COMPETENCE OF UNIVERSITY TEACHERS IN ORGANIZING AND CONDUCTING DISTANCE LEARNING AT A UNIVERSITY

COMPETÊNCIA DE PROFESSORES UNIVERSITÁRIOS EM ORGANIZAR E REALIZAR ENSINO A DISTÂNCIA EM UMA UNIVERSIDADE

COMPETENCIA DE LOS PROFESORES UNIVERSITARIOS PARA ORGANIZAR Y REALIZAR LA ENSEÑANZA A DISTANCIA EN UNA UNIVERSIDAD

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ABSTRACT: Distance learning is a form of education that is perfectly suitable for the implementation of contemporary models of education in the information society. This fact relates to the tremendously progressive development of information technology and the increasingly more promising prospects for education. The present study aims to analyze the influence of professional self-improvement on the effectiveness of teachers’ work in the distance mode. Based on an empirical study using the survey method, the levels of competencies comprising competence in the organization and conduct of distance learning among teachers in the information-technical and pedagogical sphere are identified. The results obtained testify to the need to improve the pedagogical qualifications of teachers in the direction of improving competence in the field of information computer technologies and their application in education, as well as in the field of Internet technologies and distance learning.


RESUMO: O presente estudo tem como objetivo analisar a influência do autoaperfeiçoamento profissional na efetividade do trabalho docente na modalidade a distância. A partir de um estudo empírico utilizando o método de survey, identificam-se os níveis de competências que compreendem a competência na organização e a condução da educação a distância entre professores no âmbito técnico-informacional e pedagógico. Os resultados obtidos atestam a necessidade de melhorar as qualificações pedagógicas dos professores no sentido de melhorar...
Introduction

Education with the use of methods and techniques of distance learning (DL) has been systematically implemented in Russian higher education for many years. In 2020, due to the introduced quarantine measures, DL was called upon to replace traditional learning completely. The situation caused by restrictions brought on by the SARS CoV-2 virus pandemic caught everyone off guard (ARTEMOVA et al., 2022). It was urgent to change the tools used in the teaching process, the methods of transferring knowledge, the methods of developing students’ skills, as well as instructional materials. Everyone involved in the learning process had to use these new tools almost daily, regardless of their previous experience in this direction of work, the skills associated with this type of learning, and conviction in the effectiveness of these methods in achieving specific learning outcomes (DUBROVSKAYA et al., 2021; RAKHINSKY et al., 2021). The changes that had to be introduced required a great deal of work and called for the creation of a support system for both faculty and students (TITENKOVA et al., 2022). The task was not only to prepare the classes but also to ensure the proper functioning of the information systems used in DL, as well as to ensure that the educational process is implemented in accordance with applicable laws governing teaching, as well as copyright law (LOGACHEV et al., 2021).

The scale of work that needed to be performed worldwide is confirmed by research, which indicates that 86% of the surveyed teachers in higher education first familiarized
themselves with teaching with the use of DL methods only due to the pandemic (FERRARO et al., 2021). The first months of lockdown not only forced the whole academic community to adapt to an entirely new mode of work but became the period of the first experience with DL (SONG et al., 2022). All teachers and students had to immediately shift to DL, which turned out to be a major problem for many (KOROTAEVA; KAPUSTINA, 2021). Most of them have never before worked with the instruments that became vital to continue training in the pandemic.

**Literature review**

There is a major range of studies devoted to the organization and problems of DL during the lockdown, which was to some extent introduced in the majority of world universities. Meanwhile, in choosing the form of holding classes with the use of DL methods, the vast majority of faculty (according to (CODE; RALPH; FORDE, 2020), up to 63%) were guided by orders from above. However, a study by J. Code and colleagues (CAO et al., 2020) substantiates the need for educational interventions in the sphere of teaching methodology with the use of DL methods and techniques, which would help the teacher choose the methods of teaching depending on the discipline taught, the effects of teaching to be realized, and the specific group of students.

