USABILITY AND PERCEPTIONS OF ONLINE LEARNING TOOLS AFTER THE COVID-19 PANDEMIC

Ognyan Miladinov, Milena Kuleva & Ivan Slavchev
National Sports Academy "Vassil Levski", Sofia, Bulgaria

ABSTRACT
The COVID-19 pandemic forced the adoption of distance learning as an emergency response. After the pandemic, these tools are being used more frequently to support in-person education, providing greater flexibility for students and faculty members. It also introduces new methods of teaching and student assessment.
Objective: This study aims to assess the use and perceptions of online tools in student education following the end of the COVID-19 pandemic.
Methods: The study examines the opinions and attitudes of 294 students and 63 faculty members at the NSA "Vassil Levski" regarding the type and extent of the online tools they use for learning and communication. On the other hand, a quantitative analysis of export data from the administrator account of the Google Workspace for Education platform over a three-year period has been conducted, focusing on the use of online learning and communication tools.
Results: The findings reveal a significant discrepancy between faculty perceptions and student behavior. While faculty rated a wide range of applications (including Google Drive and Meet) as highly useful, students reported predominantly using asynchronous tools such as Gmail (86.5%) and Google Classroom (71.5%). Data from platform reports confirmed this trend, showing consistently high engagement with Google Classroom but exceptionally low student participation in synchronous Google Meet sessions (3-8%).
Conclusions: While attitudes toward online learning are positive, the low adoption of synchronous tools alongside high engagement with asynchronous resources highlights a clear preference among students. These findings underscore the need for a hybrid educational model at the National Sports Academy that is intentionally designed to leverage the strengths of asynchronous content delivery while reserving in-person or synchronous sessions for high-value interactions.

ORCID
Ognyan Miladinov
https://orcid.org/0000-0002-9371-7603
Milena Kuleva
https://orcid.org/0000-0002-6467-9644
Ivan Slavchev
https://orcid.org/0000-0003-2220-7777

Cite this article as:
Miladinov, O., Kuleva, M., Slavchev, I. (2025). Usability and perceptions of online learning tools after the COVID-19 pandemic. *Proceeding book of the 4th International Scientific Congress "Applied Sports Sciences", 2025, Sofia.* pp. 375 - 382. https://doi.org/10.37393/ICASS2025/59

Keywords: *distance learning, online tools, platform, usability, learning process, quality, perceptions.*

INTRODUCTION

The COVID-19 pandemic catalyzed an irreversible digital transformation in higher education, paving the way for more resilient and flexible educational models. While its impact on academia has been multifaceted, scholars agree that the crisis significantly accelerated processes that would otherwise have taken years, mandating a rapid and compulsory shift to online and remote learning formats (Qiao et al., 2021). A comprehensive bibliographic analysis by Aristovnik et al. (2023) demonstrates that the pandemic substantially increased research interest in e-learning, a process technologically underpinned by cloud-based structures that have become essential university infrastructure (Han & Trimi, 2022). Even after the acute phase of the pandemic, a significant increase in online learning and assessment activities has persisted (Broadbent et al., 2023), suggesting that the future of education will involve the integration of new digital technologies that foster more interactive learning (Ratten, 2023). However, Ganesh et al. (2022) caution that a simple transition to online tools is insufficient, as a multitude of external and internal factors influences success.

Research on specific platforms confirms the practical application of online tools. A study by Kuromiya et al. (2022) found that the five most popular applications among teachers during the crisis were Google Classroom, Google Meet, YouTube, Gleerups, and MS Teams. Additionally, students show a preference for video explanations from platforms like Khan Academy, which can encourage more active engagement with faculty members (Rueda-Gómez et al., 2024).

