Specific Features of the Use of Distance Learning Technologies in Foreign Language Classes with Postgraduate Students

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Abstract—The study substantiates the effectiveness of using distance learning technologies in preparing postgraduate students in technical specialties for qualifying examination for the candidate degree in the foreign language during the transition to distance learning in Moscow universities due to the epidemiological situation in 2020–2021. The present study reveals both positive and negative aspects of distance learning and provides an understanding of the key vector in the development of the methodological basis of pedagogical activity. The study emphasizes the special organizational role of a foreign language teacher in distance learning. The empirical section of the study presents the results of a questionnaire survey of postgraduate students in aerospace specialties collecting their opinions on the distance learning format of the "Foreign language" discipline using information and communication technologies (ICT) at the Moscow Aviation Institute (National Research University). Seventy first-year postgraduate students participated in the survey. The study also uses a questionnaire interview of teachers working with postgraduate students. This survey used open-ended questions. Overall, the study demonstrates students' positive attitude to the distance format of the "Foreign language" discipline. The use of ICT raises interest both in the learning process and the discipline itself.

Keywords—distance learning technologies, information and communication technologies, foreign language in postgraduate school, information competence of students, role of the teacher in distance learning

1 Introduction

The active process of computer technology introduction, which has recently become characteristic of modern society, is developing in the education space of higher education at a quite rapid pace. However, while until recently this process could be considered rather smooth, the events associated with the pandemic and forced self-isolation provoked a sharp rise in the computerization of society, making people dependent on the level of information and communication technologies (ICT) development. The mass transition to distance learning was practically the only way of obtaining education in the period of most strict self-isolation. High education quality is one of the key tasks of

the higher education in our rapidly changing world [1]. In this connection the teaching staff of the universities should solve a problem of improving the education quality [2].

As a result of these events, the global community, including Russia, faced completely new issues and problems [3]. As Covid-19 spreads, there are great concerns about the problem-free functioning, accessibility, and efficiency of higher education in different countries [4]. Distance learning plays an important role in modern education, including foreign language learning. Yet the sharp rise of interest in distance learning methodology caused a lot of new questions and problems [5].

Noting the serious problems that have arisen in education at all levels of the educational process, special attention should be paid to the work with postgraduate students to prepare them for the qualifying examination for the candidate degree, particularly the foreign language exams. Qualifying examinations for the candidate degree are a mandatory form of intermediate certification of graduate students in the course of their studies (a post-graduate course).

The purpose of the exam is to check the scientific and theoretical level of knowledge of post-graduate students, as well as their readiness for independent pedagogical and research work.

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Passing the qualifying examination for the candidate degree is obligatory for awarding the degree of Candidate of Sciences. At the examination in a foreign language, a post-graduate student must demonstrate the ability to use English as a means of professional communication in the scientific field. The post-graduate student must be proficient in spelling, lexical and grammatical norms of the English language and must be able to use them correctly in all types of speech communication, in the scientific field in the form of oral and written communication. The purpose of this study is to identify the features of distance work with postgraduate students in foreign language classes and analyze the possibility of using different types of ICT not only to maintain but also to improve the quality of the educational process [6].

The relevance of the work is associated with the prospects of using innovative technologies due to not only the involvement of new technical means in the educational process but also the use of new forms and methods of learning and new approaches to learning [7].

The novelty of the study is due to the need to work in completely new conditions and search for the most effective ways of organizing the educational process at universities at the highest level of training highly qualified specialists and young scientists.

2 Literature review

Speaking about the non-standard situation of the pandemic and noting the sharply increased role of ICTs in the organization of the educational process, it should be noted that the educational system already had a certain potential and successfully coped with the difficulties that arose.

In recent decades, the process of computerization has become widespread in all spheres of human activity and interactive learning technologies has a special place in in teaching a foreign language in high school [8]. This process is viewed by modern scientists in various ways. For example, Tsvyk, V.A. and Tsvyk, I.V. touch upon a problem of social assessment of technology and humanitarization of engineering in the information society [9]. L.E. Motorina and G.V.C Herniaeva analyze the peculiarities of transition of young people into computer interactive environment and mark the significance of this process for their professional and personal self-realization. As a result of this, rethinking and search of new psychological constructs reflecting virtual world and providing interaction with it is essential [10].

Researchers indicate the restructuration and increasing interactivity of distance education based on the introduction of the latest ICTs. Firstly, the very "communication" with the computer is interactive, given that each computer is connected to the global network and interacts with other systems. Secondly, the rapid development of online video technologies allows fully simulating both direct communication and the use of various interactive methods and technologies [11].

