Problems and Opportunities of Distance Learning in the Context of the Pandemic: Case of one University in Kazakhstan

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Abstract: Distance education systems are being actively studied and developed in higher educational institutions of Kazakhstan and have already passed the path from the distance learning system to Intelligent flexible learning model based on Web technologies. The advantages of online learning are classroom and platform independence. The goal of various intelligent learning systems is to use knowledge about the field of study, the learner, and learning strategies to provide flexible, individualized study and training. Many Kazakhstani universities were engaged in distance learning as part of the implementation of the second higher education. Obtaining a second higher education in Kazakhstan refers to studying in higher education programs after completing studies at the first higher education in the form of a bachelor's or specialist's degree. By obtaining a second higher education, you can get a degree or qualification in another educational program. The purpose of this empirical research is to study the attitudes of students regarding distance learning and to identify problems in the fulfillment of distance learning in an emergency transition. The study uses a quantitative research method based on a one-dimensional data analysis using descriptive statistics. In order to assess the level of distance learning organization process, the institutional study was initiated at the Kazakh National Women's Teacher Training University and conducted by the Research Institute for Social and Gender Studies. Based on this study recommendations were developed to improve the educational, methodological, social and educational work of the university, including the use of library resources in the conditions of distance learning. The study was conducted during June - July 2020. The study involved 677 students from all faculties of the university, including bachelor and master degree students, doctoral students. The study was prompted by: the need to assess the quality and level of organization of distance learning at the university; the need to identify problems (issues) of educational and social adaptation of the first-year students; the need to establish the degree of satisfaction of students with the distance learning process. The survey also allows to determine: the most effective forms of distance learning; study the performance indicators of the services provided by the university; to study the indicators of adaptation of students, master degree and doctoral students (satisfaction with the results; deficit experienced by students); evaluate the effectiveness of the work of deans, teachers and advisors from among teachers from the point of view of students. This research identifies the problems in the transition from traditional to distance learning and difficulties that arise when students receive high-quality professional education. Recommendations are developed to optimize the work of university structures aimed at improving the efficiency of the institutes' work and psychological services. The results obtained will make it possible to make managerial decisions based on information that considers the opinion of consumers of educational services.

Keywords: distance learning, COVID-19, pandemic, Kazakhstan, institutional research, educational and methodological work

1. Introduction

The COVID-19 has caused unprecedented changes in human history, including digital, managerial and organizational transformation due to the transition to remote work. On March 11, 2020, the World Health Organization declared a pandemic of a new type of coronavirus COVID-19. In accordance with the recommendations of the World Health Organization (WHO), one of the important measures to prevent the spread of COVID-19 is to reduce physical contact. Transition to distance learning has begun. The forced transition of Kazakhstani and other educational institutions all over the world to distance learning due to the COVID-19 pandemic has shown an urgent need for a "digital transformation" of education. The pandemic has actually increased the demand for distance education and has become a catalyst for the development of online learning. The urgency of distance learning in 2020 came as somewhat of a shock for the population and government agencies in most countries of the world.

In such an emergency, the Kazakh National Women's Teacher Training University, like other universities in Kazakhstan, also switched to distance learning during the pandemic. Under quarantine conditions, educational

institutions were faced with the task of maintaining the health of students and faculty, without interrupting the learning process. During distance learning, educators at Women's Teacher Training University used virtual learning environments such as Zoom, GoogleHangoutsMeet, Skype, MicrosoftTeems and other means of information. Extensive electronic library resources were also available for students. In June-July 2020, a sociological study was conducted at Kazakh National Women's Teacher Training University, in Almaty city. The purpose of the study was to study the attitude of undergraduate and graduate students regarding distance learning; identify the problem of implementing emergency transition to distance learning.

