

The Quality of Online Higher Education Teaching during the COVID-19 Pandemic: Evidence from Serbia

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Abstract

Introduction: This research aims to analyze students' expectations and satisfaction with the quality of online learning in Serbia during the COVID-19 pandemic, while examining its advantages, disadvantages, and future intentions.

Methods: The research included both desk and field research. Data were collected through an online survey and analyzed with IBM SPSS using frequency, descriptive, reliability, and correlation analysis.

Results: The results showed high student satisfaction with online education during the pandemic, which is correlated with their future intentions to use online learning platforms.

Discussion: These results highlight the importance of student satisfaction for online learning quality and the potential of online education during COVID-19.

Limitations: The research is limited by the sample size of 308 students, which may not fully represent the entire student population.

Conclusions: While the results confirm the high quality of online learning organization at Serbian higher education institutions (HEIs), the study also identifies areas for improvement.

Key words: higher education, online learning, the quality of education, student satisfaction, Serbia.

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Introduction

Competitive advantage in the higher education sector pertains to a higher education institution's capacity to outperform rivals through distinctive operational strategies that diverge from those of existing or potential competitors. By adopting unique approaches, the institution can generate added value, thereby reinforcing its position in the market (Hart & Rodgers, 2023). The high quality of services provided by higher education institutions (HEIs) represents one of their main competitive advantages in the global market (Vukadinović et al., 2022). It is largely determined by student expectations and their perceptions of performance (Jošanov Vrgović et al., 2020). Student satisfaction, as one of the primary goals of HEIs, depends on the alignment between expected and experienced services.

The global and Serbian education systems have undergone significant transformations due to the overwhelming influence of the COVID-19 pandemic, leading to a reconfiguration of traditional educational approaches (Adedoyin & Soykan, 2023). In this context, HEIs faced a considerable challenge: ensuring the requisite quality of online education to uphold and elevate student satisfaction, a paramount goal.

In response to the imperative of curbing physical contact and preventing the spread of the epidemic, these institutions encountered the demanding task of deploying new technologies for the organization and facilitation of online classes. The rapidly changing circumstances required prompt responses during these exceptional times, directly impacted by the technical infrastructure and digital competencies possessed by both the teaching staff and students (Cramarenco et al., 2023).

This study aims to examine the expectations and satisfaction of students with the quality of online learning in the Republic of Serbia during the COVID-19 pandemic, identifying key advantages and disadvantages of online learning and future intentions regarding its use.

1 Literature review

1.1 The quality of online learning during COVID-19

The quality of education services and student satisfaction are complex, closely interconnected concepts. Student satisfaction is the focus of numerous studies and a key goal for HEIs. It directly impacts student motivation, attracts future students, and increases revenue (Jovičić Vuković et al., 2022). In today's information society, the effectiveness of traditional teaching methods has been declining, largely due to the differing attitudes of younger generations toward learning and knowledge acquisition compared to those of previous generations (Buda & Pesti, 2024). Simultaneously, online learning has become a significant

aspect of educational discourse, particularly during the global pandemic when restrictions imposed by authorities affected the education system globally (Motsumi & Khumalo, 2024). As a result, student satisfaction with online learning has emerged as a critical topic, especially considering the need to transition from traditional to online education during this period (Deroncele-Acosta, 2023). Examining student satisfaction with online teaching is one of the key factors contributing to the success of online education.

Online learning represents an innovative way of acquiring knowledge through information and communication technology, with participants in this process being spatially and/or temporally separated. Even before the COVID-19 pandemic, there was an increasing prevalence of online education due to the conveniences it offers, such as organizational flexibility, spatial adaptability, and the ability to tailor learning to individual commitments (Dhawan, 2020). While some universities had previously implemented distance learning as a supplementary method, most were unprepared for a complete transition to online education before the pandemic (Dağgöl, 2023).

After the pandemic outbreak, during the academic year, HEIs worldwide urgently developed new online education models. HEIs in Serbia had a certain level of experience, particularly those with accredited Distance Learning (DLS) programs.

In these newly emerged pandemic circumstances, online teaching was no longer an option for educational institutions; it became a necessity. HEIs sought to maintain and enhance the quality of online education to ensure student satisfaction and favorable learning outcomes under the altered conditions caused by the pandemic. Most HEIs began using online learning platforms such as Moodle, Microsoft Teams, and Google Classroom, while facing numerous challenges, including organizational and technical readiness, digital skills possessed by teachers and students, and maintaining motivation for learning (Romero-Hall & Jaramillo Cherez, 2023).

1.2 Advantages and disadvantages of online learning

In light of the challenges presented by the pandemic, it is crucial to examine the advantages and disadvantages associated with online learning in higher education.