Overall, student attitudes toward online activities are primarily positive, with many embracing the use of social media and learning platforms. How-

ever, technical obstacles and a lack of teachers' preparedness are often reported (Ganesh et al., 2022). Despite this adaptability, the success of new practices has been mixed. For instance, while recorded sessions are well-received, online group work has proven less effective (McCullogh et al., 2022). Similarly, although students acknowledge the benefits of online courses, many still prefer in-person classes (Assi & Rashtchi, 2022). These transformations have also fundamentally altered the role of the teacher, shifting from a simple knowledge provider to a facilitator, consultant, and manager of the learning process, resulting in lasting changes in pedagogical practices (Imran et al., 2025).

In the post-pandemic era, a consensus has emerged that the future of education lies in a blended (hybrid) model, which is seen as a reliable approach for higher education (Imran et al., 2023). However, the outcomes of hybrid learning can be inconsistent compared to purely in-person instruction. Harper et al. (2024) found that neither approach is significantly more beneficial or detrimental to student outcomes. Flexibility appears to be a key success factor (Rasli et al., 2022), while the sustainable use of technology depends on building lasting habits among students (Ermilinda et al., 2024).

In conclusion, the literature indicates that the future of higher education is closely linked to the growing use of online learning technologies. This applies not only to formal remote or hybrid programs but also to improving in-person teaching through increased flexibility, personalized approaches, and more effective assessment methods. It is within this changing landscape that the current study is placed.

Aim and Objectives

This study aims to analyze the attitudes toward and utilization of online learning tools among students and faculty members at the National Sports Academy "Vassil Levski" in the post-COVID-19 pandemic period, and to outline prospects for their further implementation in the educational process. To achieve this aim, the following specific objectives were set:

1. To analyze data from the literature regarding online education, focusing on infrastructure, technologies, applications, pedagogical purpose, attitudes of faculty members and students, and developmental trends.
2. To investigate the opinions of faculty members and students on the use of online learning tools, examining the types of tools used, the extent of their utilization, their pedagogical purpose, and subjective evaluations of different applications.
3. To analyze export data (reports) from the administrator panel of the Google Workspace for Education platform to assess the activity of faculty members and students in using various online applications for learning.

METHODOLOGY

Participants

A total of 63 faculty members (representing 26% of the total faculty) and 294 students (representing 10% of the total student body) from the National Sports Academy "Vassil Levski" participated in this study. All faculty members taught in the full-time program, with 77.8% also teaching in the part-time program and 25.3% in the distance learning program. The student sample comprised 218 bachelor's students and 76 master's students.

Data Collection

Data were collected using two primary methods: an anonymous online survey and platform usage reports from Google Workspace for Education.

Survey: An author-developed questionnaire was administered to investigate the type, frequency of use, and attitudes toward various online learning tools. The survey was tailored to the specific educational context of the National Sports Academy and consisted of 23 questions for faculty members and 10 for students. Questions covered participant demographics (teaching/learning formats and degrees), the types of online tools used and their frequency, the specific activities for which they were used, and a subjective assessment of their usefulness on a 5-point Likert scale.

Platform Usage Data: Regular activity reports were exported from the administrator panel of the Google Workspace for Education platform, which is the official distance learning tool at the National Sports Academy. Data were collected over six consecutive academic semesters, from September 2022 to June 2025. The key indicators analyzed were the number of active Google Classrooms and Google Meet sessions, as well as the number of unique faculty members and students who accessed these applications.

Procedure

Participation in the study was entirely voluntary. An e-mail invitation containing a link to the online survey was sent to all active faculty members

and students. The introductory section of the questionnaire informed all participants that the survey was anonymous, that their responses would be used solely for research purposes, and that their participation would have no consequences on their academic standing or employment. Participants were also assured of their right to withdraw from the study at any time without providing a reason, simply by closing the browser window. Completion and submission of the questionnaire were considered indicative of informed consent.

Data Analysis

Descriptive statistics (percentages) were used to summarize the survey responses. A Chi-square (χ^2) analysis was performed to determine the statistical significance of relationships between categorical variables, with the p-value calculated using the CHISQ.TEST function in Microsoft Excel. The results were visualized using graphical methods.