This article attempts to systematize the areas of digitalization of higher education, determine their impact on the content and results of students teaching, and outline a program for studying the social risks of transforming higher education, as a social institution, under the influence of digitalization. In particular, the digitalization of higher education means the transformation of the educational and management process, everyday social practices in the higher education system, due to the introduction of technologies for creating, processing, exchanging and transmitting large amounts of information on non-paper carriers. Digitalization involves the integration of education with information resources (Minina, 2020). The paper includes three sections. The first one determines the effectiveness of the work of deans, teachers, advisers (educational and methodological work). The second section describes additional information on the organization of library services in the context of remote work to further improve the quality of library services, as well as to increase the scientific level of the university library. The third section presents social and educational work, since social work at the university is very important. By examining the differences in how learners use the Internet to search for information, we can determine if there is a “level two digital divide” in the process of formation (Hargittai, 2002), since the Internet is widespread for most learners. To investigate this issue, we report the results of a study that examines the ability of learners to find information on the Internet. Documenting differences in Internet usage skills allows us to identify how different learners can take advantage of this environment in different ways. Using the Internet for distance education requires more planning and preparation than any other form of education. The preparation of materials and programs using these materials is an important part of education. And also, in distance learning, various educational software tools are used that create electronic educational complexes. The research results allowed us to develop recommendations on how to improve the educational, methodological, social and educational work/process of the university, including the use of library resources in conditions of distance learning.

2. Literature review

Most of the literature reporting the spread of the Internet focuses on the differences between those people who have access to the Internet and those who do not, or the differences between those who use it and those who do not. And also, literature analyzes the benefits of digital technologies in higher education (Kurmangulov et al., 2017; Sappey, Relf, 2010; Dabbagh, Kitsantas, 2012). Research on the development of digitalization in general and distance learning, and in particular in higher education, has been updated in the last two decades. These problems were actively developed by R. Garrison, who pointed out the main disadvantage of distance learning, which is the lack of its theoretical framework and foundation (Garrison, 2000). Other researchers T. Nikulina, E. Starchenko analyzed the advantages of distance education for students: learning at any convenient time, continuous education, the ability to design individual educational paths, etc. (Nikulina, Starchenko, 2018). M. Balykhin in his article considers perspective directions and problems of development of e-learning" (Balykhin, 2008). Authors in the work "New pedagogical and information technologies in the education system" provide an analysis of digital education, its structure, and the nature of the interaction between teachers and students in higher education (Polat et al., 2008). The technical difficulties of distance education are studied by D. Pyari, S. Jarmon, A. Smirnova and other authors (Pyari, 2011; Jarmon, 1999; Smirnova, 2015 et al.).

Distance education and learning came out as the result of the development of technologies associated with the Industrial Revolution in Northern Europe and North America in the late eighteenth and early nineteenth centuries (Keegan, 2002). The theory of distance learning as the most industrialized form of teaching and learning was developed by Peters (1994), who was to become the first rector of the Distance University in Hagen (Peters, 1994). In the model, developed in the mid-1960s, Peters analyzed the structure of distance education and noted the possibility of introducing industrial production methods such as division of labor, mass production and organization to achieve economies of scale and reduce unit costs. From Peters' point of view, self-learning and distance learning are very autonomous approaches to learning (Peters, 1994). The electronics revolution of the 1980s led to group distance learning and opened the door for the network and Internet access.

3. Method

The study used a quantitative research method based on a one-dimensional data analysis using descriptive statistics. For quantitative research we used the questionnaire method with a sample size of 677 respondents.

Univariate analysis is the simplest form of data analysis. "Uni" means "one", in other words, the data has only one variable. It does not deal with causes or relationships (unlike regression) and its main purpose is to describe. It uses data, summarizes that data, and finds patterns in the data. The task of one-dimensional descriptive analysis is to compress the information received, to present it compactly for further understanding. Like all other data, one-dimensional data can be visualized using graphs, images, or other analysis tools after the data has been measured, collected, compiled, and analyzed.

During the study, 677 students from various areas of education (of which from the Faculty of Pedagogy and Psychology - 109 students, undergraduates, doctoral students; from the Faculty of Physics, Mathematics and Computing - 123; from the Faculty of Social Sciences - 58; from the Faculty of Kazakh and World Languages - 85; from the Faculty of Natural Sciences - 293; from the Faculty of Arts and Humanities - 9 students, undergraduates, doctoral students), who had experience in distance learning during the pandemic, were interviewed.

4. Results and discussion

The study involved respondents from 6 faculties of the University: Faculty of Pedagogy and Psychology, Faculty of Kazakh and World languages, Faculty of Natural Science, Faculty of Physics, Mathematics and Computing, Faculty of Social Sciences, Faculty of Arts and Humanities (starting from fall term 2021-2022 academic year University has 5 faculties, and they are called Institutes). The average age of the respondents ranged from 18 to 22 years (Figure 1). The percentage of the age groups is distributed as depicted on Figure 1.

