Prospects for the development of LMS MAI and Microsoft Teams platforms after the end of quarantine

Перспективы развития платформ LMS MAI и Microsoft Teams после снятия карантина

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Abstract

Distance learning has had a huge impact on the educational process of universities and schools. The main platform through which the e-learning process at Moscow Aviation Institute (National Research University) (MAI) is carried out is LMS MAI Moodle. It should be noted that on the basis of this platform, a website with courses lms.mai.ru was created. The second in popularity and frequency of use is Microsoft Teams platform (MT). It is worth noting that thanks to the platforms for distance learning, the educational process was not only not disrupted or stopped, but was also supplemented with such advantages as autonomy and flexibility in acquiring knowledge. In connection with the coronavirus pandemic, on March 17, 2020, MAI completely switched to distance learning. At the moment, the epidemiological situation in Russia is improving and universities are again conducting face-to-face classroom studies. But what was happening with two platforms mentioned above after the end of the quarantine? Students and teachers of MAI say that the use of

Аннотация

Дистанционное обучение оказало огромное влияние на образовательный процесс университетов и школ. Основной платформой, с помощью которой осуществляется процесс электронного обучения в Московском Авиационном Институте, является LMS Moodle, стоит отметить, что на основе этой платформы был создан сайт с курсами lms.mai.ru. Второй по популярности и частоте использования является платформа Microsoft Teams. Стоит отметить, что именно благодаря платформам для дистанционного обучения образовательный процесс не только не был нарушен или остановлен, но и был дополнен такими преимуществами, как автономность и гибкость в получении знаний. В связи с пандемией коронавируса 17 марта 2020 года Московский Авиационный Институт (национальный исследовательский университет) полностью перешёл на режим дистанционного обучения. На данный момент эпидемиологическая ситуация в нашей стране улучшается, университеты вновь проводят

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platforms has decreased, but classes are still held in this format. We discussed the prospects for further use of MT and LMS MAI in this article.

Keywords: LMS MAI, Microsoft Teams, distance learning, development prospects, coronavirus.

очные аудиторные занятия. Но что же произошло с двумя платформами, упомянутыми выше, после снятия карантина? Студенты и преподаватели Московского Авиационного Института говорят о том, что степень использования платформ сократилась, но занятия до сих пор проводятся в данном формате. Перспективы дальнейшего использования Microsoft Teams и LMS MAI были рассмотрены нами в этой статье.

Ключевые слова: LMS MAI, Microsoft Teams, дистанционное обучение, перспективы развития, коронавирус.

Introduction

2019-2020 coronavirus COVID-19 pandemic has affected education systems, leading to the closure of educational institutions around the world. Most Russian universities have switched to distance learning from March 16, 2020.

Due to the coronavirus in Russia, the educational process had to be largely "changed": schools and universities abandoned education in the university in favor of distance learning, and Unified State Exam and university entrance examinations were postponed to a later date. Under these circumstances, higher education institutions also had to completely rebuild the usual format of final assessments and conducting classes.

Moscow Aviation Institute (National Research University) onwards (MAI) was not an exception. By order of Rector M.A. Pogosyan No. 112 of March 16, 2020 "On the organization of educational in the context of the spread of a new coronavirus infection in the Russian Federation," it was ordered to carry out the educational process in the university. On March 17, MAI completely switched to distance learning. Several platforms are used to build the educational process; most of the training is conducted in LMS MAI (Chernaya, 2020) and MT (Regnum.ru, 2020).

To provide distance education, MAI used LMS MAI Moodle, MT and some others.

Today the situation in the country is improving, teaching is carried out using the traditional method, schools and higher educational institutions have returned to education in the university. But what place in the educational process of MAI do LMS MAI and MT platforms

take after returning to education in the university? We will talk about this further.

Thanks to the first of the platforms, students have the opportunity not only to attend video lectures, but also to view them again; LMS MAI also provides students with access to materials in all disciplines studied during the semester. The second platform provides students with the ability to communicate in a multifunctional chat, work with team documents and connect third-party applications necessary for the operation of the application (Egorov et al., 2021). The listed platform capabilities make the educational process much more functional. Undoubtedly, these options should be retained and combined with the traditional format of training, the integration of distance and full-time education is one of the ways to conveniently organize the educational process. We will tell more about the prospects for using LMS MAI and MT after the return of face-to-face training (Verdú et al., 2021).