According to Cao et al. (2020), a part of students (27% of the respondents) report feeling excluded during DL, the same experience is pointed out by 15% of teachers. In addition, as found by A.V. Alvarez (2021), technical difficulties in the process of DL were experienced by a little over 10% of students. The author suggests that with the transition to DL, workspaces for these learners to participate in classes should be created on campus.

A study by S. Keskin and H.B. Yurdugül (2020) demonstrates that most respondents, especially students, are in favor of transferring lectures and some seminars to a remote mode even after the restrictions related to the epidemiological situation are lifted. In this context, students are more critical of the materials provided on the online learning platform for independent work, which were not supplemented by substantial commentary or explanations by teachers (WAJDI et al., 2020).

As found by Wajdi et al. (2020), almost half of teachers (48%) believe their knowledge of copyright law to be insufficient. This conclusion is supported by A. Podlesek and V. Kavcic (2021), who argue for the need to organize training and information materials for teachers to improve their knowledge in the sphere of copyright law.
At the same time, as reported by A.Q. Mohammad AlHamad (2020), the greatest concern of teachers in conducting distance classes was that students would distribute the instructional materials handed out without them knowing. In this respect, Zhang and Lin (2020) speak of the need to adopt formalized measures to inform students of how they are allowed to use the resources provided online and of the consequences of unauthorized distribution of materials and the image of faculty and other students.

J. Rappleye et al. (2020) note that to continue teaching with the use of DL methods, teachers need support, mostly in the form of additional training to improve their teaching competence. In a study by Pellegrini and Maltinti (2020), most of the surveyed teachers voice the need for technical support, such as the opportunity to use the appropriate computer equipment to simplify preparation for classes and the process of holding them, as well as technical support in creating materials for distance classes.

Furthermore, the majority of university faculty argue that the greatest drawback of real-time classes was the reluctance of students to turn on their web cameras (DEWI; WAJDI, 2021). The results obtained by Arthur-Nyarko et al. (2020) indicate that this unwillingness is rarely related to technical issues (for instance, the lack of a camera or poor Internet connection) and could more often arise out of fear to show one’s image and due to the risk of it being recorded by other students and shared on social media. In this respect, Chang et al. (2021) give a rationale for the need to create a culture of distance education.

A study by Yulia (2020) shows that students and teachers believe the greatest limitation of DL to be the lack of opportunities to train practical skills. If distance classes that form practical skills are necessary, there arises the need to develop effective methods, which would certainly not replace practical lessons fully but would at least allow developing practical skills when in-person classes cannot be held (GIUDICE; ANTONELLI; BENNARDO, 2020; ZAHEER; MUNIR, 2020).

Research hypothesis: the level of competence of teachers in the sphere of pedagogy in conducting DL under quarantine restrictions is insufficient and calls for the additional training of teachers’ qualifications to improve their competencies in ICTs and their use in education, as well as in the sphere of Internet technologies and DL.

The goal of the study is to analyze the competence of university teachers in organizing and conducting DL at the university.

Research objectives:

1. to determine the necessary competencies comprising the general competence of university teachers in the organization and conduct of DL in higher education;
2. to compile a questionnaire and administer a survey to assess the level of competence of university teachers in organizing and conducting DL at the university;
3. to obtain results on the level of competence of university teachers in organizing and conducting DL in higher education and develop recommendations for its improvement.

Methods

The subject of the study is the general competence of teachers in the sphere of information technology and the humanities (including pedagogy) in organizing and conducting DL. The key problem examined is the question of whether and to which degree teachers possess competence in the organization and conduct of DL.