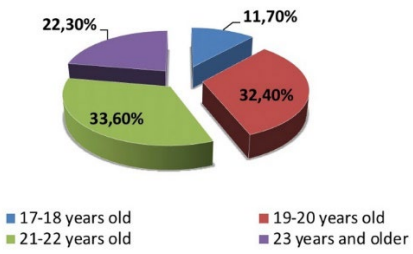

Figure 1: Age characteristics of students

According to the levels of study, the respondents are distributed as follows: 73.2% - undergraduate students, 21.3% - master students, 5.5% - Ph.D. students. The general distribution of respondents by faculties is presented as follows

- Faculty of Pedagogy and Psychology - 16.2%;
- Faculty of Kazakh and world languages - 12.6%;
- Faculty of Physics, Mathematics and Computing - 18.2%;
- Faculty of Natural Science - 43.1%;
- Faculty of Social Sciences - 8.6%;
- Faculty of Arts and Humanities - 1.3%.

Evaluation of educational and methodological work and satisfaction of students

The first section of the study is to determine the effectiveness of the work of deans and academic staff (teachers). As the results of the study showed, students are involved in various forms of self-training: 8.5% of respondents more often use the form of home (domestic) study with the help of printed teaching materials, 9.7% of respondents are involved in self-study in the library. The largest number of students use the form of self-study, carried out with the help of Internet technologies - 42.4%, electronic resources are used by 39.4% of respondents. According to the results of the survey, digital technologies are actively and widely used by students in the educational process (Figure 2). Analyzing the respondents' answers, we see the priority of Internet

technologies in the process of performing self-study assignments. We can suggest that students rarely and at a very low level use the traditional method of self-study and self-training with the help of printed teaching materials. Electronic resources (mainly electronic textbooks) are also significant for the self-study process. These self-training forms greatly facilitate the process of distance learning due to its mass accessibility.

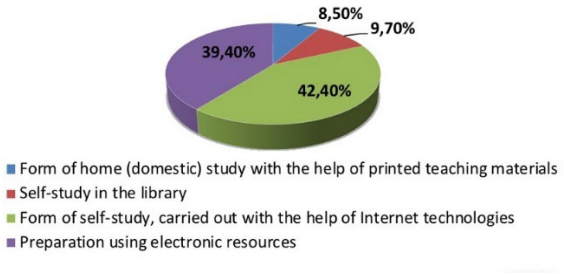

Figure 2: Forms of self-training of students

The results of studying the attitudes of students to distance learning (education) in the context of a pandemic in Kazakhstan showed that 52.2% of respondents point out that the learning process in the traditional way (classroom learning) is more interesting due to direct and interactive communication with teacher and classmates. 18.6% of students believe that distance learning contributes to the socialization of individuals, 10.7% of respondents claimed that spare-time (leisure time) is reduced in the process of distance learning, according to 16.4% of respondents, distance learning requires the development of digital skills, and only 2.1% of students prioritize the traditional education system (Figure 3).

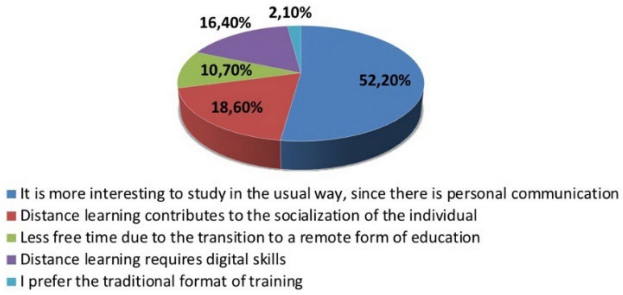

Figure 3: Attitude of respondents to distance learning during the pandemic

Authors identified the main factors hindering the effective use of distance learning technologies at the University by studying the attitude of students to the process of organizing distance learning at Kazakh National Women's Teacher Training University. 35% of students pointed out the lack of educational and methodological materials for on-line and off-line learning, 27.9% - insufficient technical equipment of the educational process, 20.3% - insufficient level of teachers' knowledge of information and communication technologies and 16, 8% - other reasons (Figure 4).