Theoretical Basis

Conceptual elements of using LMS Moodle

To provide distance education, MAI uses LMS MAI and built-in video conferencing server based on BigBlueButton solution. This platform does the following:

- carries out tracking and analyzes running processes;
- has a modern interface that is debugged using themes and settings (thus, the website of the educational institution is adapted to the needs of the organization and students);
- has thousands of free plugins that allow adding new functionality (Soldatova, 2020).

On the basis of this platform, the institute's website lms.mai.ru (Chernaya, 2020) was created with a huge number of courses distributed by areas of training. With distance learning, the main advantages are:

- free learning pace;
- student autonomy;
- flexibility of training process.

This allows students to work more efficiently and increases their level of self-organization.

The main objects of self-organization of students can be the following:

- planning of independent work and implementation of individual plan;
- study of the subject according to thematic plan and curriculum;
- execution of control, test and practical work (Glotova & Samokhvalova, 2012).

Moodle distance learning system is modern, progressive and constantly evolving environment. It has a rich set of options for courses: Chat, Poll, Forum, Glossary, Workbook, Database, Task, Test, Questionnaire, Wiki, Seminar and Lecture with elements of activity". Also, the platform allows accumulate statistics on student learning activities and systematize it. In particular, Moodle creates and stores a portfolio of each student: all submitted papers, grades and teacher comments (Kravchenko, 2013).

Conceptual Elements of Using MicrosoftTeams

MT is an enterprise platform (orchestrator of services) developed by the well-known and proven Microsoft. One of the many features of this platform is the management of chat, meetings, notes and attachments, holding video conferences in the workspace (Microsoft, 2017; Ribot X, 2020).

This platform allows easily implementing the concept of a workspace for collaboration and chatting; it can be used to hold meetings, exchange files, make audio and video calls, it also has document storages (Microsoft, 2020). As a messenger, it provides access to the content of the working group: messages, document library, files and information about participants.

Therefore, MT is perfect for distance learning, it provides "visual" contact between teacher and students.

Since MT is an add-in over Microsoft Office 360, the work process in this environment does not cause difficulties from users:

- Implemented all the necessary tools for high-quality remote interaction;
- MT app steadily works on modern mobile devices;
- monitoring during learning process: student works are performed in electronic form: this makes it possible to follow the systematization of the material (it is worth noting that MT does not have a built-in testing module, but to implement this feature it is necessary to simply connect Microsoft Forms electronic medium) (Revunov et al., 2020).

One of the main criteria for choosing a modern software product is the integration of the main "tools" within one electronic environment, such "tools" are:

- fast file exchange;
- availability of voice and video communication modules;
- ability to create and store files in .doc and .pdf formats (these files can remain in the system, as they become part of the electronic educational environment of educational institution);
- chat inside the platform for communication between teacher and students;
- stable operation of technical means (computer, smartphone);
- interface of the electronic environment, which does not cause difficulties during operation (Revunov et al., 2020).

MT and LMS Moodle fully meet all of the above criteria.

Information and communications technologies (ICT)pedagogical mediation in teaching

Undoubtedly, the process of acquiring knowledge should be carried out under the supervision of a teacher who will be a mentor, prompt and help to understand the material and also control the process of assimilation of what has been learned (Shchedrina et al., 2021).

In the conditions of informatization of education, high-quality training of a specialist is possible

only when the main emphasis is placed on classroom studies (or not only classroom studies), performed on the basis of modern information technologies in general and ICT in particular (Ivanova & Nazarov, 2016).

ICT make it possible to collect, process, store, distribute and display various kinds of information and, using electronic means of communication, to carry out multidimensional interaction (Valerio & Naranjo-Zeledón, 2020).

The occupation made on the basis of ICT implies the use of teacher (in the event of a material explanation (lecture and seminars)) and students (demonstration of projects and homework) photographic and illustrated material, which makes it much better to understand the essence of the question under study (Zhang et al., 2020). Applying this technology, teachers and students can make their changes and additions during their narration. It is also important to note that the use of ICT in the work of the teacher strengthens the positive learning motivation, respectively, together with this comes an increase in the quality of knowledge and academic performance, its effective side increases (Semenova, 2014).