When developing distance learning programs of foreign language training for postgraduate students rapid dataflow and growth of information society must be taken into consideration. The researchers state that the active implementation of pedagogical innovations in various education processes is associated primarily with the development of the information society [12].

It is argued that e-learning has become a new stage of education informatization in most developed countries. The modern education space is developing under the conditions of rapid digitalization of social life, setting itself the task to optimize the learning process through the use of electronic resources [13].

In recent years a lot of investigations in the field of training effectiveness in computer interactive environment have been conducted [14]. Understanding the unique possibilities of digital technologies, the educators are beginning to use them wider and wider in one course and at the same time for a broader scope of disciplines. The discipline "Foreign language" is among them [15].

It should be emphasized that the process of teaching a foreign language also undergoes substantial adjustments due to these trends. The importance of perfecting this process is associated with the increased role of the discipline, with the development of its professional orientation. Achieving the goal of developing intercultural communicative professionally-oriented competence is only possible with the continuous development of the linguodidactic model of mastering foreign language communication, which becomes especially relevant at the postgraduate level. The era of Internet produced a lot of terms reflecting close acquaintance with different types of ICT ("digital generation", "net generation"). Several authors point out that contemporary students are representatives of the "digital generation" for whom the digital environment is a familiar habitat. The use of ICT does not cause any difficulties for them, and they easily use it in the educational process as well [16].

It is essential to note that so-called "net generation" is distinguished by the orientation on the active use of innovations both in the personal and educational and professional spheres of life, which needs to be considered by methodologists and foreign language teachers at universities [17].

For this reason, learning a foreign language today is no longer reduced to the passive process of obtaining knowledge. Information search and conscious evaluation of students' own results are now encouraged. It is ICT-supported learning that makes it possible to organize each student's independent work [18, 19].

ICT and e-learning have a positive impact on the quality of higher education, increasing students' motivation and interest in the discipline and their involvement in the learning process. When working in a distance format, it is necessary to account for the constantly changing current situation, analyze and consider the attitude of students and teachers towards the ICTs used, and assess the impact of ICT use on teaching methods and the curriculum [20].

Indicating the positive aspects of the use of ICTs in distance learning, researchers point to an increase in students' interest in both the subject matter and ICTs themselves, the increase in their curiosity and inquisitiveness, as well as the desire to search for new things and the striving for continuing education. In addition, the use of this format of teaching is marked by a factor of voluntariness among students [21].

Modern studies describe promising practical solutions for foreign language teaching and offer an effective structure of courses using distance learning tools [22].

Modern situation makes the teachers of higher school responsible for the quality of education. Some researchers point to the trend of the role of the teacher in distance learning changing and morphing into a mentoring role. Distance learning does not allow a teacher to properly assess the attention and concentration of students. In this case, the main task of a teacher is to provide concrete material in the most optimal form and to address the problems that arise in the learning process. A teacher acts as a consultant who coordinates the process of foreign language learning [23].

Teachers of higher school must be acquainted with the most sophisticated ICT and distance learning technologies to be well informed of the up-to-date information. To solve the educational tasks effectively, a teacher must make innovative changes to the learning process, which requires educating teachers in the field of innovative technologies [24].

The process of teaching a foreign language to postgraduate students appears to be more multifaceted and complex. In this case, the professional component of the learning course is the most pivotal. There is a need for collaborative work on innovative forms of classes, which, on the one hand, will help to make the courses more interesting and, on the other hand, will contribute to the more effective development of research competencies [25]. All of this requires taking into account the specifics of training specialists in professionally oriented English in the face of dynamic social globalization processes [26].

Here we should note that the rapid development of computer technology requires higher education to respond just as quickly to all the innovations that are introduced. The organizers of the educational process must constantly look for the most promising solutions to improve it, exchange experiences, and update and adjust the educational programs to make them most effective and interesting for students. Such approach to the problem of distance foreign language teaching will help postgraduate students to get a good understanding of rapidly growing information flow to become perfect researchers and high-class professionals.

3   Methodology

The paper provides a review of the literature on the problem under examination using the method of analysis and synthesis of information from various scientific sources.

The study also utilizes empirical data collection methods:

1. A questionnaire survey of postgraduate students in aerospace specialties (open-and close-ended questions). The survey was conducted in an online format by mailing. The main tasks of the survey are the following:
   1) identification of the attitude of post-graduate students to the distance mode of foreign language learning;
   2) highlighting the main advantages and disadvantages of the distance mode of foreign language learning;
   3) analysis of the psychological aspects of the distance mode of qualifying examination for the candidate degree.

