Problems of Mastering and Using Digital Learning Technology in the Context of a Pandemic

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Abstract. The article attempts to identify the difficulties associated with the use of digital learning technology at a technical university in the context of a pandemic. The research is based on the use of such methods as content analysis of modern publications on the problem under study, their logical analysis, generalization and systematization of published information, as well as understanding the experience of using digital technology at the technical university. A survey of polytechnic students was conducted regarding the timely identification of problems related to the use of digital learning technology. The findings revealed that awareness of the thoughtful use of digital learning technology, as well as thoughtful regulations in the access of students to digital equipment can open up new opportunities for their application. The relevance of digitalization for the technical university is shown. Prospects for further research of problems related to the use of digital technology of education at a technical university are outlined in order to identify its further directions and features of their development in domestic and foreign educational institutions. The novelty of the study consists in substantiating the relevance of analyzing the experience of using digital learning technology at the technical university, identifying problematic aspects of its use. The limitation of the study is that all the responses are from just one educational institution and, in future studies, it is necessary to take into account the experience of using digital learning technologies on a more global scale.

Keywords: Digital learning technology · Technical university · Digital competencies

1 Introduction

An important aspect of modern reality is the transition of the world to the next level of development of new technologies [1–5]. The first transition was the creation of the steam engine; the second transition - electrification; the third transition - informatization; the fourth transition - digitalization, that is, the era of big data and technologies based on them. The gradual introduction of digitalization affects all sectors of production, culture, science, including education.
One of the main tasks of the education system at the present stage is to improve the quality of training of highly qualified personnel, in particular, engineering personnel who are capable of professional self-awareness, timely adaptation \([6–9]\), self-discipline and endowed with high cultural and moral qualities. The digital component can be considered both as a given and as a necessity of the educational process as a whole.

The formation of a highly competent professional pool of candidates is based on the assessment of competencies. Currently, one of the necessary competencies for students is digital competence \([10–14]\) and others. Note that the term is understood ambiguously by researchers. According to Van Deursen and Van Dijk \([11]\), the structural components of digital competencies are technical aspects involving the use of certain materials, methods and tools; educational and cognitive aspect associated with the gradual adaptation of the student to digital technologies, which involves the formation of an information culture of the student, taking into account the individual characteristics of the student’s mental activity, readiness to use a computer and computer programs. In a study by Ferrari \([15]\), the concept of digital competencies is reflected in collaboration. According to Steyaert \([16]\) digital competence also covers operational skills, which relate to the ability to use interactive applications and devices. According to Marchionini & White \([17]\) digital competence is manifested in the user’s ability to filter out information. Castaño-Muñoz, Duart and Sancho-Vinuesa \([18]\) examine the use of the Internet for interactive learning, focusing on the role of motivation in educational activities.

To sum up, we understand digital competencies as the ability to work with large amounts of data using digital devices and platforms to analyze, research, and share this data. Digital competencies include: knowledge of Internet search technologies, the ability to critically perceive information and verify its authenticity, the ability to create multimedia content for posting on the Internet, and the readiness to use mobile communication tools.

Following these authors, we distinguish the following composition of digital competencies: the ability of a person to use digital technologies in an educational context in order to improve performance (technical or instrumental aspect); the ability to solve problems (educational and cognitive aspect based on the use of logical, intuitive and creative thinking); the ability to interact, responsibility, autonomy (social and behavioral aspect).

Currently, there is an objective need to introduce new learning technologies that allow students to form the necessary competencies. One of these technologies may be digital learning technology. Digital technologies are a tool that successfully solves the issues of intensification and optimization of education and contributes to the adaptation of the individual in the information society. A necessary condition for the scientifically based application of digital technologies in education is the development of theoretical issues of the organization of the educational process, taking into account the didactic features of the use of digital technologies.

