

*Opportunities, Issues and Best Practices in Online  
Education and Examination of University Students*

## **ONLINE DISTANCE EDUCATION ON WORDPRESS WEB BASED PLATFORM AS AN INNOVATION IN THE LEARNING PROCESS OF SPORTS STUDENTS FROM MEDICAL UNIVERSITY – SOFIA DURING THE PANDEMIC OF COVID-19**

**Vladimir Ivanov, Jasmin Tzankova**  
*Medical University of Sofia (Bulgaria)*

**Abstract.** This study presents an alternative approach to building and delivering distance learning by creating a web-based learning process for the students of sport at the Medical University in Sofia by means of WordPress, a free platform for online content and websites, supplemented with specific plugins that are integrated in the website of the Language Education and Sports department (DEOS) at the Medical University in Sofia (<http://deos.mu-sofia.bg>). Due to ceasing academic instruction as a result of the emergency state in the country and the COVID-19 pandemic, the instructors from the Sports sector at the Medical University needed to quickly replace and restructure the practical training sessions from the program into online and theoretical ones. In the course of education, the theoretical material on the major sports disciplines was presented online in the form of 41 lectures in PDF documents separated into specific sports and visualized by means of the Tablenator module in table format for each week of the semester. In addition to presenting the lectures by means of the eForm builder, a total of 2363 online tests on sports theory were carried out in order to control the students' level of mastering the material. A group of 381 students, consisting of compulsory and elective form ones from the departments of Pharmacy, Medicine and Dental Medicine, took part in this web-based education. An anonymous survey was carried out at the end of the semester in order to assess the realization of distance education in sports. The survey showed the positive attitude on behalf of the students regarding the content and the organization of this type of learning, but at the same time, it indicated that students are not inclined to replace the practical participation in sports with online theory. The conclusions that were drawn indicate that in the case of a pandemic of this scale online education significantly contributes to enriching the students' knowledge but cannot replace the practical participation in sports activities. This form of education is strictly specific, relatively new, and difficult to apply by the instructor, and requires time to fully integrate in sports departments.

**Keywords:** online sport education; e-learning process; sport theory; building a platform; web examination

## **Introduction**

By introducing modern technologies in the process of education, university educators are beginning to assume the functions of mentors and consultants more commonly than before. This requires them to possess not only the specific knowledge in the areas of pedagogy and psychology, but also in the area of modern educational technologies. These are the preconditions for building readiness to adopt, assess and apply pedagogical innovations that are specific for all professional activities, and therefore, are becoming an area to be studied, analyzed and applied. As a term “innovation” (Zheludkova, Vysochina, 2013) means novelty, which as a tool and as a process includes the introduction of something new. Applied to the teaching process in higher education, innovation includes the introduction of new goals, content, methods and forms of education and organizing joint activities between students and teachers. Online distance learning is an innovative form of learning especially in areas such as sports for students, which is a completely practical activity. It is a complex of well-chosen informational and communicative technological tools that provide students with access to the studied material, interactive student-teacher communication in the learning process, control of the new material's acquisition in the form of online tests, and feedback by email regarding student work. The means used to organize, and conduct distance learning include all existing internet-based technologies and devices such as computers, tablets, smartphones, etc. Students also use these technologies for entertainment, listening to music during physical activity, and Xuan Pan, in his 2020 study, reported that in China, devices such as the Nintendo Switch, Wii or Xbox, could develop more kinds of indoor games to provide more choices Of exercise and entertainment. (Pan, 2020). Online courses require students to consider new ways to prepare, organize, engage, and complete requirements calling for students to utilize higher levels of independence and self-direction (Martin, Stamper, & Flowers, (2020). The effectiveness of the learning process, according to experts, is mostly determined by the platform's capabilities to ensure the relevance of learning material, accessibility to learning materials and resources, and a user-friendly virtual environment (platform) (Kuleva, 2017).