To study the outlined issue, questionnaire items were formulated based on the analysis of scientific literature to determine whether the teachers have the required competencies and if so, at what level. The assessed competencies are divided into three groups: competencies in psychology and pedagogy and new pedagogical technologies; competencies in ICTs and their use in education; competencies in Internet technologies and DL:

- competencies in psychology and pedagogy and new pedagogical technologies: adaptation of traditional teaching methods to the conditions of new Internet technologies; organization and administration of psychological and pedagogical testing of students; prevention and resolution of conflict situations; psychological support of students at the initial stage of training, as well as maintenance of a favorable psychological climate in the virtual group; knowledge of modern personality-oriented methods of teaching: collaborative learning (in cooperation), the project method, the problem method, etc.; the use of individual, group, and collective forms of learning, the skills of combining them reasonably and harmoniously in distance work with students; organization and realization of telecommunication projects and teleconferences, the skills of moderating them; support and stimulation of students, informing them of the knowledge and skills they are supposed to obtain in the course; informing students of their achievements; help in solving the tasks that have not yet been addressed; conducting research activities, organizing and monitoring the scientific activities of students in traditional education and DL; organization of research groups; advising students on finding and accessing supplementary materials for research work; the use of an effective system for monitoring and testing students; knowledge of the facts that determine students’ engagement in DL; knowledge of the methods of organizing students’ independent work in an online information-educational
environment and the process of the assimilation of messages using DL forms; the use of tools for organizing communication between DL participants;

- **competencies in ICTs and their use in education:** knowledge of basic concepts and terminology related to ICTs, the means and tools of ICT; knowledge of computer architecture, rules of operation, and ability to work with a personal computer and peripheral equipment (multimedia projector, scanner, modem, printer, microphone, digital camera, digital video camera, etc.); ability to solve simple problems with computer hardware and software; ability to properly configure the operating system, create a hierarchical system of directories; work with files, folders; installation of software and peripheral devices; ability to copy, move, and save data in the system and on external media; ability to use software (minimum – MS Word text editor, MS PowerPoint presentation program, other MS Office or OpenOffice utilities, etc.); creating data in various forms and formats, converting and preparing learning materials, including those to be published online, using various programs (word processor, multimedia presentation program, graphics editor, HTML editor); the ability to use, as needed, service programs (programs to convert files to other formats – text, video, audio, graphics), programs to create slideshows, albums, and multimedia as needed, programs-archivators, antivirus programs, driver programs, etc.; the ability to use various types of educational programs: educational and developmental games, tests, programs to create custom learning environments, dictionaries, multimedia encyclopedias, etc; the ability to develop and prepare lessons using a specific educational software program; the ability to use specialized programs such as software packages, mathematical environments, software systems, simulators, music editors, graphics editors, etc; ability to justify and deliberately use ICTs in didactic diagnostics and at all stages of the learning process; knowledge of the basic principles of the Internet and the use of software; designing author’s e-learning courses with educational materials for students; the ability to evaluate the developed e-learning course (educational materials, characteristics of the DL system, the elements of the course used, compliance of learning materials with the program, and other criteria, such as the use of multimedia, interactivity, etc.); the ability to search for materials on the Internet, to download and store data on the computer, analyze and choose the right form of presentation of materials in solving educational tasks and problems; knowledge of the sanitary and hygienic norms of working on the computer; knowledge and respect for copyright and intellectual property laws; knowledge of the main directions of development of ICT; knowledge and ability to use ICTs in self-assessment and analysis of work quality, its professional preparation (electronic surveys, questionnaires, mathematical statistics tools, etc.);
- competencies in Internet technologies and DL: knowledge of DL models, types of DL courses; knowledge of the psychological and pedagogical foundations of DL, DL methods (problem method, project method, teaching in collaboration, cooperation, etc.); knowledge of the main types and general principles of telecommunications systems; knowledge of the main DL systems: CLMS, commercial and open source (such as MOODLE), CMS systems; the ability to determine comparable system characteristics and select the most appropriate DL system and model to suit the conditions at a given institution; knowledge of telecommunications etiquette; knowledge of DL platform user categories, their roles, functions, and tasks; the use of various means of telecommunication to exchange messages and learning materials with other users (students, colleagues, etc.) in the asynchronous (emails, teleconferences, forums, etc.) and synchronous mode (real-time communication in chats, messengers); work with online educational resources (online databases, news services, thematic portals); the use of utilities (for instance, MS PowerPoint) to develop materials for DL-oriented courses; knowledge and ability to use one of DL systems, for example, MOODLE, to develop and conduct distance courses; knowledge and skills in administering a DL system; work with modern hypertext and hypermedia systems; searching the Internet for the educational resources necessary and most appropriate to achieve the formulated and stated learning objectives; active use of ICTs, the Internet, and remote forms of learning for self-learning, development, and self-improvement.