   The sample consists of 70 first-year postgraduate students (direction of training 24.00.00 "Aviation and rocket-space engineering") studying at the department "Foreign language for aerospace specialties". The sample was solid due to the objectives of the study – to analyze the opinion of all post-graduate students the department work with.

   The results are analyzed using elements of the mathematical statistics method.

2. A questionnaire survey of teachers working with postgraduate students (open-ended questions). The survey sample consists of 8 teachers. This study was conducted in the format of a telephone survey.

   The main objectives of the survey of teachers are:
   1. identification of attitudes to the distance mode of foreign language learning;
   2. highlighting the main advantages and disadvantages of the distance mode of foreign language learning;
   3. analysis of the opinion of teachers about the organization and conducting the examination of the qualifying examination for the candidate degree in a distance mode.

4   Results and discussion

4.1   Analysis of the survey of postgraduate students

The tasks offered to the postgraduate students are as follows:

1. To express their opinion on distance learning.

   The survey shows that before the pandemic (COVID-19), 35% of the postgraduate students had experience with distance learning technologies.

   80% of the respondents note that the distance form of foreign language classes is the most convenient for them.

2. To name and to comment on the advantages of the distance learning format:
    1) The most prominent of the indicated advantages of distance foreign language classes is mobility. Regarding the fact that postgraduate students are employed and attending in-person classes typically causes difficulties in organizing the work schedule, videoconference lessons in various systems (Zoom, Microsoft Teams, LMS/lms.mai.ru) solve this problem and allow attending the class, which provides the opportunity for personal contact with the foreign language teacher. Postgraduate students can attend classes while being at work or on a business trip without wasting time on travel. The students believe that this format of work frees up time to engage in research activities and prepare the thesis.
    2) The illustrativeness of video classes is indicated as a factor motivating students not only for studying the foreign language but also for professional and research activities. Among the opportunities provided by the use of ICT in lessons, the respondents mention:
        ○ showing/watching presentations on relevant topics in the foreign language prepared using English-language sources (articles, monographs, foreign websites) followed by a discussion;
        ○ using electronic dictionaries and displaying the required dictionary entries on the screen;
        ○ video streaming;
        ○ "convenient" test tasks.
3. To name and to comment on the disadvantages of the distance learning format.
    The main difficulties for postgraduate students in having distance learning classes were the lack or disruption of Internet connection during videoconferences. Notably, the same problems were named as the key ones by the teachers. Not all students enjoy good Internet connection at their workplaces, which leads to constant failures and, consequently, to the loss of class time.
4. To analyze the psychological aspects of qualifying examination for the candidate degree in the foreign language in a distance format.
    The postgraduate students report that this examination format was quite unfamiliar to them, however, they were prepared for it by the teachers in the learning process, and the exam itself was held successfully. The psychological atmosphere was calm and the assessment of knowledge was objective.

4.2 Analysis of the survey of teachers

The surveyed foreign language teachers in postgraduate school were offered the following:

1. To express their opinion on the distance learning format.
    The teachers indicate that the traditional format (in-classroom lessons) is more habitual and comfortable, however, the distance learning format offers opportunities for creating individual learning trajectories. All of the surveyed teachers point out that the transition to distance learning allowed them to take an individual approach to each student.

2. To name and comment on the advantages of the distance learning format:
   1) The organization of individual learning trajectories is especially relevant for postgraduate school since some postgraduate students are employed and are forced to skip in-person classes. Mastering the material in the distance format partially resolves this issue;
   2) The opportunities provided by the use of ICT allow organizing postgraduate students' work with English-language sources more efficiently;
   3) The "screen sharing" feature in distance learning via different systems allows transforming a passive assessment of students' work by the teacher into collective discussions and the teacher's explanation of difficult topics (lexical, grammatical, and phonetic). Such a collective form of work involving the entire group of postgraduate students significantly raises the effectiveness of the educational process.
3. To name and to comment on the disadvantages of the distance learning format:
   1) The teachers draw attention to the complex psychological aspect of distance learning and note that "virtual" communication cannot replace "live" despite all the positive aspects of the distance format. Having their own experience of learning in the traditional format, the teachers unanimously argue that "live" communication is necessary for the proper development of each student's personality;
   2) At the very start of work, some teachers had difficulties using previously unfamiliar computer systems. However, this problem was promptly resolved by virtue of the coordinated work of the department and university staff;
   3) Transitioning to a new learning format requires spending a lot of time on preparation for the classes due to the need to account for the possibility of Internet connection failures (sound, image) and be prepared to organize classes in such a way that it would be possible to compensate for the lost time;
   4) Closer contact with students, which is a positive aspect, on the one hand, leads to the teachers having to spend more time on "out-of-class" interaction with postgraduate students on organizational issues and issues related to the material "missed" due to poor connection (additional video consultations are required; much time is spent on telephone conversations with postgraduate students; the volume of e-mail correspondence with postgraduate students increases, etc.).
4. To draw conclusions on the organization and conduct of the qualifying examination for the candidate degree in the foreign language in the distance format.