Compared to traditional learning, online learning is defined as a new paradigm based on information technology, which is identified as one of the key sources of change in the higher education sector (Dragin et al., 2022). As such, it elevates students' satisfaction levels during their course attendance, leading to improved performance in online education (González-Gómez et al., 2016; Lockman & Schirmer, 2020).

Online learning in the university context presents numerous advantages that contribute to students' academic success and overall experience. One significant benefit is the accessibility it provides. Students can attend classes and access course materials from any location, overcoming geographical barriers and making education more inclusive. This flexibility is especially valuable for university students who may have part-time jobs, internships, or other commitments. Additionally, online learning results in economic savings by eliminating travel costs, reducing the need to submit printed assignments, and lowering accommodation fees (Strenáčíková, 2023).

Online learning also offers a diverse range of programs and courses, allowing students to tailor their education to their specific interests and career goals. The asynchronous nature of many online courses permits self-paced learning, accommodating individual learning styles and preferences. Moreover, the use of multimedia resources, discussion forums, and collaborative tools enhances the quality of education by fostering interactive and engaging learning experiences. This mode of learning has improved students' digital competence (Homoki et al., 2023) and prepares them for the digital workplace by encouraging the development of crucial skills such as digital literacy, time management, and effective communication (Al Rawashdeh et al., 2021; Dumford & Miller, 2018). Overall, online learning in the university setting not only provides flexibility and accessibility but also equips students with the skills necessary for success in the modern workforce and potential future entrepreneurial ventures (Jovičić Vuković et al., 2020).

On the other hand, online learning at the higher education level comes with its own set of challenges and disadvantages. One significant drawback is the potential lack of face-to-face interaction. Traditional university settings facilitate direct interaction with professors and peers, allowing for real-time discussions, questions, and collaborative activities that can enhance the learning experience. Online learning may lack the immediacy and personal connection of in-person instruction.

Additionally, some students find it challenging to stay disciplined and motivated in a remote learning environment. The absence of a physical classroom structure and routine can lead to procrastination and decreased overall engagement. Technical issues and reliance on digital platforms can also pose challenges, especially for students with limited access to reliable internet or necessary technology. Furthermore, online assessments may raise concerns about academic integrity, with potential issues related to cheating and plagiarism.

Despite these disadvantages, institutions are continuously working to address these challenges and improve the overall quality of online learning experiences in the university setting (Al Rawashdeh et al., 2021; Dumford & Miller, 2018).

2 Methodology

The methodology included desk and field research. Desk research was used as a preliminary step in the research process to gather background information, explore existing knowledge on the topic, identify gaps or areas requiring further investigation, and develop the research instrument.

The questionnaire was developed based on an analysis of contemporary literature, including scientific and professional works in this field, as well as previous research and the instruments used within them (Bangert, 2004; Al-Azawei et al., 2017). After finalizing the questions, the research instrument, in the form of an online questionnaire, was created. All questions were mandatory, eliminating missing data.

Simultaneously with the first phase, field research was implemented, involving establishing contacts with representatives of HEIs, sending requests, and presenting the research objectives. After obtaining consent to conduct the research, the questionnaire was distributed to professors and assistants, who shared it with students through the platforms they use for teaching, or via email.

The study involved 308 students from undergraduate and master's programs at seven HEIs in the Republic of Serbia. The questionnaire included questions about the advantages and disadvantages of online learning and the most frequently used learning platforms.

In addition, the following latent variables were measured in the research:

- Student expectations, which refers to the level of students' expectations regarding specific elements of online teaching (5 items);
- Student satisfaction, which refers to the beliefs and attitudes of individuals arising from the consolidation of all benefits obtained through online education (7 items);
- Intent to use, which involves the intention of individuals to use technology as a learning tool in the future (2 items).

Data were processed using IBM SPSS. Statistical methods for data analysis included frequency analysis, descriptive statistics, reliability analysis, and correlation analysis.

3 Results and discussion

The results of the research are presented below.

The first part of the results details the most commonly used learning platforms in the Republic of Serbia (Table 1). Respondents indicated that the Moodle platform was the most commonly used in HEIs (43.5%), followed by Zoom and Google Classroom at approximately 25% each. About 4% of respondents experienced a blended learning approach, which involved a combination of different platforms and in-person classes. The smallest percentage of respondents reported attending classes via the Big Blue Button platform.