The authors understand digital learning technology as a reproducible process based on a system of rules for organizing interaction between students and the teacher through digital, smart devices that interact with each other, and providing personalized educational and cognitive activities of students.
In connection with the rapidly occurring digitalization of education, researchers pay special attention to the study of the problems of using digital technologies in Russian higher education institutions, in particular, technical universities. The issues of studying the use of digital technologies in the educational process are one of the most relevant areas of research and teaching practitioners. Despite the fact that a certain number of studies in the scientific literature devoted to the use of digital technologies in the Russian educational institutions in the changed social conditions, it must be noted that there are a number of problems that require the attention of researchers and teachers-practitioners, namely, based on methodological terms, the process of learning using digital learning technologies in a technical university; not developed an organizational learning environment for the introduction of digital learning technologies in a technical university. Many high school teachers suffer from “technological overload”, use a significant number of digital tools, turning into a kind of jugglers, not determined in the priorities [18]. There are a number of problems requiring the attention of researchers, namely: the existence of a manifold of electronic resources and the lack of reasonable methodical conditions of their use in a pandemic; the lack of readiness of the institutional conditions for the introduction of digital technology in educational process at technical university.

2 Background and Means to Solve the Problem

In recent years, the term “digital technologies” has been used in the educational community. The work of many researchers, in particular, Blundell et al. [20]; Greenberg et al. [21]; Mercader & Gairín [22]; Pacheco [23]; Ng [24] and others, reflects the problem of the development and use of digital technologies. The relevance of this research area is due to the need to ensure the quality of the learning process in the conditions of digitalization of education.

It is interesting to note the following trends of redesigning high school, highlighted by modern researchers: identification of suitable for a specific contingent of students digital learning platforms and tools to engage students in learning at their own pace using remote digital technologies in educational process; development of requirements for user software and Internet connection quality, integration with external digital tools; familiarity with and awareness of the rules of training with the use of digital technologies (development of detailed unambiguously understood instructions); conducting systematic surveys, conducting mass and individual consultations; eliminating various kinds of shortcomings; developing requirements for programs; conducting webinars aimed at resolving issues related to the culture of digital generation network communications (punctuality, eliminating the causes of negligence in labor duties); introducing strict and flexible reporting forms; regulation of the time allocated for completing homework in each discipline and accounting for them based on their total number; taking into account the duration of classes and forms of its conduct, with an emphasis on compliance with clear sanitary and hygienic standards of work in the information and educational environment (the ratio of work with digital equipment should be reviewed, since training in the classroom and training using digital technologies are different educational processes); interaction (training, communication,
collaboration, analysis) of all interested parties; implementation of technical support (software collects, analyzes, systematizes, and visualizes data received from sensors, and helps people make decisions or takes them automatically, thereby freeing up human resources).

3 Consideration of the Practical Aspects of Student Learning in the Context of a Pandemic

One of the ways to solve these problems can be a well-thought-out and informed use of digital learning technology using the Microsoft Teams corporate platform, a well-thought-out regulation of students’ and teachers’ access to digital tools. We performed experimental work to verify the hypothesis put forward. The purpose of our experiment was to identify the problems of using digital learning technology using the Microsoft Teams corporate platform.

In our study, we suggest applying digital learning technology, which can be presented in the form of the following table (Table 1):

| No | Stages of the technology |
|----|--------------------------|
| 1  | Conducting a brainstorming session to determine guidelines for the algorithmization of students’ learning activities using the Google Classroom web service |
| 2  | Working with an electronic software textbook in LMS MOODLE (performing training tasks) using additional electronic resources |
| 3  | Working with the program Writeful from Microsoft Word in order to get feedback on the writing by checking the text against databases of correct language |
| 4  | Demonstration of completed training tasks in the Microsoft Teams webinar room |
| 5  | Monitoring of the student’s classroom and independent activities |

The table above requires clarification. Let’s take a closer look at all the stages of digital learning technology. The organization of digital learning technology has several stages.