RESULTS

Survey Findings

The initial survey question aimed to identify the types of online tools used by instructors. The responses indicated that 56.1% utilize the institutionally adopted Google Workspace for Education platform. A notable portion of faculty members (43.9%) reported that they do not use any online tools, preferring exclusively in-person teaching methods. The remaining 27.3% reported using a combination of Google Workspace and other online tools.

Table 1. *Frequency of Google Workspace Platform Use by User Group*

Frequency	Faculty members	In-Person Students (Full-time & Part-time)	Distance Learning Students
Every day	27.3%	5.4%	37.5%
2-3 times a week	19.7%	16.9%	56.3%
Rarely	9.1%	42.4%	0.0%
Never	43.9%	35.3%	6.2%
Total	**100.0%**	**100.0%**	**100.0%**

Significant differences were observed in the frequency of platform use among faculty members and students across different learning formats (Table 1). While 47.0% of surveyed faculty members reported using the platform at least 2-3 times per week, only 22.3% of students in in-person programs (both full-time and part-time) reported a similar frequency. This difference was statistically significant ($\chi^2 = 44.40$, $p < .001$).

As expected, students in the distance learning program were the most active users, with over 90% accessing the platform at least twice to three times per week. A statistically significant difference was also found between the usage frequency of faculty members who actively use the platform and distance learning students ($\chi^2 = 8.33$, $p = .016$), as well as between full-time and part-time students ($\chi^2 = 44.7$, $p < .001$).

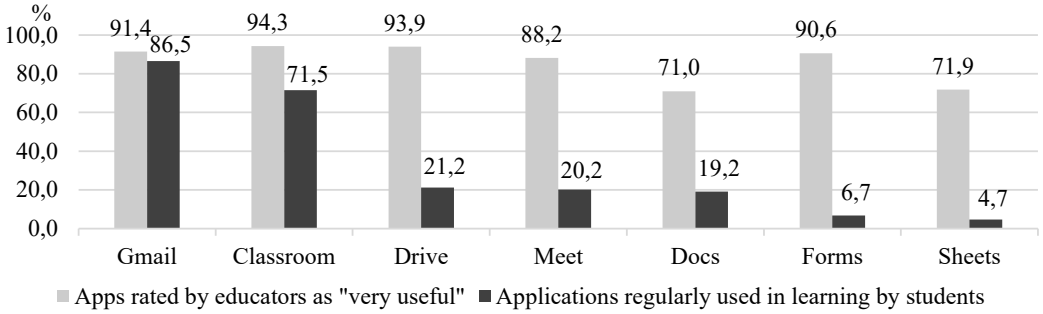

Figure 1. *Comparison of Applications Rated as "Very Useful" by Faculty Members and Those Regularly Used by Students.*

Faculty members were asked to rate the perceived usefulness of individual applications within the Google Workspace platform for teaching purposes (Figure 1). The applications rated most favorably were Google Classroom (94.3% "extremely" or "very useful"), Google Drive (93.9%), Gmail (91.4%), Google Forms (90.6%), and Google Meet (88.2%).

In contrast, students were asked to identify which applications they used regularly in their studies. The most frequently used applications by students were Gmail (86.5%) and Google Classroom (71.5%). Other core applications were used less frequently,

including Google Drive (21.2%) and Google Meet (20.2%). A statistically significant discrepancy was found when comparing the applications that faculty perceive as useful with those that students report using regularly ($\chi^2 = 95.98$, $p < .001$).

Faculty members were also surveyed about their use of online tools outside of the Google Workspace platform. The analysis revealed that the most used alternative tools were personal email (86.7%), Zoom (66.7%), and Viber (66.7%). Less frequently used tools included WhatsApp (26.7%), Messenger (26.7%), and Microsoft 365 applications (20.0%).

A key part of the investigation focused on the primary activities for which both groups use online tools. As shown in Table 2, both faculty members and students most commonly use these tools for various forms of communication, particularly for sharing educational resources and conducting online lectures and exercises.