The distance online learning that was applied to the students of Sport at the Medical University in Sofia was based on the WordPress platform. This is a free Internet based technological platform (with open source) by means of which online content can be generated and managed. The platform's architecture includes a core, themes, and modules. In their early years, such platforms were used mainly for blogging, but with time they developed up to the levels where they can assist any exchange of information and even provide online education (LMS). Currently, there exist more than 60.8% of the web pages are based on WordPress, or according to statistics, by June 2019, WordPress was used in 27.5% of the 10 million most popular Internet web sites (WordPress, 2020). In the process of providing access for the students to the study materials and their and their organization, we added extra modules (plugins) divided into several categories:

– For theoretical sports material visualization and design:

*Tablenator* – Advanced tables for WordPress – the dedicated element for WP Bakery Page Builder, or the built-in shortcode generator, will then allow you to embed your table anywhere on your site, while giving you full control over table features and scope.

*Composium for WordPress* – provides elements to easily embed forms into web sites

– *To create online forms, tests, and for conducting online tests based on the point system:*

*eForm - Premium WordPress Form Builder Plugin* - complete form management solution, quizzes, surveys, data collection, payment / cost estimation and user feedback of all kinds.

### **Aim**

The main goals of web-based distance learning are the following:

Computer visualization and publishing of study materials on sports online in the profile of each sports teacher divided by week and providing easy access for students to these materials. Creating online tests to control the student results on the acquired material and feedback, accompanied by the respective logics, regarding the receiving and processing the information by teachers. Holding anonymous online surveys at the end of the semester in order to assess the students' opinion of the distance learning that was conducted.

### **Methodology**

#### ***Participants***

A group of 381 students, consisting of compulsory class and elective sports modules students from the Medical University of Sofia in the specialties of Pharmacy, Medicine and Dental Medicine, took part in this web-based education during the emergency situation and the COVID-19 pandemic in the second semester of 2019/2020. An anonymous survey on the online learning of sport was completed by 60 students – 43 women and 17 men.

#### ***Methodology of the survey***

An anonymous online survey method with 10 questions was applied and it required the students' assessment of the organization, the contents, and the results achieved in the process of distance learning.

The analysis covered the answers regarding questions about:

– The assessment that students give to the organization and the execution of distance learning of sports theory during the COVID-19 pandemic by means of the DEOS website.

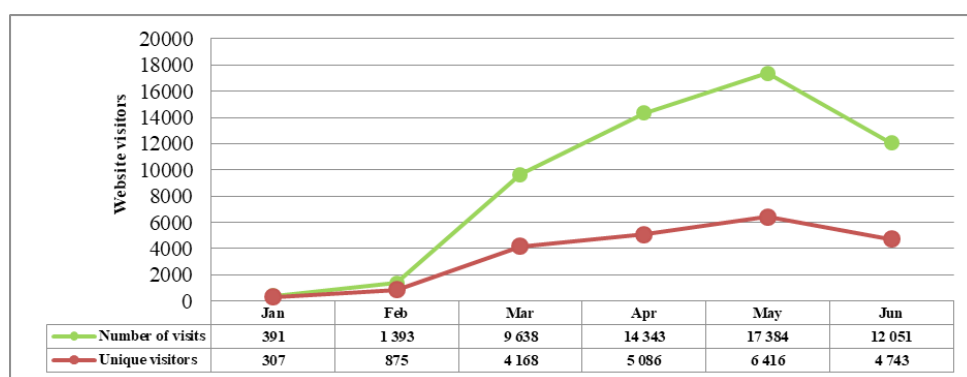
– The visualization and ease of access to the sports materials published online for the students.

- The technical problems related to accessing web pages and the loading of PDF documents with topics for the corresponding week from the sports curriculum.
- Assessment of the structure and contents of the theoretical materials (themes) from the sports curriculum.
- Did the theoretical online sports materials published enrich the expertise and the general knowledge of sports students?
- Assessment of the online tests conducted aimed to measure the acquired knowledge of sports.
- Accessibility to theoretical online materials and tests by means of mobile devices, such as mobile phones or tablets.
- Difficulties when receiving feedback from the sports instructors.
- Whether or not students would choose to replace the practical training process of sport with a completely theoretical one or with online theoretical materials.
- Improving the efficiency of distance learning in sports by providing additional components.