At the first stage, students are encouraged to use the Google Classroom platform, which allows them to organize distance learning. The need to use Google Classroom appeared in the Higher school of linguistics and translation, the Institute of Humanities in order to organize the educational process with the students (to keep in touch with them and to regulate further training activities), when there was the situation with coronavirus. A coronavirus site on the LMS MOODLE platform was under development. For a month before switching to the coronavirus site of the LMS MOODLE platform, we conducted training in Google Classroom. The decision to choose this platform for maintaining communication with students was supported and adopted unanimously by all teachers at the meeting of the Higher school of linguodidactics and translation, the Institute of Humanities of SPbPU. The advantages of this platform are
that the platform allows you to maintain high-quality communication with students (students receive email notifications when any information is entered on this platform). Students had the opportunity to pay attention to changes and respond to them in a timely manner. To access this platform, the teacher sent links and passwords to the platform to the group leaders (and their deputies). After receiving the links, students were able to enroll in a training course developed in advance by the teacher. The teacher created virtual classes for students of technical areas of the Institute of industrial management of economics and trade (IIMET), the Institute of energy and transport systems (IE), the Institute of biomedical systems and biotechnologies (IBSB).

On this platform, the plan of training sessions has been published, and links to educational materials that provide distance learning in Google Classroom are provided. The deadline for completing training tasks is one week for each training session. Screenshots of completed training tasks are sent to the corporate email of the course curator in the form of a file name with the student’s full name and group number, and the completed aspect-classroom work/homework. Thus, the use of the Google Classroom platform contributed to the fact that students had a constant connection with the teacher and felt support in educational matters. The Google Classroom platform was chosen by teachers because it is freely available and the vast majority of teachers of the Humanities Institute are familiar with its functionality. Information about the educational process was placed in Google Classroom centrally in a group. This stage was necessary before we started working in the Microsoft Teams webinar room.

Also, at the first stage, the authors conducted a questionnaire containing open and closed questions (Table 2) aimed at identifying problems with the use of digital learning technology based on SPbPU. A total of 65 subjects took part in the survey, students in technical areas at the Institute of industrial management of Economics and trade (IIMET), the Institute of energy and transport systems (IE), the Institute of biomedical systems and biotechnologies (IBSIB) based on the current cohort of study.

| No | Question |
|----|----------|
| Q1 | Does the Microsoft Teams platform have an intuitive interface? Kindly explain why |
| Q2 | Have you had any difficulties integrating with other programs (for example, Microsoft Office)? Be kind enough to explain why |
| Q3 | How confident do you feel when working with the tools? Kindly explain why |
| Q4 | Do you experience difficulties with information content when performing individual training tasks? |
| Q5 | Do you manage to complete the training tasks by the deadline set by the teacher? |
| Q6 | In Your opinion, do digital learning technologies contribute to the development of knowledge in academic disciplines? |

Table 2. Survey items.
At the second stage, students worked with an electronic software textbook in LMS MOODLE. For our research, it is important to analyze electronic software textbooks for the presence of educational tasks that allow you to deepen your knowledge in the use of digital technologies. Electronic versions of foreign language textbooks for undergraduates of SPbPU “Practical course of teaching English in a multidisciplinary university” (“Biotechnology”; “Product technology and organization of public catering”), “Practical English language training course in a multidisciplinary university (“electric power and electrical engineering”; “Heat and power engineering”), “Practical course of English language training in a multidisciplinary University (“Management”; “Trade”) in the LMS MOODLE system.