   The procedure of the qualifying examination for the candidate degree. The examination was held via the university's LMS platform (https://lms.mai.ru/).
   The content of the distance examination included the following sections:
   1) Exploratory reading of an original text on the specialty (written translation into Russian with the use of a dictionary);
   2) Skimming an original text in the specialty (without a dictionary). The comprehension is assessed through the students' expression of the main idea of the text in Russian or oral translation of the text into Russian from the sheet;
   3) Conversation in the foreign language on issues related to the specialty and the scientific work of a postgraduate student and on social topics.

The work of the faculty members in the committee for the qualifying examination for the candidate degree was organized and divided into functional tasks:

- assessing the written tasks (evaluating the quality of the translation);
- speaking part (assessing the understanding of the text after skimming; assessment of the lexical, grammatical, and phonetic competencies and communication skills and abilities in the course of the conversation).

At the end of the examination, the committee met for a video conference in Zoom to discuss the results of each postgraduate student's exam, after which the postgraduate students were informed of their grades and received comments on them. The postgraduate students had the opportunity to ask questions and address their mistakes with the teacher.

Analysis of the teachers' evaluation of the results of the qualifying examination for the candidate degree. As a result of analyzing the teachers' opinion regarding the held examination, we can draw the following conclusions:

1) The distance format allowed to comply with the measures taken to prevent the increase in COVID-19 incidence;
2) The experience of the exam in the distance format can be considered positive. This format has affected neither the quality of the examination procedure nor the objectivity of the knowledge assessment nor did it create an increased psychological burden on the postgraduate students. There were no complaints from the postgraduate students about the difficulties arising from the distance format of the exam;
3) The results of the examination can be considered good since the students' grades remained high (80% – "excellent", 18% – "good", 2% – "satisfactory", no "absent");
4) The time of the examination was reduced by 20% compared with 2019 (with the same number of examinees and exam content). This was made possible by the well-organized remote work (both before and during the exam) of MAI teachers and administrators uploading the exam materials to the LMS platform (lms.mai.ru).

5 Discussion

As COVID-19 continues to spread, the problems of the problem-free functioning, accessibility, and efficiency of higher education in different countries are of great concern. The forced transition to a purely distance format has become a serious test for the entire educational system as a whole.

The distance format of classes with postgraduate students and the qualifying examination for the candidate degree in the foreign language in Moscow Aviation Institute (National Research University) (MAI) was deployed due to the present epidemiological situation. Postgraduate students of MAI have high motivation to learn a foreign language associated with their professional activities and striving for professional growth [27]. Therefore, it was important for the teaching staff to maintain a high level of

foreign language teaching during the transition to a new learning format, providing an up-to-date level of the learning process itself and the assessment of the learning outcomes.

The results of the study are consistent with the opinion of researchers and practicing teachers who take part in the work of commissions of qualifying examination for the candidate degree in the current conditions, as well as allow arguing for the expediency of using the distance format, which involves the mastery of both the linguistic, foreign language, and professional competences and the information competence. This format has a clear communicative orientation and involves psychological readiness for communication [28].

Distance learning plays an important role in modern education, including foreign language learning. We agree with the authors arguing that with the development of ICT, foreign language teachers are faced with the need to introduce new effective ways of teaching foreign languages that actively utilize multimedia technology. Even in a regular situation, distance learning of foreign languages in higher education with the use of ICT is becoming relevant and promising [29]. In the use of ICT in learning, of importance is also the innovative culture of the teacher and their readiness to engage with and generate innovations [30].

It can be noted that the distance format also allowed to preserve MAI's tradition of annual scientific and practical conferences in foreign languages for undergraduate, graduate, and postgraduate students. These conferences are devoted to the issues of innovations in science and technology and allow young researchers to discuss their professional interests in a foreign language [31]. In 2020 and 2021, this conference was held in the distance format.