## Results

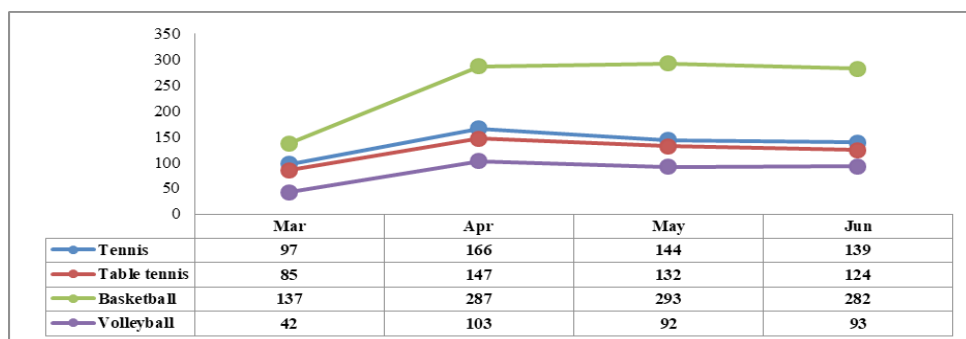
The analysis of the results from organizing and conducting distance learning due to the outbreak and the COVID-19 pandemic by means of the WordPress online platform can be divided into several parts:

*Website traffic* – the direct statistics from the web server's data (Figure 1) – the place where DEOS website is hosted, indicate that the site's traffic for the period of distance learning increased with an average ranging from 200% to 500%. This has made us believe that for the entire period of the COVID-19 pandemic the students relied completely on the online learning process of sports theory and the instructors have targeted the students successfully in terms of study materials and tests.



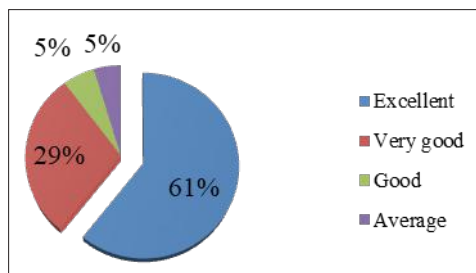
**Figure 1.** Statistics of the DEOS web site's traffic for distance learning during the pandemic of COVID-19

*Number of completed tests* – By means the eForm Builder module, designed for creating online tests, we received detailed statistics of the tests completed during the distance learning period (Figure 2). The total number was 2363, composed by all students taking the subject of sports in the specialties with sports as an electric course – Medicine and Dental Medicine, and the students of Pharmacy, who take sports as a compulsory subject. Pharmacy students received their semester grades based on a 60-minute online test that consisted of 30 questions on the entire theoretical material in sports studied during the semester. The participation and success rate in the online semester test were 97%.

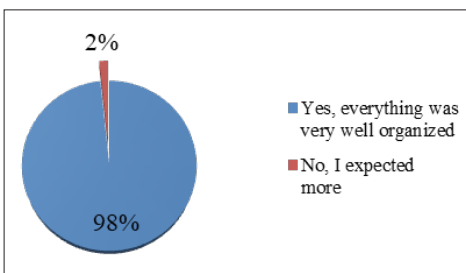


**Figure 2.** Statistics of the number of tests in sports conducted during the COVID 19 pandemic

The results from the anonymous survey after completing the distance learning of sports indicate the following:

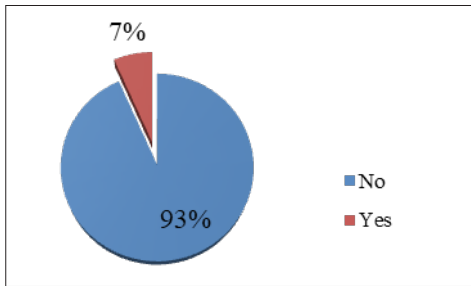


**Figure 3.** How would you assess the organization and the execution of distance learning in sports theory during the COVID-19 pandemic that was provided by the DEOS website? (<http://deos.mu-sofia.bg>)?