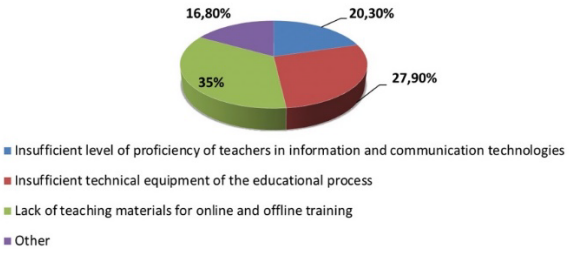

Figure 4: Factors hindering the effective use of distance learning technologies at the Kazakh National Woman's Teacher Training University

The survey results showed that the main problem faced by students (62.6% of respondents) in the course of distance learning is technical problems (low speed and quality of the Internet, errors in the operation of

hyperlinks). 12.7% of students from remote villages have limited access to the Internet, 11.9% of students do not have their own computer (laptop), 10.2% of respondents note an increase in workload and lack of time for self-study due to the transition to distance learning. 2.6% of respondents point to the absence of the Internet in remote rural areas (Figure 5).

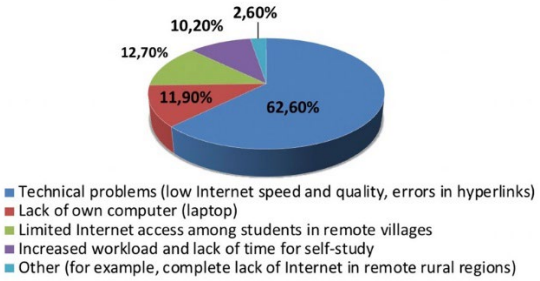

Figure 5: Problems during the organization of distance learning at the Kazakh National Woman's Teacher Training University in the conditions of emergency transition to remote mode

Findings:

With a mixed form of classes, the amount of work performed is practically divided between the student and the teacher.

It is recommended to study in more detail the factors hindering the effective use of distance learning technologies at the university and to develop measures to provide students with educational and methodological materials necessary for the effective organization of the learning process in on-line and off-line modes (35% of students note the lack of educational - teaching materials).

The results of the survey showed that the main problems of distance learning are technical issues. Firstly, there were problems with communication, secondly, unfortunately, not all teachers and students had graphic tablets that allow them to instantly write the necessary answers, explanations, etc., thirdly, psychological separation from the teacher, contactless education demotivated, in some cases, and lost interest in learning. In addition, not all sites work stably and reliably, and this only adds stress.

Regarding the emerging technical problems, of course, it is necessary to consider and refine, the university needs to prepare more stable and reliable platforms for conducting such classes. Good technical equipment is needed: a computer and Internet access (as technical problems, 62.60% of students noted the low speed and quality of the Internet, errors in the operation of hyperlinks).

And also take measures to improve the qualifications of the teaching staff in the field of using distance learning technologies in the educational process (20.3% of students note an insufficient level of knowledge of information and communication technologies among university teachers), to promote the sufficient development of communication technologies by the teaching staff.

Develop detailed video instructions, recommendations on the use of specific applications for mastering educational material, social networks, video broadcasts for teachers and students.

The university needs to organize a rapid exchange of experience of teachers through video conferences, webinars, video tutorials on the use of various services and environments, conducting training sessions, organizing independent work of students, etc.

Evaluation of the work of the scientific library and satisfaction of students

The survey was conducted among university students in order to obtain additional information on the organization of library services in the conditions of remote work for the further improvement of the quality, as well as raising the scientific level of the university library. The results of the survey showed that 30.19% of students use the services of the library 1-2 times a week, 41.94% of respondents less than once a week, 17.85%

of respondents go to the library 1-3 times per month, 10 .02% claimed that they use the library on a daily basis (Figure 6). More than a third (41.94%) of all respondents very rarely or never use the services of the library.

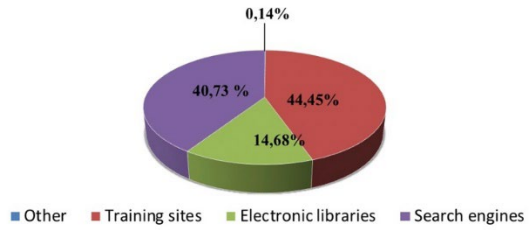

Figure 6: The most popular information resources

According to the results of the analysis, 29.96% of university students prefer library services for training in working with library information resources, provided in the form of individual consultations, 22.57% of respondents are interested in group trainings, 27.44% online consultations, 9.13% master classes and 10.9% webinars (Figure 7).