Training using ICT

Before the pandemic, training at Moscow Aviation Institute, as in many other universities, was carried out extremely in part. After the forced transition of all educational institutions on the remote format of obtaining knowledge, it was decided to change the usual process of obtaining knowledge. The realization that the use of digital and ICT may allow learning to a qualitatively new level: learning student learned not only within the framework of a training schedule, but at any convenient time, also the creation of an educational environment with ICT activates independent work students and this is not all (Zabolotniaia et al., 2020).

To date, the educational process at Moscow Aviation Institute continues to be carried out remotely. The educational platforms LMS MAI and MT, on the basis of which the training is carried out, allow returning to previously covered topics in various subjects, also with their help we can view lectures again, communicate with teachers and ask them questions of interest.

Thanks to LMS MAI and MT, our teachers carry out training in an informative and visual form; during lectures, teachers have the opportunity to show not only various presentations, but also videos on the topic of lectures. All this allows for a more detailed analysis of the material and more immersion in the topic of the lecture. During seminars, teachers using a computer screen demonstration, this technology is supported by both platforms for distance learning (LMS MAI and MT), talk about the content of the tasks that need to be completed, we can say that distance learning in this regard is absolutely not inferior to the face-to-face format education. It is also important to note that during homework, learners can collect, integrate and present information by creating multimedia projects using programs such as PowerPoint, iMovie, etc. (tasks prepared in this way help students to give visualization to their thoughts) (Ivanova & Nazarov, 2016).

The use of ICT, some of which are LMS MAI and MT, make it possible to expand the usual format of training, make it more interesting, students get the freedom to choose an individual trajectory, acquire the ability to work at a personal pace, such technologies provide individualization of training, with which each student works at the level of their abilities (Cabero-Almenara et al., 2019). It should be emphasized that the role of students' independent work in a university is extremely important and useful not only for mastering knowledge of the academic discipline, but also for the formation of skills for acquiring new knowledge, research skills and the development of moral and psychological qualities (Semenova, 2014).

Therefore, ICT are interesting for students and provide great potential in the educational process, they can improve and significantly expand training sessions.

Methodology

Forced distance learning, which all educational institutions have switched to amid the pandemic, has become an incentive for the technological transformation of the higher education system. Currently, many are wondering in what format training in universities will be carried out after the quarantine is lifted and whether platforms for distance learning will be used in the future, after returning to the usual format of acquiring knowledge.

In a pandemic, students studied exclusively remotely using platforms for remote learning LMS MAI and MT, we should tell more detail about these platforms.

For the purposes of the study, the methods of organizing student surveys were used, the analysis of statistical data from educational

systems using modern systems and information gateways based on the PowerBI solution in automatic mode.

LMS MAI and MT

To work with LMS MAI and MT, university employees and students use a corporate account, which allows them creating and storing a digital fingerprint of each student and teacher (Soldatova, 2020).

It is these platforms that are worth relying on when moving to "customized" curricula. Despite the advantages and disadvantages, these distance learning platforms allowed students not to stop the educational process even during the quarantine period.

The transition to the distance format was successful for MAI: all courses and activities that could be carried out online were completed in full. Learning materials have always been available, systems have been created to assess and monitor student activity.

Distance learning at MAI was carried out mainly on two platforms: LMS MAI (Chernaya, 2020), which is developed and supported by MAI e-learning department, and MT (Regnum.ru, 2020). Both platforms are functional and relatively easy to learn, allowing listening to lectures online or in tapes, accept assignments, attend seminars and discuss them.