The electronic version of the textbook on foreign language for undergraduates of SPbPU “Practical course of teaching English in a multidisciplinary University” (“Management”; “Trade”) is intended for undergraduates studying in the areas of “Management” and “Trade”, who speak English at the B2 level. The book contains authentic scientific and professional texts on these areas of master’s training, as well as a variety of exercises that contribute to the development of practical skills in English, allowing a learner to use it in their future professional and scientific activities. The electronic version of the foreign language textbook for undergraduates of SPbPU “Practical course of teaching English in a multidisciplinary university” (“Biotechnology”; “Product technology and organization of public catering”) is intended for undergraduates, as well as postgraduates who speak English at the B2 level, studying in the areas of “Biotechnology” and “Product technology and organization of public catering”. The book contains authentic scientific texts on the specialty, as well as exercises that contribute to the development of practical skills in English, allowing them to use it in their future professional activities. The electronic version of the foreign language textbook for undergraduates of SPbPU “Practical English language training course in a multidisciplinary university (“Electric power and electrical engineering”; “Heat and power engineering”) is intended for technical students (level B1-B2), in particular for students studying in the areas of “Heat and power engineering”, “Electric power and electrical engineering”, “Power engineering”, “Nuclear power and Thermophysics”. The book contains authentic scientific texts on the specialty, as well as a variety of exercises and linguo-computer tasks that contribute to the development of practical skills in English, allowing them to use it in their future professional activities. The courses are designed to form and develop students’ professional skills. The courses are an addition to the educational and methodological complex of the discipline “Foreign language in professional activity”.

Electronic textbooks are intended for undergraduates and postgraduates of technical profile (level B1-B2). Electronic manuals are aimed at achieving practical results in the study of a professionally-oriented foreign language course. The purpose of the manual is to form a foreign language communicative competence, the ability to communicate in a foreign language in professional, business, and scientific fields. These manuals are intended for use in the classroom with a teacher, as well as for extracurricular independent work. Electronic textbooks cover the main aspects of professional activity of an engineer in the relevant professional fields, contain authentic scientific texts in the field of training, which is accompanied by a variety of exercises aimed at checking the understanding of their content, working on General scientific and professional
vocabulary, as well as problem-oriented tasks that stimulate active speech practice of students and contribute to the development of practical skills of English, allowing them to use it in their future professional activities. Each text of the textbook is equipped with a specially developed system of exercises that have a complex character. The presented texts are selected on a thematic basis and are intended for the development of various types of reading (studying, viewing and searching). When selecting text material and lexical units for active learning, the authors used original English and American sources. Each lesson contains a fragment of an authentic scientific text (2000 characters), as well as exercises aimed at developing and improving lexical and grammatical skills, working out language skills. The grammatical material of the textbook covers the main phenomena of the English language that are necessary for reading and translating specialized technical and scientific literature.

The manual is equipped with training tasks for fixing the studied material and a list of used sources of information, answers to exercises and a dictionary that includes the main scientific terms found in the texts. The exercises are selected in order to maximize the coverage of terminology that is necessary for students in the professional field. At the end of each lesson, there is a training task to annotate the read text, as well as a description of a drawing or diagram, which helps to improve oral communication skills.

To consolidate the material passed, each lesson provides for independent work of students (annotation of the English text and translation of the Russian text on the same topic into English), which can be performed both in the classroom with the teacher, and individually as a homework assignment. To complete translation training tasks, you need to be able to use electronic dictionaries, search engines, and so on. The app contains audio materials that allow you to train the perception of a foreign language by ear, as well as to remember the correct pronunciation of terms used in texts.

At the second stage, students were asked to complete a list of educational tasks (see Table 2), given in the electronic textbook in the corresponding section, using additional resources, namely www.MDPI.com, Digital Library of Institute of Electrical and Electronics Engineers (IEEE), Google Scholar for students’ choice (for choosing a scientific article); Power Point or Prezi.com (for creating a presentation), ReWord (a program that you can use to create dictionaries).

The third stage involved working with the program written from Microsoft Word in order to get feedback on the writing by checking the text against databases of correct language. As an alternative, students were offered the program Paperrater.com. This program is an online tool for checking for errors and typos in the text. The student needs to copy the text of their summary and paste it into the program’s dialog box, and the program will automatically check it.

At the fourth stage, students demonstrate their completed training tasks in the Microsoft Teams webinar room. The student can share their screen and demonstrate their academic work. Students listening to a classmate’s speech can send their questions that arise during the course of their colleague’s speech to the chat. After completing the online lesson, the teacher can return to the recording and listen to each student’s speech again.