Statistically, there was no significant difference in the types of activities for which faculty and students use the Google Workspace platform ($\chi^2 = 3.25$, $p = .517$). Furthermore, faculty members who used other online tools outside of Google Workspace reported engaging in a similar range of activities ($\chi^2 = 4.54$, $p = .338$).

Table 2. *Primary Activities for Which Online Learning Tools Are Used*

Activity	Google Workspace (Students)	Google Workspace (Faculty)	Other Tools (Faculty)
Communication with faculty and students	61.8%	94.6%	80.0%
Storing and sharing learning materials	53.4%	91.9%	86.7%
Collaborative work	25.1%	45.9%	60.0%
Online lectures and exercises	36.1%	56.8%	66.7%
Student assessment	49.7%	51.4%	13.3%

To further investigate the activities involving online tools, we asked students how they typically receive electronic learning materials from their faculty. The most common methods were via their official Gmail accounts (79.2%), through materials posted in Google Classroom (64.1%), and via shared files in Google Drive (20.8%).

We analyzed faculty attitudes toward the impact of online tools on their productivity. As shown in Figure 2, a large majority of faculty members reported that the online tools they use significantly enhance their productivity. This was true for both Google Workspace applications and other tools, with over 60% of faculty responding "Yes, to a great extent" for both categories. The difference in perceived productivity enhancement between the two types of tools was not statistically significant ($\chi^2 = 3.83$, $p = .430$).

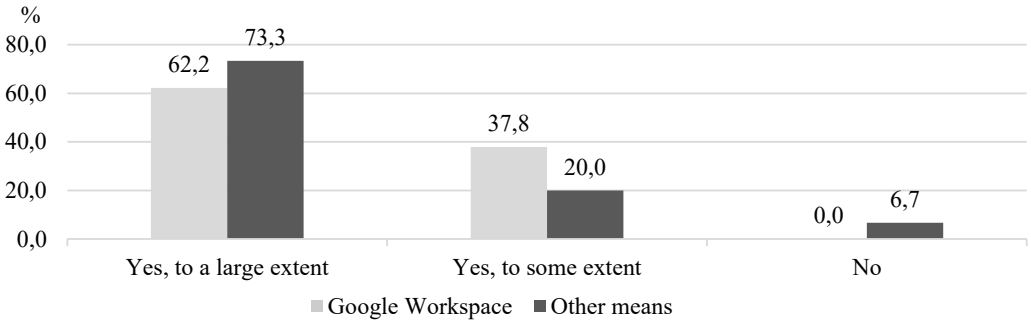

Figure 2. *Faculty Perceptions on Whether Online Tools Increase Their Productivity*

Finally, we asked students whether online tools support their learning and asked faculty whether these tools improve the quality of the educational process (Table 3). Both groups responded positively, with a majority selecting either "Yes, significantly" or "Yes, to some extent." There was no statistically significant difference between the responses of students and faculty regarding the Google Workspace applications ($\chi^2 = 7.81$, $p = .099$).

However, a notable portion of faculty who use tools other than Google Workspace (a total of 26.6%) responded with "No opinion" or "No, not particularly." Despite this, the majority of this group (73.3%) still answered "Yes, significantly" or "Yes, to some extent." The difference in faculty opinions on this matter between Google Workspace and other tools was statistically significant ($\chi^2 = 13.41$, $p = .009$).

Table 3. *Responses to Questions Regarding the Impact of Online Tools on the Quality of the Educational Process*

	"Do online tools support your learning?"	"Do online tools improve the quality of the educational process?"	
	Students	Faculty Members	
	Google Workspace	Google Workspace	Other Tools
Yes, significantly	43.0%	56.8%	53.3%
Yes, to some extent	43.5%	43.2%	20.0%
No opinion	11.4%	0.0%	13.3%
No, not particularly	2.1%	0.0%	13.3%
No, not at all	0.0%	0.0%	0.0%

Results from Google Workspace Administrator Panel Reports

To track usage trends of the Google Workspace applications in student education, we analyzed data on the number of active Google Classrooms and Google Meet sessions (defined as those with user attendance) for each semester in the study period.