MT is available to all employees and students for free and uses a company password to sign in. This is a relatively convenient multi-functional platform, it allows organizing group work and rich chat (Figure 1), edit files, write notes, make appointments, etc. (Microsoft, 2020).
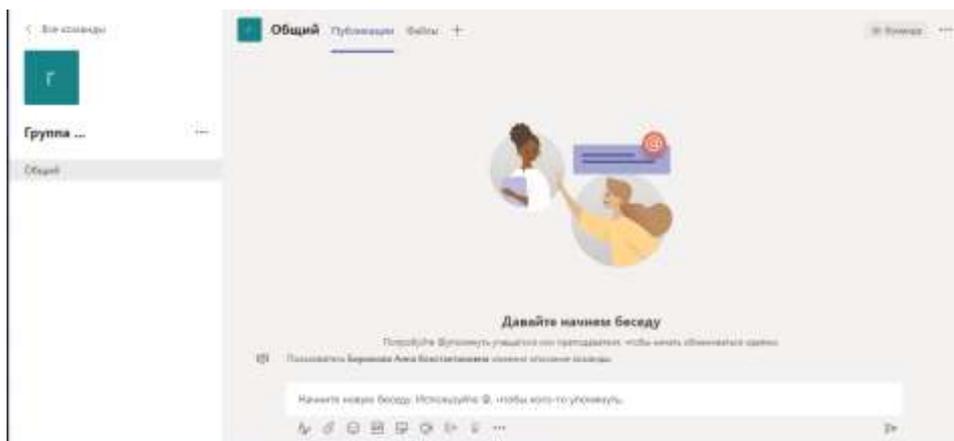
**Figure 1.** MT chat (source: authors)

LMS MAI is an archive of educational materials: video lessons, lectures, presentations, books and courses, to which a registered user has access (MAI.ru, 2020a).

"LMS MAI was developed in 2006, to date it has undergone six upgrades, acquired intuitive navigation and is filled with relevant content", - says Peter A. Ukhov, head of MAI e-learning department.

Institutions place their educational courses on the platform in a format convenient for students (lectures, presentations) (Figure 2). There is also a video conferencing system. All systems are synchronized with MAI control system.
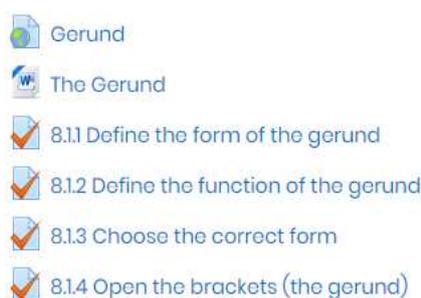
Figure 2. Example of placing the material of the lessons for "English" course (source: authors).

Within the framework of distance learning, one of the most important issues is now being resolved: high-load systems (previously, LMS MAI had 10 - 15 users working at the same time, but now the number of users has increased to 600 - 700). Now, the training system is capable of supporting up to 2 000 users at the same time and can be scaled up to work under higher loads.

The system contains various useful educational content and many different interactive functions: it allows conducting online lectures, seminars and laboratory classes, store their records, keep track of class attendance, receive and take assignments and tests, etc. In total, about 250 online classes are held at LMS MAI per day. The maximum peak load is up to 80 online video lectures at the same time. Work is underway to increase this indicator to 200 or more by configuring the load balancer and adding new video servers (MAI.ru, 2020b).

Distance learning is an opportunity to study at any distance from the teacher, in which it is possible to carry out the educational process not in special classrooms of an educational institution, but in a more familiar environment for the student, for this you just need to have a computer with constant access to Internet. In addition, the student can carry out such training at any time convenient for him and at a convenient pace for him. It should be noted that the teacher can also work remotely from his main place of work (Aleshkovsky et al., 2020).

Full-time learning is no less important, as "contact" is supported between students and a teacher. Therefore, there are such disciplines, laboratory work on which it should be carried out internally (this is due to the need for direct work, for example, with technical equipment) (Narbut et al., 2020).

That is why it is quite difficult to give an unambiguous answer to the question of what form the educational process should take in educational institutions and, accordingly, what prospects await platforms for distance learning (LMS MAI and MT) after the transition to full-time traditional form of education.

We still tried to answer these questions, for this, among students of Moscow Aviation Institute, a survey will be held.

We managed to find out that the modern generation of young people is completely integrated into the digital educational space, students feel quite confident from a technical point of view and do not experience significant inconveniences, but nevertheless, students and teachers call blended learning as the most acceptable form of organizing distance learning. In particular, T. Jovsey and J. Foster note that "blended learning can and does affect student achievement, especially when it is used to manage and support distance learning. At the international level, we are witnessing a movement towards blended learning in large higher education institutions" (Aleshkovsky et al., 2020; Narbut et al., 2020).

Results

Return to education in the university

After the end of the quarantine, distance learning mechanisms began to be used more widely than before, they became an addition to the usual training format. Distance learning is not a replacement for education in the university, but a supplement to it. Teachers and students have accumulated enough experience in using distance learning platforms, and this experience can be used to implement further work on the platforms.

