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OPPORTUNITIES OF THE SIKORSKY DISTANCE PLATFORM FOR THE IMPLEMENTATION OF DISTANCE AND BLENDED LEARNING MODES

Abstract: The current study aims to find out teachers' and students' attitudes to the distance and blended learning modes analyzing the specifics of their use. A qualitative type of research was used. The participants of the study were 37 IT students of National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". The IT students participated in the study voluntarily in 2020-2021. An anonymous questionnaire was used to collect the data. The questioning of the IT students has shown that most of them appreciate the idea of using the distance and blended learning modes. The analysis of the distance learning mode allowed suggesting a classification of tools used by Ukrainian and foreign educators based on 31 criteria. The distance and blended learning approaches implementation are described with a focus on IT students. It was concluded that the use of Sikorsky distance platform with a focus on learners' needs helps to diversify learning at technical university and facilitates the development of professional skills.

Keywords: distance education, blended learning, web technologies, educational platforms, MOODLE, Sikorsky distance.

Introduction

Everyone has the right to receive knowledge. This rule is enshrined in the law of every country in the world. But, as practice has shown, during the COVID-19 pandemic, not everyone had the opportunity to use this right because of one reason or another. Many educational institutions were simply not ready for the transition to distance education. And the reasons for that were not the low-qualified teachers, but the lack of centralized teacher training and the absence of a single mechanism for distance learning implementation. As for Ukraine, many educational institutions implemented distance learning in asynchronous mode, when a teacher sent assignments, checked these assignments and then announced the results to students. This training mode, in our opinion, dramatically influenced the quality of education. In not developed countries, even such a training mode could not be implemented due to the lack of the necessary equipment, and if this equipment was available, then teachers did not know how to use it [3, 5].

Formulation of the problem

Currently, when teachers are already trained to work with the equipment and web technologies which are required to provide students with training in distance mode, the question arises - how can a future engineer get practical skills in working with an oscilloscope when he is trained remotely and he does not have the opportunity to use specific equipment at home? How can a future chemist conduct experiments when he does not have the necessary ingredients and

conditions for conducting such kind of experiments? The answer to these and similar questions may be to explore the opportunities of blended learning and implement such a learning mode as an alternative to distance learning [7]. The realities described above show the relevance of the proposed topic. Moreover, modern domestic and foreign scientists are increasingly thinking about the introduction of blended learning as an alternative to the classical approach, but, unfortunately, the results of their works are very few, which suggests that this topic has not been fully studied.

Analysis

At the very beginning of the COVID-19 pandemic, many universities tried to use existing distance learning platforms, for example, MOODLE, other educational institutions decided to combine several web tools, for example, ZOOM for conducting classes and Microsoft 365 for doing practical work. Our university has stepped farthest and created its own platform called Sikorsky distance learning platform. This platform is based on the G-suite for education package of services and is deployed by means of the university on its own servers.

Referring to the publications of domestic [1, 10] and foreign colleagues [2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12] in the field of education, many of them tried to implement distance education using other web services, but there was a difficulty for students, because each teacher created a training course using certain web services that were not always user-friendly and it took a lot of time to understand how to use them properly. To analyze the results of applying the methods described above, we conducted a study. Table 1 shows the results of the comparative characteristics of the MOODLE, Sikorsky distance learning platform and the combination of Microsoft 365 and ZOOM web services.

Table 1

Comparative characteristics of educational platforms

Functional features	MOODLE	Sikorsky distance learning platform	Microsoft 365 and ZOOM
Cost of use	free (limited features) and extra charge (full version of the platform)	free for teachers and students of the university	it is obligatory to pay for the use
Registration	manual registration by a teacher	via the Gmail service	via the Microsoft account
Interface language	any	any	any
Intuitive interface	-	+	+
Methods of adding students to your own course	creating account for each student	only if students have Google Accounts	following the link
Platform source code	open (it is possible to flexibly adjust the platform to your needs)	closed (changes to source code cannot be made)	closed (changes to source code cannot be made)
The need to train teachers to work with the platform	+	+	+
Presence of adverts while working with elements of the platform	adverts are available in the free version; in the paid version there are no adverts	-	adverts are available in the free version; in the paid version there are no adverts

Table 1 extension

Functional features	MOODLE	Sikorsky distance learning platform	Microsoft 365 and ZOOM
Limit on the number of students in the learning process per one registered teacher account	in the free version 50 students; in the paid version it is unlimited	200 students	there are no restrictions in the paid version
Presence of a journal with student grades	+	integrated with tasks in each class	-
Ability to monitor the success of learning achievements by parents	possible if parents log in to the platform with a student account password	possible if parents log in to the platform with a student account password	-
Ability to work not only in the web version of the platform, but also in a standalone application on a smartphone or tablet PC	implemented through a standalone application MOODLE	implemented through a standalone Google Classroom application	It is required to install several applications on your device
Ability to differentiate the student's learning strategy based on the results of their work	ability to flexibly adjust the learning module and differentiate the learning load according to the needs of each student individually	-	-
Ability to work in small or large groups to perform a specific task	+	implemented by providing access to individual documents or files on Google Drive	only by means of ZOOM rooms
Ways to give students instructions for tasks	in text form, in the form of images, links and video files	in text form, in the form of images, links and video files	in text form, in the form of images, links and video files
Ability to upload files by a teacher to the platform for further processing	+	+	+
File storage location	on the server where the platform is installed	Google Disk of the university	OneDrive
Global device storage capacity is available	according to the limitations of the storage device on the server	without restrictions	without restrictions
Wiki integration	+	-	-
Ability to hold video conferences	implemented by integration with additional BBB module	implemented by integration with Google Meet	via ZOOM
Ability to create tests on the platform	implemented using its own testing system	implemented using Google Forms	-
Quantitative components of tests	up to 25 different types of tests	up to 16 different types of tests	-
Ability to mix questions in the test	+	+	-
Ability to limit the time to complete the test by a student	+	implemented by installing additional services	-
Ability to attach a glossary to tasks	+	as a separate file	as a separate file
Ability to format text in the task	implemented by the built-in text editor on the platform	implemented by the built-in text editor on the platform	implemented by the text editor
Ability to use already created material	only if you delete the previous group	implemented by copying the entire course or individual tasks	by providing access to the file