The data analysis, presented in Figure 3, reveals two distinct trends over the three-year period following the end of the COVID-19 pandemic. First, there is a clear and consistent increase in the number of active Google Classrooms each semester, rising from 189 in the first observed semester to 435 in the fifth. Conversely, the number of active Google Meet sessions shows a steady decline over the first five semesters, followed by a significant increase during the final semester of the study period.

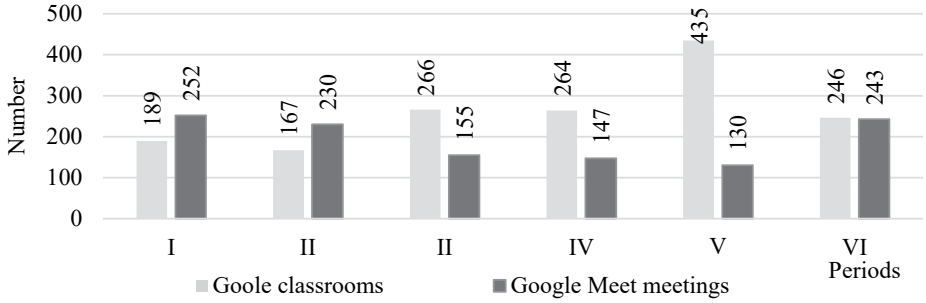

Figure 3. *Number of active Google classrooms and Google Meet meetings*

Figure 4 illustrates the number of active Google Classrooms and Google Meet meetings attended by students. The data reveal a clear upward trend in the number of Google Classrooms accessed by students over the study period.

In contrast, the number of Google Meet sessions attended by students does not show a distinct trend over time. Instead, it remained at a relatively stable and low level (ranging between 35 and 80 sessions per semester), which is significantly lower than the number of active Google Classrooms. A notable exception occurred only in the final observed semester, when the number of attended Google Meet sessions increased sharply to 161.

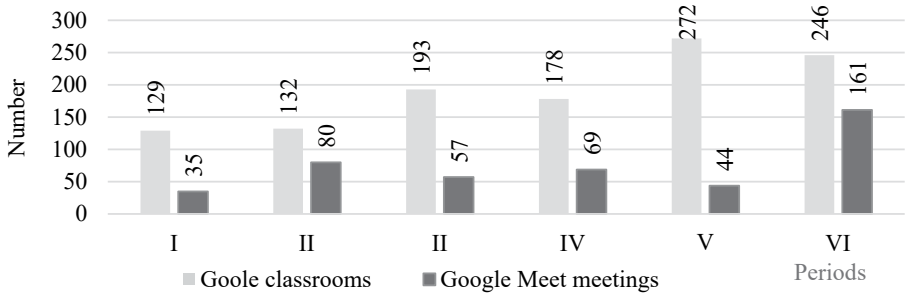

Figure 4. *Number of Google Classrooms and Google Meet sessions attended by students*

The analysis presented in Figure 5 shows that, on average, 27.2% of the total faculty at the National Sports Academy "Vassil Levski" accessed Google Classrooms during the study period, while 33% attended Google Meet sessions. No distinct trend was observed over time in the number of faculty members utilizing either of these two applications.