Advantages of using platforms are the following:

- students will have the opportunity to work with information resources at their own pace (individual learning is provided: everyone learns at their own pace and uses the resources that are more attractive and understandable for them);
- no need to waste time on moving (road, audience search);
- it is possible to study anywhere and at any time (access to materials, recordings of lectures, etc.).
- in addition to studying the necessary disciplines, students will be able to master many other subjects (more free time will appear) (Ukhov et al., 2020).

Disdvantages of using platforms are the following:

- in some regions of Russia, the situation with distance education is poorly developed: some people live in villages without a good Internet connection. There are also problems with the availability of equipment suitable for e-learning (computers, webcams). Difficulties faced by students are mainly of a technical nature: poor Internet connection, lack of a laptop, etc.;
- online mode - classes are not enough for learning in the university (it is impossible to conduct, for example, laboratory work on certain subjects);
- distance learning requires both teachers and students to a high degree of self-organization and independence;
- schedule should take into account that students are online all the time: it is wrong to put various classes at the same time, since prolonged work at the computer is extremely unhealthy (Ukhov et al., 2020).

We concluded that the introduction of MT and LMS MAI platforms into the learning environment brought some positive changes to the overall educational process of Moscow Aviation Institute: there was an integration of distance and face-to-face, traditional formats of knowledge acquisition. At the moment, lectures are conducted remotely, and seminars are carried out in person, laboratory work is carried out in person and remotely (depending on the discipline with which the laboratory work is associated). This distinction is fully consistent with measures to prevent the spread of coronavirus infection: the number of people on public transport at rush hour has significantly decreased, the number of students within the walls of the institute has also decreased.

It is also worth noting that the learning process in Moscow Aviation Institute has become more flexible ("individual") (Pisarev, 2012), this is due to the fact that both platforms for distance learning are quite multifunctional: the main platform for distance learning, LMS MAI, has a function of recording video track, and MT is endowed with a convenient chat with the possibility of storing all attachments in it. Thanks to this, a student at any time convenient for it (for example, when he performs a task of lectures) can re-view the lecture or open the nested file you need, it can also contact the teacher through a chat or a forum for communication.

In turn, the flexibility of the educational process, entailed autonomy (Pisarev, 2012). The use of platforms for distance learning provided students with the opportunity to receive knowledge from anywhere in the world: at the time of the material study, students can be at any place of the world, all that they need is a device with Internet access.

It should also be said that the development of autonomy and flexibility in the process of acquiring knowledge is also associated with different daily routines for students. Currently, many of the students, in addition to studying at a higher educational institution, are also employed. Often their work schedule overlaps or completely coincides with the educational one. In this case, the only optimal option for implementing the knowledge acquisition process for such students is mastering the material in their free time (for example, weekends at work, evenings, etc.). Saved lectures and files with lesson materials allow students to practically fully carry out their studies and even get good grades for completing independent assignments.

Listen to lectures and read files can also be in transport, at home and in breaks at work. Since training is carried out using remote technologies, students are not limited to any audience or time.

Discussion

Opinions on the formats of further education at MAI

There are many different opinions related to the development and application of distance learning platforms after the lifting of quarantine. Our author's opinion is that the best way to get an education should be a blended type of education,

that is, the use of both in the university and distance learning.

Will our institute completely switch to the distance format? It is unlikely, since there are important elements of education for which dialogue between a student and a teacher and joint educational practices is important.

This suggests that a more likely outcome is a combination of two learning paths (also mentioned above), but this requires changes in the activities of staff, professors, university teachers and students.