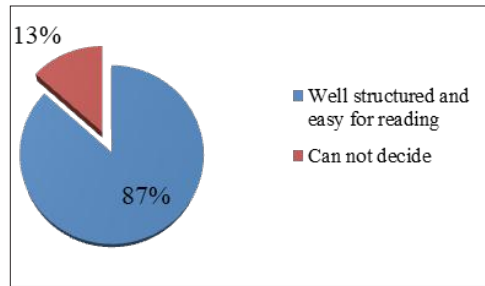


**Figure 4.** Were the published online materials on sports easy to find on the website and were they visualised in an easy-to-comprehend manner?

The larger part of the students surveyed (90%) assess the organization and execution of distance learning in sports theory as very good or excellent (Figure 3), and 98% of them believe that the materials published online were well visualized and easy to access (Figure 4).

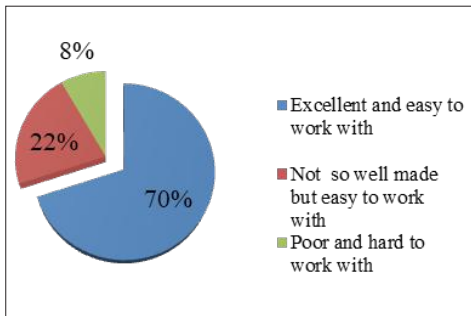


**Figure 5.** Did you encounter any technical difficulties when opening webpages or loading PDF documents with the weekly themes from the sports curriculum?

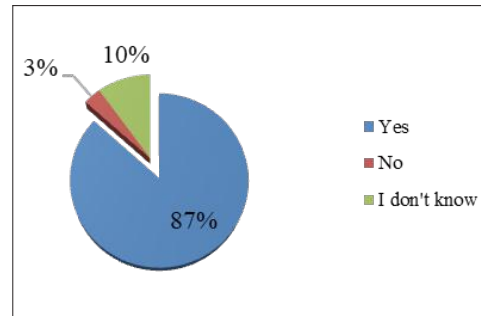


**Figure 6.** What is your assessment of the structure and contents of the theoretical materials (themes) from the sports curriculum?

93% of the respondents claim that they did not encounter technical difficulties when viewing the published PDF documents with the specific weekly themes (Figure 5) and at the same time 87% of the respondents confirm that the theoretical materials were well structured and easy to study (Figure 6).

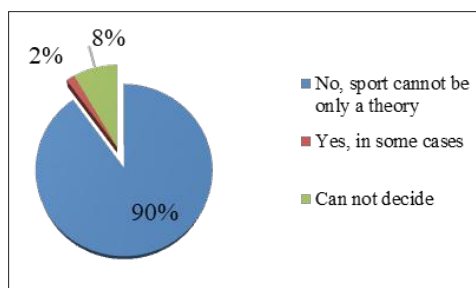


**Figure 7.** What is your assessment of the online test conducted to check the acquired knowledge of sports?

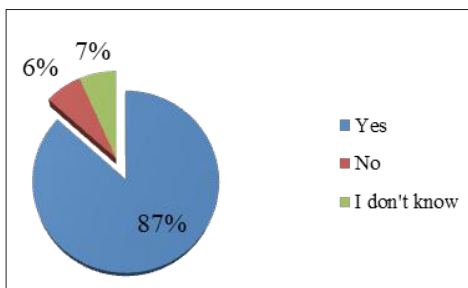


**Figure 8.** Were the provided online theoretical materials and tests easy to access and work with on mobile devices – smartphones and tablets?

Regarding the assessment of the online tests conducted, 70% of the respondents display a positive attitude and believe that the tests were well designed and easy to fill in, while 22% claim that the tests were not designed well enough. This may result from the length of scrolling due to the size of the tests – in the case of 10 test questions the test's size is 2800 pixels, and in the case of 30 test questions, the test's size amounts to 5400 pixels, which is considerable for lower resolution screens. The result from online distance learning by means of mobile devices (87%) should be considered as a significant success (Figure 8). This result indicates that distance learning by means of mobile devices is easy to access by the growing number of adolescent learners using smartphones and tablets.