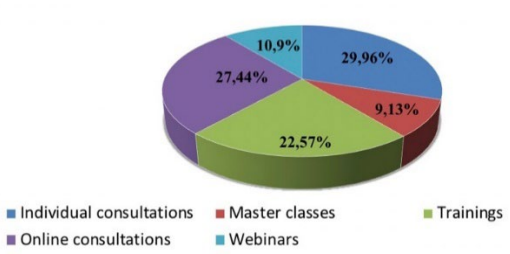

Figure 7: The most popular library services for training in working with information resources

The conducted institutional research made it possible to assess the extent to which the resources and services of the university library contributed to the educational and scientific work of students. 35.37% of students believe that library resources and services are essential and useful in the performance of educational and scientific work. 59.05% are inclined to believe that library resources and services contribute only to a small extent to the effectiveness of the educational process, and 5.29% of respondents do not consider them useful. 0.29% of respondents expressed their opinion regarding the inefficient use of library resources and services, indicating the reason for the inability to formulate formal request or due to lack of personal time (Figure 8)**.**

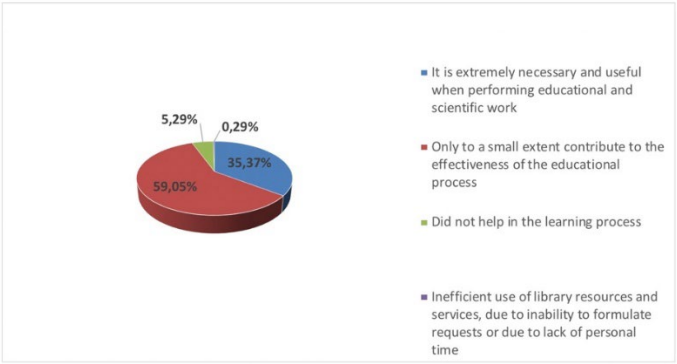

Figure 8: The importance and usefulness of the library's resources, services in the educational and scientific work of students

The study assessed the quality of library services for information retrieval (data searching) in the electronic catalog. Survey results showed that the quality of library services on information search in the electronic catalog is not satisfied with 10.46% of users, and 58.57% of respondents are satisfied with the quality of services provided. 11.65% of students indicate the drawbacks of the received information from electronic catalogs, and 19.32% note the relatively poor state of the information and electronic databases of the library (Figure 9).

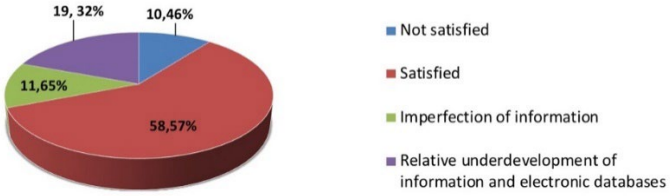

Figure 9: Perception of the quality of library services for information search in the electronic catalog

Users with low level of satisfaction of data searching service of the library indicated the following problems:

- "because it gives out a lot of unnecessary information"
- "multiple steps required"
- "not all books are listed in the catalog"
- "it is not possible to search in all databases at once"
- "inconvenient search by keywords"
- "search takes a long time"
- "need to expand search options"
- “does not have double search”, etc.

Findings:

The results of the survey highlighted several issues:

- technical problems associated with the use of existing software, service technologies, etc.
- most requests were related to the work of the Electronic Catalog of the Library, within the framework of which the electronic library of publications of the university staff also works. Deficiencies in the technical support are, for example, in setting up the interface of the Electronic Catalog, where there are headings, buttons and services that are incomprehensible to the user.
- communication in an insufficiently effective system of interaction between the library and the user.
- the lack of skills in working with resources of all categories of users, including library workers.

The shortcomings or even lack of skills in working with electronic resources among different categories of users largely depend on the library. User training is one of its main functions, the absence of a training system negatively affects the educational process as a whole, resources and services remain unclaimed. In this regard, the following recommendations were made to the university:

- 1. In order to improve service and attract users, create special sections on the website of the university library, where, using feedback forms, it will be possible to promptly study users’ opinions about the quality of services provided (41.94% of respondents do not use library services).
- 2. Improve the quality of technical support for library resources, improve the work of electronic catalogs (10.46% of users do not like the quality of library services for searching information in the electronic catalog; 11.65% of students point out the imperfection of the information received from electronic catalogs and 19.32% note relative underdevelopment of information and electronic databases of the library).
- 3. Create a convenient search mechanism (Categories of users with a low level of satisfaction indicated functional problems: “keyword search is inconvenient”, “gives a lot of unnecessary information”, “several actions are required”, “not all books are reflected in the catalog”, “ there is no possibility to search in all databases at once”, “search takes a long time”, “need to expand search options”, “does not combine double search”, etc.).
- 4. Develop interfaces that include training materials, tips, personalization options, saving search history, a convenient content format and citation tools with data upload for bibliographic reference processing programs. User should have a concise user-friendly resource interface, if some buttons and links do not work, they should not be in the interface, everything should be as simple and clear as possible.