In order to find out the opinion of students about the distance learning process, in which most classes are conducted at the moment (due to the epidemiological situation in Russia), we conducted a survey. It was attended by 173 students from all areas of training of MAI (Figure 3).
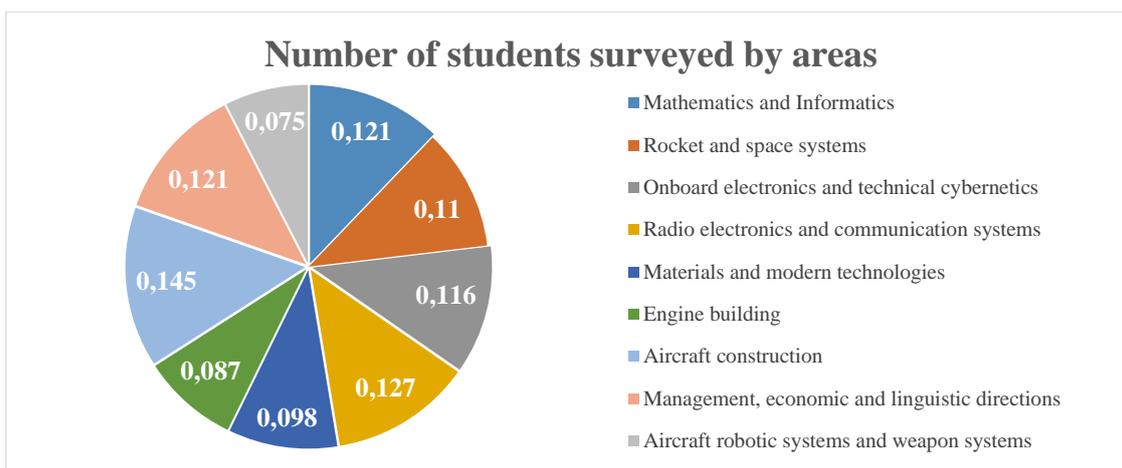
Figure 3. Number of students surveyed in all areas of training.

During the survey, students asked a number of questions:

- to indicate the general direction of training (there are 9 areas in total: «Mathematics and Informatics», «Rocket and space systems», «Onboard electronics and technical cybernetics», «Radio electronics and communication systems», «Materials and modern technologies», «Engine building», «Aircraft construction», «Management, economic and linguistic directions» and «Aircraft robotic systems and weapon systems»);
- to answer which distance learning platform the student uses most often;
- to answer about the number of classes (percentage) conducted in the university at a given time;
- to answer what percentage of classes the students would like to have classes in the university;
- to find out what is the attitude of students to the distance learning format: "Do you like the distance learning format?" We also asked students to explain their position.

Analysis of the data obtained from the survey allowed drawing the following interpretations:

- "Mathematics and Informatics"

Most of the students in this area of study (66.7% of the respondents) used MT to interact with the teacher, and other students (33.3%) used LMS MAI. For 55.6% of students, about 75% of classes are currently in a distance format, for 22.1% of students, classes are taught in the university, and for 22.3% of students, 90% of classes are conducted in the university. When asked about the desired ratio in the university and distance classes, 77.8% of students said that they wanted to study without going to the university, 22.2% of students would like to study in the university and in the university.

In general, the distance learning format was supported by 55.6% of students in this direction, 33.3% reported that it is convenient for them to study face-to-face and in the university, and 11.1% would refuse the distance learning format.

- "Rocket and space systems"

In this direction, the majority of students (81.8%) mostly have classes on MT, while 18.2% of students have it in LMS MAI. Today, 55% of students have distance learning from 75% to 100% of classes, and for 45% of students, the

number of distance classes reaches 75% (from 50% to 75%). When asked about the desired ratio of distance and classes in the university, students answered rather ambiguously: 36.4% of respondents would like to have about 25% of classes in the university, 27.2% would like to study both in the university and in person (the ratio of classes is 50%/50%), 18.2% of students would gladly switch entirely to distance learning, 18.2% of students, on the contrary, would like to study only in the university.

But when asked about their attitude to distance learning, more than half of the surveyed students of the direction (63.4%) said that for them there is no fundamental difference in the format of training, the remaining voices were divided: 18% of students liked the distance learning format, and 18.6% of students would have abandoned distance learning.

- "Onboard electronics and technical cybernetics"

Students in this direction mainly used MT (63.3%) and LMS MAI (33.3%) and 3.4% interacted with teachers through mail services. Also, 63.3% of students are currently studying completely in the university, 36.7% are studying both internally and in the university. To the question "how many percent of classes would you like to have in the university?" students answered completely differently: 36.7% would like to have a completely distance learning format, 20% would like to study only in the university, 16.7% would like to have a quarter of all classes in the university, 16.3% and 10.3% of respondents would prefer to have 50% and 75% of distance classes respectively.

The attitude to distance learning among students of this direction is ambiguous: 32.1% consider it inconvenient, 31.2% consider it very convenient, 36.7% do not see the difference or the format of education is not fundamental to them.