The empirical study employs a survey. The survey questionnaire created for the study includes 40 questions related to competence in the sphere of DL. The respondents were asked to respond to the presented question (the preferred types of questionnaire items were closed single-choice and multiple-choice questions with a 5-point scale for assessment and open questions with a short answer).

The survey was prepared and developed digitally and posted on the MOODLE e-learning platform. Before completing the survey, respondents were briefed on the purpose of the survey and informed of its anonymity. The participants were also instructed on how to fill out the survey correctly.

The survey was administered between December 2021 and March 2022. The survey sample comprises teachers in the spheres of information technology (52 teachers) and pedagogy (56 teachers) (a total of 108 teachers) at the State University of Humanities and Technology (SUHT) and the Moscow State University of Technology and Management (MSUTM).

Mathematical processing of the results of the study involved the calculation of the percentage of teachers per each level of competencies that constitute competence in conducting DL ("very good," "good," "sufficient," "insufficient," "poor").
Results

Tables 1 and 2 show data on the level of individual competencies in conducting DL among teachers in information technology and pedagogy.

Table 1 – The level of competencies comprising the competence of teachers in the information-technical sphere in organizing and conducting DL (%)

<table>
<thead>
<tr>
<th>Competency</th>
<th>Level</th>
<th>very good</th>
<th>good</th>
<th>sufficient</th>
<th>insufficient</th>
<th>poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td></td>
<td>23</td>
<td>48</td>
<td>16</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>C2</td>
<td></td>
<td>59</td>
<td>24</td>
<td>15</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>C3</td>
<td></td>
<td>49</td>
<td>37</td>
<td>12</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors

Table 2 – The level of competencies comprising the competence of teachers in the pedagogical sphere in organizing and conducting DL (%)

<table>
<thead>
<tr>
<th>Competency</th>
<th>Level</th>
<th>very good</th>
<th>good</th>
<th>sufficient</th>
<th>insufficient</th>
<th>poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td></td>
<td>52</td>
<td>32</td>
<td>14</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>C2</td>
<td></td>
<td>24</td>
<td>29</td>
<td>33</td>
<td>8</td>
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</tr>
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<td></td>
<td>18</td>
<td>45</td>
<td>14</td>
<td>19</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Prepared by the authors

Note: C1 – competencies in the sphere of pedagogy, psychology, and new pedagogical technologies; C2 – competencies in the sphere of ICTs and their use in education; C3 – competencies in the sphere of Internet technologies and DL.

As indicated in Table 1, 23% of teachers of information technology rate their psychological and pedagogical competencies as very good, 48% as “good”, 16% as sufficient, 11% as insufficient, and 2% admit to having these competencies at a poor level. The situation with teachers in the pedagogical direction is somewhat different: 52% evaluate the level of their psychological and pedagogical competencies as very good, almost a third of the respondents (32%) indicate having these competencies at a good level, 14% rate them as sufficient, and 2% – as insufficient (Table 2).