- 5. Continue training to work with the information resources of the library, since this service is in demand among students (35.37% of students believe that library resources and services are extremely necessary and useful in the performance of educational and scientific work) and there is a need to provide additional advisory assistance to a certain category of students who do not know how to use the electronic digital resources of the library (0.29% of students do not have the skills to create queries).
- 6. Continue planned activities for training in working with the information resources of the library, paying special attention to individual / online consultations and trainings, since these forms of training are recognized by the results of the study as the most effective forms of interaction with students, which are in particular demand among library users (29.96% of students prefer individual consultations, 27.44% online consultations, 22.57% of respondents are interested in trainings).

Evaluation of the effectiveness of social and educational work in the context of distance education

Social and educational work is becoming the most important activity of educational institutions of higher professional education (Lomakina, 2014).

Social work in close connection with educational work involves the organization of interaction with students, including with their socially unprotected category, in order to identify their social and living conditions, difficulties that arise, and introduce appropriate changes and transformations into their life activities.

The evaluation of the level of students' participation in various University events (webinars, conferences, social events, etc.) was also carried out during the first stage of the transition to distance learning. As the results of the survey showed, the vast majority of students (49.85%) took part in online webinars and conferences, 23.58% - took part in public events initiated by the University, 21.14% - published information posts on their personal page, 3, 97% - took part in actions in social networks, 1.46% - did not take part in the social and public life of the University, for various reasons (Figure 10).

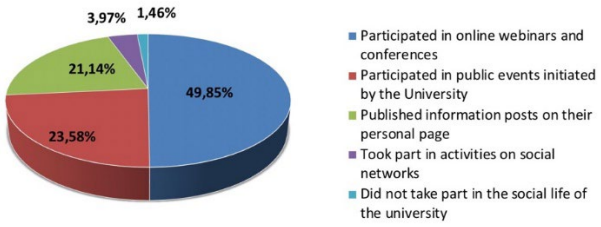

Figure 10: The level of activity of student's participation in various university events during the first stage of distance learning

Under the conditions of the remote mode of work, social work at the University was carried out in a planned manner, and events for students' leisure were organized. According to the survey results, 45.2% of students took part in Challenges, 29.07% - participated in webinars, 9.35% - in training, 1.74% - in master classes, 2.79% of students - in various student events. 1.85% of respondents confirm their participation in other events (concerts and olympiads) organized by the University for students (Figure 11).

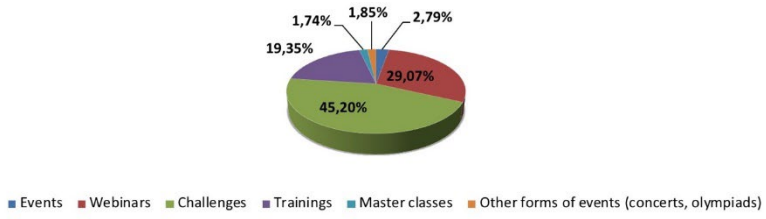

Figure 11: Participation in events organized by the University for student's leisure

In order to study the social activity of students, an analysis of volunteer activities during the period of distance learning was carried out. As the results show, among the respondents 3.6% were very actively participating in volunteer activities, 25.9% of respondents participated partially, 50.7% did not volunteer, 19.8% of respondents had no interest (Figure 12).