- "Radio electronics and communication systems"

In this area, 57% of students mainly used LMS MAI, 40% used MT and 3% used mail services. For the majority of groups and students (71.4%), almost 100% of classes are currently in the university, and for 28.6% it is about 75% of classes. 57.1% of the respondents indicated that they want to have a completely distance learning format and 42.9% tended to 25-50% of classes in the university.

28.6% of students want to completely switch to distance learning, also 28.6% of students want to completely exclude it, and for 42.8% of students the format of training does not care.

- "Materials and modern technologies"

The majority of students (97.3%) in this direction interacted with the teacher through MT and 2.7% interacted through email services. All respondents said that 90-100% of classes are conducted in the university. When asked about the desired ratio in the university and distance classes, 66.7% of students said that they want to study without visiting the university and 33.3% would like to have up to 50% of distance classes.

Only 33.3% of the students of this direction liked the format of distance learning, 66.7% reported that it is convenient for them to study both internally and in the university.

- "Engine building"

Students in this direction mainly used MT (65.4%) and LMS MAI (34.6%). At the moment, 70.5% of students study completely in the university and 29.5% study in the university. Answers to the question "how many percent of classes would you like to have in the university?" are the following: 37% of students would like to completely switch to the distance learning format, 25% would like to study only in the university, 38% of the respondents would prefer to have from 50% to 75% of distance learning classes.

Students of this direction have a rather ambiguous attitude towards distance learning: 35.1% consider it inconvenient, 28% consider it very convenient and 36.9% do not see the difference or the format of education does not care.

- "Aircraft construction"

In this direction, the vast majority of students (78.3%) use MT for distance learning, 13% and 8.7% use LMS MAI and Zoom, respectively. Today 32% of students have in distance learning from 75% to 100% of classes, 8% have from 50% to 75% of classes and 60% have from 25% to 50% of classes. When asked about the desired ratio of distance classes and classes in the university, students answered differently: 17% of respondents would like to have 25% of classes in the university, 28% would like to study both in the university and in person (the ratio of classes
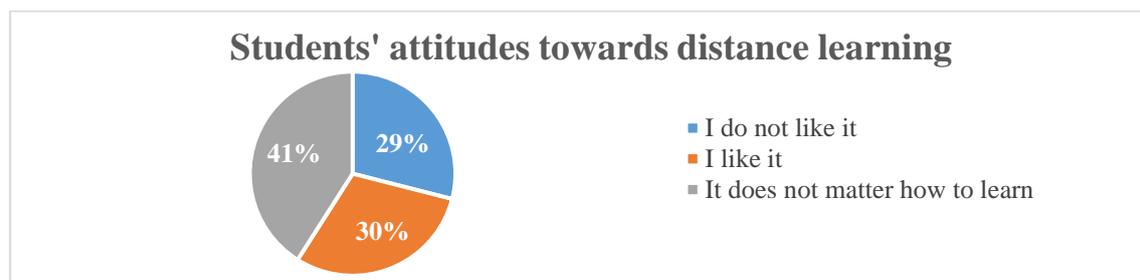
is 50%/50%), 33% would like to completely switch to distance learning, 22% of students, on the contrary, would like to study only in the university.

When asked about their attitude to distance learning, 40.6% of the surveyed students of the direction answered that there is no difference for them in what format, 31.9% of students would like to study only in the university and 27.5% of students would completely refuse distance learning.

- "Management, economic and linguistic"

Students in this direction mainly used LMS MAI (90%) and 10% use MT. Today 86.4% of students study completely in the university and 13.6% of students study in the university (from 75% to 100% of distance classes). To the question "how many percent of classes would you like to have in the university?" students answered rather ambiguously: 38% would like to have classes in the distance learning format, 19% would like to study only in the university, 15% would like to have a quarter of all classes in the university and 9% and 19% of respondents would prefer 50% and 75% of distance learning classes respectively.

The attitude to distance learning among students of this direction is ambiguous: 25% consider it inconvenient, 28% consider it very convenient and 47% do not see the difference or the format of education does not matter.