At the last stage, the student’s classroom and independent activities are monitored. At this stage, the student’s completed academic tasks are evaluated and evaluated.
Certification in the program discipline was carried out in the form of a portfolio (Table 3), including works completed during the semester and posted in the course on the LMS MOODLE platform for this discipline. The portfolio also includes final reflexive work on the studied educational material, performed during the certification, usually in a group form, using technologies for developing critical thinking. The final reflexive work includes a discussion of completed control tasks, after which students are informed of the final assessment. A brief description of a portfolio can be described as a targeted selection of a student’s work that reveals their individual educational achievements in one or more academic disciplines. A portfolio is a way of recording, accumulating and presenting individual student achievements over a certain period of study in a higher education program - a master’s program.

The criteria for grading the results of certification in the discipline are as follows. The score “Credited” for the discipline is set based on the number of points scored by students for the work they completed in the course of studying the discipline, which is part of the portfolio; the list of tasks, their deadlines and the number of maximum points received for the task are specified in the instructions for conducting the certification, compiled by the teacher and published in the course section “General”. In accordance with the instructions, the “Task” element is created with the set deadlines for its completion. The final score is set as a result of summing up points for the entire volume of completed tasks. The portfolio includes 6 tasks, the maximum number of points is 100. 60–75 points – “Satisfactory”. 76–85 points – “Good”. 86–100 points – “Excellent”.

Mandatory meeting with students in the webinar room of Microsoft Teams on the day of certification to discuss the student’s portfolio and issue a rating based on the points earned. Due to the technical problems that teachers and students face when working with the LMS MOODLE platform, it was decided to create two control points. The control task element was created and a deadline was set. The tasks were divided

Table 3. Instructions on criteria for evaluating the performance of control tasks by test subjects (student’s portfolio).

| No | Control tasks                                                                 | Maximum number of points |
|----|------------------------------------------------------------------------------|--------------------------|
| 1  | Active participation of students in practical classes                        | 30                       |
| 2  | Glossary of scientific articles in the specialty (20–30 words)               | 10                       |
| 3  | Summary to the scientific article on the profile direction in written form   | 10                       |
| 4  | Presentation of ten slides or an infoposter on a scientific article in a     | 10                       |
|    | specialized area (6–8 pages)                                                |                          |
| 5  | Translation of a fragment of a scientific article in the field of research    | 20                       |
|    | from Russian to English (150–200 words)                                     |                          |
| 6  | Preparing an essay on one of the topics covered during the semester, or      | 20                       |
|    | watching a video on the Internet (at least five minutes) in the profile      |                          |
|    | direction (or within the framework of the topics covered) in English and     |                          |
|    | preparing a summary in writing (7–10 sentences)                             |                          |
into two parts in the evaluation criteria. The glossary, abstract to the article, and translation of the article fragment had to be submitted in one document in response to the first control task posted in the course. The essay and presentation had to be attached to the second control task. The score for each item of the control task was set by the teacher in accordance with the scale and indicated in the comments to the control task.

The purpose of this study was to identify problems requiring the attention of researchers, namely: the existence of a manifold of electronic resources and the lack of reasonable methodical conditions of their use in a pandemic; the lack of readiness of the institutional conditions for the introduction of digital technology in educational process at technical university. Our study has achieved the aim by demonstrating the problems of using digital technology in SPbPU. The results of the survey showed that 47% of all respondents periodically experience difficulties working on the Microsoft Teams platform. Most of the respondents show a high interest in using digital data on this platform because of the representativeness of the data, which saves time for both students. Respondents noted that there is a risk of distortion of the transmitted information, by the students, repeated requests for the same information occur, and there is a risk of losing documents. Students experience difficulties with microphone malfunction, inability to copy links from presentations used during online lectures. Also, the control panel cannot be moved, and this leads to the fact that this panel may cover important information and if the user did not have proper experience with this platform, it may face difficulties. When a user tries to share the screen, audio interference also occurs and the quality of information transmission deteriorates.