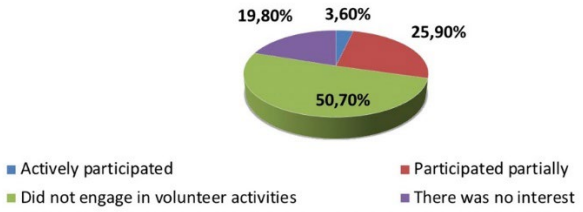

Figure 12: Social activity and volunteer activity of students during distance learning

During the period of distance learning, the main part of social work with students was carried out by (academic) advisors. Survey results of show that 23.94% of students kept in touch with their advisors in order to participate in the public life of the University, 57.93% constantly interacted with advisors in order to organize the educational process of the groups (supervisory hours, educational activities), 12.6 % - kept in touch in order to receive socio-psychological support during the pandemic. 5.23% of respondents note that parents received information about the distance learning process. 0.30% of the respondents interacted with advisors on other issues (for example, advice on exams) (Figure 13).

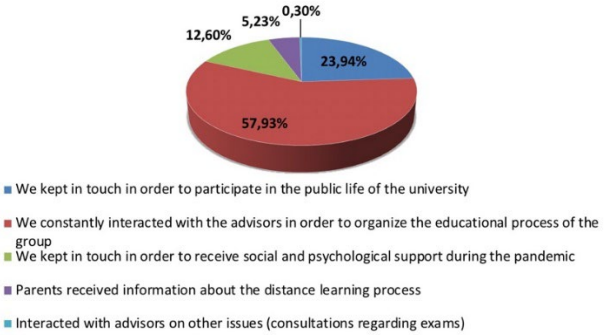

Figure 13: Forms of interaction of students with advisors during distance learning

Based on the results obtained through a comparative analysis, individual recommendations were prepared for improving educational and methodological work, improving the quality of library services at the University, improving the socio-educational work of the University, which made it possible to strengthen management and development strategies.

Findings:

In general, within the framework of organizing educational work at a distance, with the help of Internet services, a number of problems arise:

- low motivation of students to participate in educational activities. In case of classes or assignments, for not attending the lecture during distance learning or not completing the task, students receive comments from teachers and/or their parents are informed about it. To avoid bad marks or conversation with their parents, students will try to attend classes. But educational institutions cannot use those methods for attracting students to the educational and cultural activities, which have always been voluntary. Students can only be attracted to those activities sue to their content and emotionality, or the authority of the teacher;
- limited forms and methods of educational work during the distance learning (classical approaches cannot always be used using the Internet, and not everyone can convert them using a digital educational environment).

However, these difficulties can be overcome. To improve the educational work of the university, the following recommendations were developed:

- activate the action plan for the formation of students' motivation for voluntary social activities (35.99% of students did not take part in any social activities). For all responsible participants in this process (employees of the department for working with youth and public organizations, deans, heads of departments and advisers), in order to successfully conduct educational work in the context of distance learning, it is necessary to develop a joint action plan to increase social activity and social responsibility of students, and

further master new technologies, means of communication, programs and platforms for interaction in a remote online environment, actively applying them in practical social and educational activities;

- develop an action plan to increase volunteer activity among students, as well as to promote volunteer activities among students (50.7% did not volunteer, 19.8% of respondents were not interested).

5. Conclusion

The pandemic has opened up new opportunities for the library services in terms of working with remote users. Continuing to work online today, we are clearly aware of the unconditional limitations of the remote format of interaction with the audience. The lack of live communication and the individual characteristics of the information receivers make the transmission and perception of information less effective. Ayesha Vawda, the World Bank's lead education specialist in Central Asia, drew attention to the fact that the system and level of distance education during the pandemic still has some weaknesses and shortcomings. Few teachers were able to quickly learn how to use online content and prepare video lessons. Short-term sessions of 10-20 minutes are not always effective for fully understanding materials. At the same time, the learning process of most students was not assessed, and there was no full control from the authorities (Milenkaya, 2020).

The use of currently available educational content for distance learning has made it possible to:

- to organize various forms of students' activities for self-study (independent learning);
- apply the full range of possibilities of modern information and telecommunication technologies in the process of performing various types of educational activities;
- manage training, automate the processes of monitoring the results of educational activities, training and testing;
- create conditions for the implementation of self-study activities of students;
- to work in modern telecommunication environments, to ensure the management of information flows.

In conclusion, we would like to note that the classical full-time form of education will undergo changes in the future. There will be a merge of online and offline forms. Distance learning is possible only as a short-term replacement for the traditional education, or as an additional teaching method. In the context of distance learning, the relevance of using multimedia learning tools in the educational process is growing every year. And it is very important that after the end of the pandemic period there is no rejection of distance learning technologies, and the experience gained works to improve the quality of education.

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