End to the table 1.

Functional features	MOODLE	Sikorsky distance learning platform	Microsoft 365 and ZOOM
Access to the material is provided to students	immediately after the publication of the material or it is possible to postpone the task until a certain date	immediately after the publication of the material or it is possible to postpone the task until a certain date	only after granting access to the file
Ability to add another teacher to share learning materials (for example, when an English language group at a university is divided into subgroups where 2 different educators teach, but the curriculum remains the same)	it is also possible to give another teacher the right not only to use the methodological material, but also to edit it	+	+
Availability of a news feed in which the teacher can write messages about educational activities	implemented by integrated the forum, but it is not user friendly	+	-
Integration with Google Calendar to remind students about important events and deadlines	-	+	-
Students will be notified about the creation of a new task or test	manually by a teacher	automatically by sending an email to students	manually by a teacher

As we can see from the information given in the table above, the most optimal solution for teaching / studying is to use the experience of the Igor Sikorsky Kyiv Polytechnic Institute - Sikorsky distance learning platform. The main advantages of this method are as follows:

- simplicity of implementation by means of university hardware equipment;
- flexibility of all platform tools usage;
- there is no need to pay for using the platform;
- the ability to create training courses using different types of content (video, text, images, links, audio, etc.);
- it is cross-platform (i.e. the ability to connect to the platform by any device and use on any operating system);
- there is no need for fine-tuning on the part of the creators of training courses (teachers);
- user-friendly interface.

With the help of a comparative analysis, we analyzed 31 parameters that must be taken into account when choosing web technologies for the implementation of distance learning. But can such an approach help in the implementation of blended learning? Modern foreign and domestic scientists in the field of education admit the possibility of combining the classical teaching methods and the use of web technologies.

Based on the studied scientific articles in the field of education, where the authors pointed out the advantages and disadvantages of distance and blended learning modes, we

compiled an anonymous survey, which was conducted among students of the Igor Sikorsky Kyiv Polytechnic Institute. The questions in this survey were as follows:

1. Are you ready to continue your studies online or do you need face-to-face consultations with teachers?

- a) distance learning;
- b) classical face-to-face mode;
- c) blended learning;

2. Do you have enough tools to continue your studies online?

- a) yes;
- b) no;
- c) special equipment is needed from time to time;

3. In your opinion, can the university provide you with all the necessary distance learning tools?

- a) yes;
- b) no;
- c) don't know;

4. Can web technologies help you to improve your skills in professional field?

- a) yes;
- b) no;
- c) don't know;

5. In your opinion, are there enough tools on the Sikorsky distance platform to get high-quality education in distance and blended learning modes?

- a) yes;
- b) no;
- c) some tools need to be improved.

According to the survey results, more than 90 percent of respondents believe that they are ready to continue their education in distance mode. Senior students who require special equipment may need advice from teachers in classical face-to-face mode, but only if a certain type of task requires it (for example, complex calculations by means of special equipment). Almost 100 percent of the respondents are satisfied with the toolkit presented on the Sikorsky distance platform, i.e., students are satisfied with the web technologies that are using for distance learning now, and they are ready to continue using them in the future.

Currently, teachers of our university use the Sikorsky distance platform to create their courses. If teachers are not competent with all tools provided by this platform, they can take a free training course on creating distance learning courses at our university. It's no secret that some teachers still use additional web technologies in their work, but the main platform for creating training courses is still Sikorsky distance.

Conclusion

It can be concluded that Igor Sikorsky Kyiv Polytechnic Institute is ready for the full implementation of distance and blended education. Moreover, many universities in our country should follow the example of our university. Currently, many educational institutions use different sets of web technologies to implement distance learning, but this approach makes students spend a lot of time not on a task, but on studying the interface of a web resource proposed by the teacher. And if you take into account the fact that the number of subjects at the university is more than ten, then you can imagine how much time students should spend studying the principles of each web tool work [8, 12].

According to the results of the studied literature, the results of a survey among students and the experience of implementing the distance learning mode by Igor Sikorsky Kyiv Polytechnic Institute, we confirm the following:

- universities are ready for distance and blended learning, but only if it is implemented centrally at the governmental level;
- universities are obliged to train teachers to work with certain web resources;
- universities can vary classical face-to-face mode and distance learning in case when students need special equipment to conduct their researches;
- universities are required to support their educational platforms by themselves, so that teachers who develop training courses can focus on creating resources and teaching students (as it is done at Igor Sikorsky Kyiv Polytechnic Institute), rather than solving technical problems with platform equipment.

If all of the mentioned above characteristics are taken into account, we can achieve an essential increase in the education quality in a short period of time.

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