We managed to find out that the LMS MOODLE course management system “hangs” when a large number of users simultaneously use it. However, this platform has a convenient representation of educational information. The advantages of the Google Classroom web service are instant synchronization, and authorization takes minimal time. The Microsoft Teams enterprise platform and the Google Classroom web service have mobile apps. The LMS MOODLE course management system has an option to go to the Microsoft Teams app. There are difficulties in switching back from Microsoft Teams to LMS MOODLE, which raises the problem of flexibility of configuration on the administration side. The main difficulties in using digital learning technology using the Microsoft Teams platform at a technical university. We present these data in order to identify the main problem areas of using digital learning technology.

Almost half of the respondents (53%) noted that the Microsoft Teams educational platform has the most intuitive user interface for implementing training related to the training course. The Microsoft Teams platform can increase the understanding of academic disciplines in the classroom. The respondents noted that LMS MOODLE has the most structured interface. Respondents noted the need to have an account for further use of the service among the disadvantages of Google Classroom (not every user is satisfied with the registration procedure).

Less than 40% of all respondents feel not confident when working with the tools. It seems to us that despite the fact that students may believe that they are experts in the field of tool ownership (for example, they may have information about what and how to place the completed work in the Questions & Answer section on the LMS MOODLE platform and so on), in fact, it may not be fully. As a rule, students rely on third-party
programs or on the fact that they can always peek into the manual. Any student must be able to master the basic tools without peeking anywhere.

30% of all respondents experience difficulties with information content when performing individual training tasks. After analyzing the students’ answers to the question, we can conclude that students do not always have a clear understanding of what resources they can use and what to write about, for example, in an essay.

Fig. 1. The main difficulties for students when using digital learning technology using the Microsoft Teams platform.
In the survey, were identified that Quizlet (12%), Paperrater (7%), Youtube (61%), Kahoot! (10%), and other Learning Mobile Applications (10%) were the most popular apps among respondents at the moment. These multi-platform applications provide a return to the history, have filtering of sections, and have flexibility of configuration (individual professional approach that allows the user to remove unnecessary information). These applications are available to the public and do not require huge investments. All respondents unanimously (100%) confirmed that digital learning technology contributes to the development of knowledge in academic disciplines.

Summing up the results of training using digital technology was carried out in the form of a portfolio. In LMS MOODLE, the teacher created control tasks in the progress log, where students attached their work to the deadlines specified by the teacher. The teacher awarded points for tasks. The instructions contain a list of control tasks for final certification (Table 3). Instructions for students with control tasks, deadlines and evaluation criteria were posted in advance in LMS MOODLE, so that students could understand how they accumulate points to get the final grade. Control tasks that were passed by students earlier. In addition to the work completed by the student in the semester, the student must pass a short oral interview (for example, a question about the work completed in the semester to make sure that the student performed them independently), aimed at confirming the results obtained in the semester. Before the results were announced to the student, the teacher filled out a control Sheet for the works included in the portfolio. On the scheduled day and time of the test, the teacher met with students at Microsoft Teams to discuss the results of the test. Working with each student in the framework of the test was at least 17 min per student.

Summing up the results of training using digital technology (Fig. 1), conducted in the form of a portfolio, allowed us to identify the following problems.

By the first control point, only 47% of respondents completed control tasks with deadlines. About a quarter (42%) of respondents experienced technical problems using the Internet. Approximately 35% of respondents experienced difficulties with motivation in their studies. Less than a third (21%) of respondents noted a lack of prompt assistance from the teacher. The survey found that approximately 41% of respondents had difficulty completing control tasks in the online course.

