currently, an important trend in the field of higher education is the intensification of the use of digital technologies and the expansion of online learning formats. The study made it possible to determine the impact of the digital educational environment on the professional activities of scientific and pedagogical workers of the university and to identify the level of their readiness for a comprehensive digitalization of the educational process.

Based on the results of the questionnaire survey, the authors of the article concluded that one should not be limited only to the analysis of the level of readiness of teachers without identifying the difficulties and problems in pedagogical activity and, accordingly, without understanding the necessary conditions for overcoming them.

The results of the study indicate that it is necessary to systematically support the process of forming teachers' readiness to work in a digital educational environment, to use digital didactic tools in their activities. The identified problems and trends give grounds to move on to the design of a set of conditions and measures that contribute to the effectiveness of the development of digital literacy of teachers and ensure an increase in their professional competence and the level of involvement in the process of digital transformation of higher education.

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