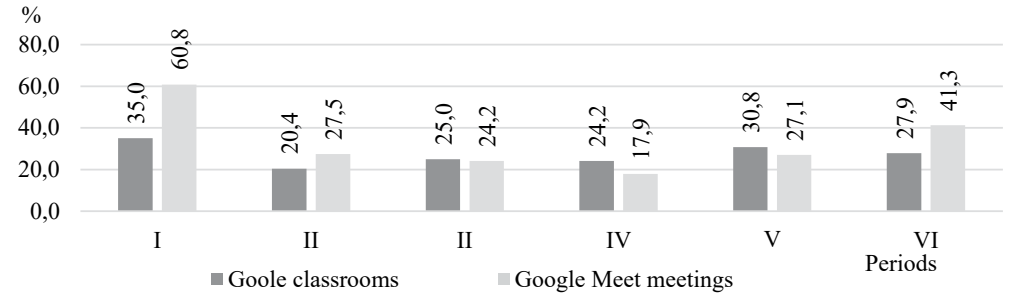

Figure 5. *Percentage of faculty members who attended Google Classroom and Google Meet meetings.*

A comparison of student attendance in Google Classrooms versus Google Meet sessions (Figure 6) reveals a stark contrast. A significantly larger percentage of the total student body utilized Google Classrooms in each observed semester, with an average of 42.1% of active students accessing these asynchronous resources.

In contrast, the percentage of students participating in real-time Google Meet sessions was exceptionally low, consistently remaining within the 3-8% range throughout most of the study period.

Overall, these data indicate two opposing trends: a gradual increase in the number of students engaging with materials in Google Classrooms over time, and a corresponding decrease in participation in synchronous online Google Meet sessions.

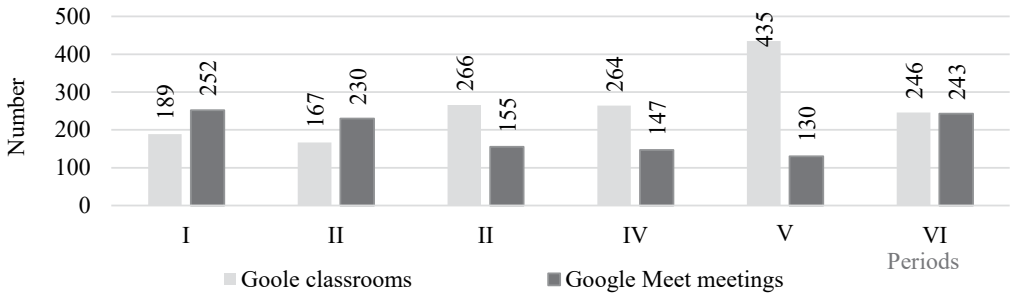

Figure 6. *Percentage of students who attended Google Classroom and Google Meet Meetings.*

DISCUSSION

The findings of this study indicate a sustained positive attitude toward the use of online tools in the educational process at the National Sports Academy "Vassil Levski" following the COVID-19 pandemic. Over 80% of students and nearly 100% of faculty members perceive remote technologies as beneficial to the quality of education, confirming a trend identified by Broadbent et al. (2023) of increased online learning and assessment activities during and after the pandemic's acute phase. Nevertheless, a significant number of faculty members (43.9%) still adhere exclusively to in-person teaching methods. This can likely be attributed to the curriculum's practical orientation, which often necessitates direct contact between learners and educators. Perceived ease of use does not appear to be a significant barrier, as very few respondents from either group described the Google Workspace platform as "difficult."

A key finding of our research is the observed discrepancy between faculty and student attitudes and behaviors. While faculty members rate a wide range of Google Workspace applications as "extremely useful," students primarily use Gmail and Google Classroom, with tools like Drive and Meet remaining underutilized. This aligns with findings from McCullogh et al. (2022), who emphasized that future educational planning must account for both the areas of alignment and disagreement between these two groups.

A notable divergence also emerges between positive attitudes and the actual use of synchronous online tools. Although a significant portion of faculty create Google Meet sessions, the percentage of students who attend them remains low. This finding aligns with those of Ganesh et al. (2022), who reported that most students (58.5%) considered traditional instruction more effective than online learning. The mere availability of an official platform and established online classrooms does not guarantee active student participation in synchro-

nous formats (Kuromiya et al., 2022).