By the second control point, the vast majority (89%) of respondents completed control tasks in compliance with deadlines. About a quarter (36%) of respondents experienced technical problems using the Internet. Approximately 41% of respondents experienced difficulties with motivation in their studies. Less than a third (17%) of respondents noted a lack of prompt assistance from the teacher. 40% of respondents experienced difficulties in completing control tasks in the online course. The survey revealed that the number of students experiencing difficulties remained virtually unchanged at both the first and last control points.

4 Results and Discussions

Based on the survey, it can be concluded that students are experiencing situation in relation to the use of digital content. Students note the need for detailed instructions on how to work with digital content, lack concentration on a single task due to the
existence of a multitasking factor and the need for rapid response to work situations. Students also experience discomfort when trying to make adjustments, for example, the appearance of additional questions during the final certification (they react very cautiously). The students also noted the need to conduct systematic surveys, conduct mass and individual consultations in order to eliminate various types of shortcomings; introduce flexible and strict reporting methods in order to identify and resolve difficulties in a timely manner.

The survey allowed us to identify the key problems of using digital learning technology, namely: problems related to the development of information support for students; problems related to the development of an algorithmic prescription for organizing training using digital tools, regulating the time spent working with digital tools.

Modern teachers and students - these are representatives of the era of the new digital age, who need to be able to work with cloud technologies, distributed computing and portable arrangement, online networking, the Internet of Things (IoT), Virtual Reality (VR) and Augmented Reality (AR) with computerized pleasures [25], artificial intelligence, use smartphones and applications that lead to what was previously unattainable, is now becoming achievable and is implemented in new ways. That affect education right now and they are accessing information, data diversity and large volumes of digital information of interdisciplinary character, the rate of change, self-efficiency to creative outcomes and original approaches to smart computer-based problem-solving, tandem of balanced teamwork and individual work, game-based learning, taking part in numerous on-line project-based activities.

We emphasize that this is the first report on fresh impressions, descriptions of past experiences using digital learning technology at a technical university in the context of a pandemic. Based on the above, we believe that the prospects for using digital learning technology are promising, but it is necessary to take into account the unique experience of the public in mastering digital tools, in particular, it is necessary to develop a successful strategy for using digital tools, in particular, to take into account the strong scientific grounds for the productivity of using digital tools. It is worth noting the advantages and disadvantages of using the Microsoft Teams platform at a technical university during a pandemic. Among the advantages of the Microsoft Teams platform, we can note that it is a universal tool of multithreaded, multilateral exchange of multimedia data, in particular, to demonstrate presentations or any training materials, demonstrate the desktop, collaborate with documents, share files, post links to external resources and applications. Students can comment on what is happening in a text chat, as well as be included in the discussion by voice. The teacher also can transmit the word to only one speaker and switch the general broadcast from his desktop to any other (a kind of remote analogue of a call to the board). It is possible to video-record online classes on the Microsoft Teams platform for subsequent review and better assimilation of training material. Among the disadvantages of the Microsoft Teams platform, one can single out its arbitrary self-start when the computer is turned on (even when the option is disabled in the settings), and the microphone is turned on spontaneously. Video playback may be delayed. On the screen of the Microsoft Teams platform, there are fixed elements that block the information located in the presentation. During an online lesson, when trying to share a screen, noise interference occurs that
impedes the perception of information, which, in turn, leads to the fact that instead of demonstrating the teaching material from his working table, the teacher was forced to share digital tools in the Microsoft Teams platform chat.

It is also necessary to take into account the specifics of using digital tools in a certain subject field in order to avoid losses that can affect the quality of the formation of the learner’s personality, his professional formation, the formation of his civic position and moral character. It is necessary to conduct theoretical and methodological and applied research in the educational sphere and appropriate scientific and methodological support for the activities of the teacher. In this regard, we believe that the use of digital learning technology requires further deep and comprehensive understanding and study in order to successfully use them as a teaching tool. The introduction of digitization changes the landscape of employment trends, the changing occurrence and nature of the work performed, change in technology, change in behavior and attitude of students to educational process, demanding learning process.

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