It is worth emphasizing the rather high level of ICT competency among teachers of information technology. The major part of them (59%) rate their competency in ICT as very good, 32% – as good, 14% – as sufficient, and as little as 2% believe their competency to be insufficient. Among teachers of pedagogical direction, 24% of respondents report their ICT skills being very good, 29% rate them as “good”, 33% – as sufficient, 8% – as insufficient, and only 2% of respondents describe them as poor.
Personal competence in the sphere of Internet technologies and DL was assessed as very good by 49% of teachers in information technology specialists, as good – by 37%, as sufficient – by 12%, and only 2% of the respondents noted these competencies being insufficiently developed. Among teachers in pedagogical specialties, 18% believe their competencies in Internet technologies and DL to be very good, 45% assess them as good, 14% – as sufficient, 19% – as insufficient, and 4% – as poor.

Discussion

The results of data analysis give insight into the level of competence in the field of DL among teachers in pedagogical specialties. The above quantitative analysis of the study results allows us to draw the following conclusions.

Firstly, additional training of teachers should have a greater focus on improving their competencies in the sphere of DL. This training should primarily aim at the development of the relevant skills in DL in a multistage and systematic way (PODLESEK; KAVCIC, 2021).

Secondly, in view of the relevance of competence in the sphere of DL in teachers in pedagogical specialties and the relatively poor level of their qualifications in DL, the professional development program for them needs to cover such subjects as multimedia, Internet technologies, pedagogical technologies for DL, and DL theory and practice.

Theoretical classes need to address the types of teleinformation systems and the principles of their operation and the Internet and the characteristics of users’ connection to it (ZHANG; LIN, 2020). Practical classes are required to include such content as the organization and conduct of teleconferences, the use of various means of communication to exchange information, work with online information resources; tools for creating remote courses; work with email; preparation and exchange of information on the Internet (CHANG et al., 2021).

Thirdly, as demonstrated in the study, not all teachers are competent in new pedagogical technologies. For this reason, it is worth considering a special course focused on this issue, including, among other things, the following theoretical and practical topics: the methods of teaching in distance education; methodology of stationary education in the Internet environment; hybrid learning; individual and group forms of learning in distance education; organization and conduct of thematic teleconferences/chats; organization of a control and testing system for virtual students; monitoring of scientific activities (KESKIN; YURDUGÜL, 2020, p. 24).
Fourthly, it is advisable that professional development for teachers covers the issues of analyzing software for learning opportunities, organizing and conducting activities using ICT tools, and searching for information in electronic media.

Since consideration of psychological and pedagogical aspects is necessary not only in traditional learning but in DL as well, professional development programs in psychology should be supplemented with additional content, such as: individual styles of students’ scientific-cognitive activity; organization and administration of psychological-pedagogical testing of students in DL; individual psychological-pedagogical silhouette of a student in DL; psychological-pedagogical support for students in DL; formation of small student groups by the principle of psychological compatibility; creation and support of a favorable psychological climate within virtual student groups; skills in recognizing and resolving conflict situations (DEWI; WAJDI, 2021).

Professional development programs in pedagogy should be expanded to cover such issues as: effective pedagogical theories in DL; factors determining activities in DL and their consideration; properties of the process of knowledge assimilation in DL; consideration of age aspects in DL; pedagogical aspects of communication in a virtual group in synchronous and asynchronous modes (GIUDICE; ANTONELLI; BENNARDO, 2020).

New competencies will undoubtedly make it easier for teachers to perform their professional duties in the future at the appropriate scientific, methodological, and technical level and to use ICTs and modern innovative methods of teaching in the educational process.

**Conclusion**

Based on the results characterizing the degree to which university teachers possess competencies in the sphere of pedagogy and psychology and new pedagogical technologies, competencies in the sphere of ICTs and their use in education, and competencies in the sphere of Internet technologies and DL, conclusions are drawn on the level of development of competence in conducting DL among teachers in the sphere of information technology and pedagogy.

The results obtained confirm the hypothesis that the level of competence in conducting DL in the conditions of quarantine restrictions among teachers in the field of pedagogy is insufficient and calls for the additional training of these teachers to improve their competencies in the sphere of ICTs and their use in education, as well as in the sphere of Internet technologies and DL.
A prospect for further research could be an analysis of the specifics of the theoretical and practical training of teachers for work in the distance mode.

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