In our view, of importance is analyzing the results of mastering the discipline and determining the abilities and skills formed and developed in the process of teaching a foreign language to postgraduate students. Summarizing the experience of several researchers, we can distinguish the following aspects:

- mastery of various strategies for reading authentic texts in the specialty (exploratory, skimming, searching, scanning);
- skills in listening to oral speech on professional topics;
- skills and abilities in public speaking and communication on professional topics in the foreign language (scientific presentations, conference reports, discussions);
- skills and abilities in productive writing (review papers, abstracts, scientific articles);
- ability to correctly fill in various documents.

Moreover, special attention should be paid to developing vocabulary related to the topic of the thesis research and to improving grammar used in scientific communication [32].

We believe that the use of ICT in distance learning to the fullest extent provides for the development of the following knowledge, abilities, and skills of postgraduate students necessary for the formation of their professional foreign language competence [33]:

- knowledge of the trends in the development of a specific field corresponding to the professional orientation of a postgraduate student;
- knowledge of the scientific achievements, facts, and events in the spheres of production and science or knowledge of the achievements of Russian and foreign science [34];

- mastery of the speech means of communication in communicating on highly specialized topics with the use of authentic Internet resources (websites of scientific journals, digital libraries, international citation databases, etc.) [35];
- mastery of the research competency to successfully resolve scientific and research tasks as part of the thesis research;
- ability to use modern multimedia.

6 Conclusions

Despite that the modernization of the process of teaching a foreign language by virtue of modern computer technology has long been the topic of interest of researchers and practicing teachers and has been successfully introduced in universities as an addition to the traditional format, the need for an urgent transition to completely distance learning was a great challenge for all universities. The experience of Russian universities shows that the use of distance educational technologies in the periods of forced self-isolation due to the difficult epidemiological situation allowed maintaining the uninterrupted functioning of educational institutions and preserving the accessibility and effectiveness of higher education.

The distance format of postgraduate students' classes in the foreign language and the qualifying examination for the candidate degree did not compromise the required level of quality of the educational process.

The analysis of work in this format allows identifying several opportunities provided by its use:

1. Providing an individual approach to each postgraduate student, the creation of individual learning trajectories. This is of particular importance at the postgraduate level due to the increased busyness of graduate students at work and their forced absences from classes.
2. Increasing postgraduate students' motivation to learn a foreign language. The use of advanced computer technology in the classroom and the deeper use of English-language websites containing information on topics relevant to the thesis research increase the interest of postgraduate students in the studied discipline.
3. Organizing more efficient work of postgraduate students with English-language sources. The need for completely remote work psychologically adjusts students to a more serious approach to work with English-language websites, to the selection and analysis of information on the specialty, to the preparation of presentations. This aspect is the most relevant for the formation and development of a number of the most important sub-competencies (linguistic, pragmatic, social, strategic, etc.), which contributes to achieving the ultimate pragmatic goal – professional foreign language competence.
4. More efficient use of class time. Enhanced capabilities of computer programs allow, for example, to turn the passive assessment of students' work by the teacher into a collective discussion and involve the whole group, which increases the efficiency of the learning process.

5. Providing closer contact between the teacher and the student, which positively affects the learning process. The efficiency of the perception of information and the improvement of the results of mastering the discipline increase due to the timely identification of problematic areas and resolution of the arising problems. This aspect may present significant difficulties for the teacher, since students' questions may also arise in the "out of class" time.

Based on the results of the study, we can offer a number of recommendations for the organization of work with post-graduate students in foreign language classes:

1. When conducting distance course with post-graduate students, different speech exercises would be useful because they motivate foreign language communication. Such tasks, for example, include viewing and discussing various sections of scientific articles from international journals, etc.;
2. As one of the options of individual students' work the preparation of presentations on the theme of dissertation research in a foreign language could be recommended;
3. The distance mode of scientific and practical conferences in foreign languages is useful for post-graduate students because of their scientific and professional occupation.

Among the disadvantages of the purely distance format, it is important to mention the difficult psychological aspect of distance learning. "Virtual" communication cannot replace "live" despite all the positive aspects of the distance format. Having their own experience of learning in the traditional format, practicing teachers argue that "live" communication is necessary for the proper development of each students' personality. In this regard, once society returns to normal life, it is advisable to use distance technology as a compulsory supplement to the traditional "live" format of education.

7   References

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