Table 1

Most frequently used platforms

<i>The most commonly used learning platforms in the Republic of Serbia:</i>	<i>N</i>	<i>%</i>
Zoom	79	25.6
Moodle	134	43.5
Google Classroom	76	24.7
Big Blue Button	7	2.27
Combination of Online Learning Platforms	12	3.93

Table 2 shows the advantages and disadvantages of online learning. Health preservation is highlighted as the most significant advantage during the pandemic (M=4.35). For disadvantages, the lack of practical experience (M=3.93) is noted as the most significant.

Table 2

Advantages and disadvantages of online learning

<i>Items</i>	<i>N</i>	<i>Min.</i>	<i>Max.</i>	<i>Mean</i>	<i>SD</i>
<i>Advantages</i>					
Time savings	308	1.0	5.0	4.334	1.0867
Cost reduction	308	1.0	5.0	4.240	1.1560
Health preservation	308	1.0	5.0	4.354	1.1103
Contribution to digital literacy	308	1.0	5.0	4.234	1.0323
Online learning has no advantages	308	1.0	5.0	2.055	1.2890
<i>Disadvantages</i>					
Lack of interaction	308	1.0	5.0	3.669	1.3436
Lack of practical experience	308	1.0	5.0	3.925	1.2804
Lack of organization	308	1.0	5.0	2.750	1.4682
Presence of technical difficulties	308	1.0	5.0	3.211	1.4157
Insufficient teacher training	308	1.0	5.0	2.494	1.4359
Insufficient student training	308	1.0	5.0	2.724	1.4091
Online learning has no disadvantages	308	1.0	5.0	2.857	1.4322

In Table 3, the results of the descriptive statistics and Cronbach's alpha are presented. All three latent variables - Student expectations, Student satisfaction, and Intention to use, have moderately high mean values, with student expectations showing a slightly higher value than student satisfaction.

Table 3

Descriptive statistics

<u>Variables</u>	<u>N</u>	<u>Min.</u>	<u>Max.</u>	<u>Mean</u>	<u>SD</u>	<u>Cronbach's alpha</u>
Students expectations	308	1.00	5.00	4.2695	.787	.868
Students satisfaction	308	1.00	5.00	4.0983	.945	.923
Intention to use	308	1.00	5.00	4.1899	1.79	.945

Table 4 shows the results of the Pearson correlation coefficient values for the three analyzed variables: Student expectations, Student satisfaction, and Intention to use. Upon examining the Pearson correlation coefficient values, it was observed that all variables are statistically significantly correlated with one another. A high statistically significant positive correlation was noted between the variables Student satisfaction and Intention to use (.726**), indicating that greater student satisfaction is associated with a higher level of intention to use online platforms in the future.

Table 4

Correlation analysis

<u>Variables</u>		<u>Students expectations</u>	<u>Students satisfaction</u>	<u>Intention to use</u>
Students expectations	Pearson Correlation	1	.431**	.267**
	Sig. (2-tailed)		.000	.000
	N		308	308
Students satisfaction	Pearson Correlation		1	.726**
	Sig. (2-tailed)			.000
	N			308
Intention to use	Pearson Correlation			1
	Sig. (2-tailed)			
	N			

4 Limitations

This study faced certain limitations that may affect the generalization of its findings. Specifically, a sample of 308 students may be too small to fully represent the entire student population in Serbia. Accordingly, future research would benefit from including a larger sample to provide a more comprehensive picture of the quality of online education and to enhance the reliability of the results.

Conclusions

The development of modern information and communication technologies has provided educational institutions with numerous opportunities for the implementation of teaching activities. In recent years, the accelerated process of digitization, aided by the crisis caused by the COVID-19 pandemic, has led to significant changes in the field of education.

One of the key advantages is the implementation of distance learning in a digital environment, independent of time and physical space. Additionally, modern technologies have contributed to further improving personalized approaches tailored to the individual needs of students. This shift has given rise to new educational methodologies, accompanied by increasingly complex expectations from students.

High average satisfaction ratings and future intentions suggest a satisfactory state and quality of online learning during the pandemic in the Serbian higher education sector. Research on Serbian students revealed that positive student expectations are correlated with satisfaction with online education. Furthermore, student satisfaction with studies during the COVID-19 pandemic is positively correlated with the intention to use online learning in the future.

Although the obtained results confirm the high quality of the organization of online learning at higher education institutions (HEIs) in Serbia, there are also areas for improvement. First, fostering positive and encouraging communication between teachers and students, as well as promoting discussion and cooperation among students, can create a sense of community support and team spirit. Second, using interactive tools, learning through games, organizing quizzes, and incorporating other activities to engage as many students as possible in the learning process contributes to a more dynamic and interesting approach to teaching. Additionally, providing constructive feedback to students about their learning progress strengthens initiative and cooperation in teaching activities.

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