- "Aircraft robotic systems and weapon systems"

In this direction, students mainly use MT (80%) and 20% use LMS MAI. For the majority of groups and students (70%), almost 100% of classes currently go in the university and for 30%, it is about 75% of classes. 65% of the respondents indicated that they want to completely switch to the distance learning format and 35% leaned towards 75% of classes in the university.

57.8% of students would gladly switch to distance learning entirely, as they like this format; for 42.2%, the format of training does not matter.

After analyzing the answers of students to the list of questions indicated above, we made a diagram about the attitude of students of all directions to distance learning (Figure 4). An interesting fact was that for 41% of students, the training format turned out to be unprincipled, students are ready to study both face-to-face and in the university (mixed type of training) and 30% of students would like to study only in the university, the distance learning format for them was not a very convenient way to get knowledge, and the remaining 29% of students, on the contrary, would like to conduct classes only in the university, they noted that distance learning has many advantages.

Figure 4. Diagram about the attitude of students of all directions to distance learning (source: authors)

Why is the number of students dissatisfied with the distance learning format (30%) is higher than the number of students who like distance learning (29%)? Lack of "live" dialogue with the teacher, unstable Internet connection and distractions make the process of distance learning for students not very comfortable. Also, some students noted that the concentration of attention when studying at home is sharply reduced, which further decreases the quality of education.

Still, it is worth mentioning once again the advantages of distance learning. Of course, conducting classes in a distance format saves a huge amount of time that students spend on the road during studies in the university (on average, MAI student spends about an hour on the road one way). Taking into account the daily statistics on the incidence of coronavirus, distance learning is safer, since it does not involve a large crowd of people in the classroom or on public transport.

Also, the distance learning format allows each student to study at their own pace, organize their day in an optimal way and, if necessary, revise the lecture notes.

But, despite all the advantages and advantages of the distance learning format, a full transition to it is still impossible for a number of reasons:

- technical readiness of all students to use distance learning tools (unfortunately, not all students have personal computers with Internet access, not to mention the possibility of installing any additional tools for distance learning (for example, in the case of remote laboratory work)) (Kuzmina, 2012);
- lack of direct, face-to-face communication with a teacher who will not only guide the learning process, but also assess the level of knowledge acquired by students (in addition, it is quite difficult for teachers to remotely maintain a creative atmosphere in a group of students);
- high requirements for the formulation of the learning problem (in remote learning, all responsibility for the assimilation of information lies with the student, which requires strong motivation and self-discipline) (Pisarev, 2012);
- insufficient computer literacy of teachers and students (some teachers and students are not ready for this teaching method, preferring the traditional form of education) (Kuzmina, 2012);
- problem of user authentication (confirmation of identity) when checking knowledge (it becomes impossible to objectively assess the student's knowledge, since he can be helped by third parties who are near him);
- problem of monitoring the confidentiality and integrity of student data platforms in the process of mass implementation of distance learning (Pisarev, 2012).

Distance learning is a good, relevant and highly effective tool, thanks to which students can gain knowledge anytime and anywhere. This format of education is perfect for improving existing knowledge and in-depth study of the material, but still it will not be able to fully replace the traditional, full-time education format, at least until all students and teachers take responsibility for the high-quality organization of this type of education. knowledge and will not improve their level of computer literacy (Kuzmina, 2012).

Conclusions

Modern technology has provided educational institutions around the world with the opportunity to continue learning due to coronavirus infection. The process of acquiring new knowledge by students of MAI took place at the proper level using LMS MAI (Chernaya, 2020) and MT (Regnum.ru, 2020).

The epidemiological situation in the country is improving, in this regard, a legitimate question arises about the further use of these platforms for the implementation of the educational process. Undoubtedly, distance learning will not be able to fully replace the form of education in the university, since the distance contact between a teacher and a student is incomparable with real, personal interaction. Also, not all aspects of the learning process can be presented in electronic form. For example, laboratory work on some subjects, where the student needs to contact with devices, to study the principle of their work.

But the distance learning format is a great addition to face-to-face training. With the help of the LMS MAI and MT we know, students can interact with each other on an ongoing basis, have access to materials that the teacher puts for them, and discuss common projects and assignments.

Distance learning platforms are being improved all the time, gradually eliminating failures and failures that were before. Therefore, by changing platforms for the better, a high level of distance interaction is achieved, which, in turn, ensures the high quality of the acquired knowledge and gives the traditional educational process a new life.

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