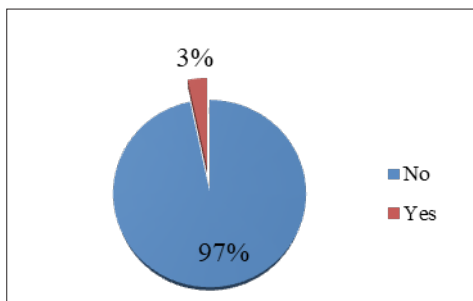
**Figure 9.** Would you choose to replace the practical training process of sport with a completely theoretical one or with online theoretical materials?)



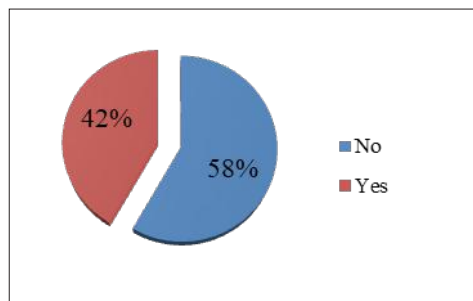
**Figure 10.** Did the theoretical sports materials enrich your expertise and the general knowledge of sports?

Regarding one of the most intriguing questions: Whether or not students would choose to replace the practical training process of sports with an online theoretical one, 90% state that practicing sports cannot be replaced by studying theory (Figure 9), and that its purpose is to support the health and physical shape not only of students but also of people in general. The answers of 87% of the survey respondents indicate that the online course enriched their common knowledge and expertise in sports, which should be considered as a significant success for the distance learning that was conducted.

5.97% of the respondents (Figure 11), confirm that they had no difficulty receiving feedback from their sports instructor during the distance learning process, which speaks for the excellent work of instructors. Regarding the inclusion of additional components in order to make online learning more efficient, 58% believe that this is not necessary, and 42% believe that it is necessary to add more components. This makes us believe that in the future instructors will need to make the decision to supplement the uploaded online sport theory themes with video lessons and specific



**Figure 11.** Did you have difficulty receiving feedback from your sports instructor?



**Figure 12.** Do you believe that additional components may be included to the distance learning of sports in order to make it more efficient?

exercises on the respective sport, or to develop a methodology with a practical focus, so that students can perform physical activity in addition to their theoretical enrichment in the case of a pandemic of such a scale.

### Discussion and conclusion

Analyzing the results of the website's traffic, the online tests submitted, and the student responses to the anonymous survey during the distance learning, which resulted from the COVID-19 pandemic, we can make the following conclusions.

The positive attitude of the majority of students towards the organization and the content of the distance learning in sports conducted at the Medical University of Sofia indicates that in a short time it reached a large number of the students, which in turn illustrates how fast it spreads and how popular this sort of learning has become.

The use of mobile devices during distance learning confirms that this web-based learning process is easily accessible to a growing audience of young people who use smartphones and tablets in their education, which makes distance learning very easy to popularize.

This form of online learning is strictly specific, relatively new, and hard to implement for instructors. Time will be needed for its complete integration in the area of sports studies.

Online distance learning cannot replace the practical sports sessions; 90% of the students wish to continue their involvement in sports activities during the following academic year at the university.

In the circumstances of a state of emergency and pandemics of the kind, distance learning contributes significantly to enriching the students' theoretical knowledge, which affects positively their practical skills.

Web-based education can be further improved by being supplemented with multimedia contents or presentations, which can become a wonderful asset to practical sports training, especially when the student is not able to attend the sports classes.

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✉ **Vladimir Ivanov**

ORCID ID: 0000-0001-9634-2483

**Jasmin Tzankova**

ORCID ID: 0000-0002-8755-9039

Language Education and Sports department (DEOS)  
Medical University of Sofia  
2, Zdrave St.  
Sofia, Bulgaria  
E-mail: vlado.iv.ivanov@gmail.com