Our study confirms that students in the distance learning program utilize online tools far more actively than their full-time and part-time counterparts, highlighting the need for more flexible educational models. In this context, research suggests that hybrid learning offers an effective balance between in-person and online activities (Briggs et al., 2023) and has the potential to become the "new standard" by combining the advantages of both approaches (Imran et al., 2023). This supports our conclusion that the future development of education at the NSA should focus on the sustainable implementation of hybrid practices.

The primary activities for which online tools are used—communication, resource sharing, and online meetings—indicate a shift in the faculty's role. Teachers are increasingly acting as mediators and facilitators, a trend also identified by Imran et al. (2025). It is important to note, however, that these online activities supplement rather than replace traditional in-person methods, a finding consistent with another research (Harper, 2024).

Finally, the data show a clear and significant increase in the adoption of virtual classroom in the post-pandemic era. While pre-pandemic (2015-2020) usage at the NSA was low - 12.07% of faculty and 5.08% of students (Миладинов and & Славчев, 2023), post-pandemic figures are substantially higher (27.2% of faculty and an average of 42.1% of students). This demonstrates that the tools and methods forcibly implemented during the pandemic have proven highly beneficial for supporting the educational process in the long term.

LIMITATIONS

This study has several limitations. First, it was conducted solely within the National Sports Academy "Vassil Levski," which limits the generalizability of the findings to other universities. Second, the specific context of the NSA as a specialized institution for sports, physical education, and kinesitherapy influences attitudes and usage patterns, making the data context specific. Third, the research focused primarily on the opinions of students and faculty, without encompassing the administrative and organizational aspects of educational technology implementation. These limitations could be addressed in future research by conducting comparative analyses with other specialized sports universities.

CONCLUSIONS

Online learning tools have become a significant and established component of the educational process at the National Sports Academy "Vassil Levski" in the post-pandemic era, with the pandemic itself acting as a catalyst for a digital transformation that might have been much slower otherwise.

The findings demonstrate that both faculty and students perceive online tools positively, valuing them for their ability to enhance productivity and educational quality. However, a key insight from this study is the discrepancy between the perceived usefulness of various technologies and their actual application. The most sustainable practices have emerged around core tools like Gmail and Google Classroom, while synchronous tools like Google Meet exhibit lower engagement.

Usage patterns are clearly differentiated by learning format, with distance learning students showing significantly higher activity, which underscores the need for flexible, hybrid models that combine the benefits of in-person instruction with the versatility of online technologies. The fact that nearly half of the faculty still prefer exclusively in-person methods highlights the limited applicability of online tools in practically oriented disciplines. It confirms that digital solutions should complement, not replace, traditional teaching methods.

Overall, this study supports the conclusion that the future of education at the NSA is linked to the sustainable implementation of hybrid models. To achieve full integration, it will be necessary to bridge the gaps between faculty and student preferences and further to explore the applicability of digital tools across the curriculum.

REFERENCES

Aristovnik, A., Karampelas, K., Umek, L., & Ravšelj, D. (2023). Impact of the COVID-19 pandemic on online learning in higher education: A bibliometric analysis. *Frontiers in Education, 8,* 1225834. https://doi.org/10.3389/feduc.2023.1225834

Assi, E., & Rashtchi, M. (2022). Virtual classes during COVID-19 pandemic: Focus on university students' affection, perceptions, and problems in the light of resiliency and self-image. *Asian-Pacific Journal of Second and Foreign Language Education, 7*, 17. https://doi.org/10.1186/s40862-022-00144-7

Briggs, M., Thornton, C., McIver, V. J., Rumbold, P. L. S., & Peart, D. J. (2023). Investigation into the transition to online learning due to the COVID-19 pandemic, between new and continuing undergraduate students. *Journal of Hospitality, Leisure, Sport & Tourism Education, 32,* 100430.

https://doi.org/10.1016/j.jhlste.2023.100430

Broadbent, J., Ajjawi, R., Bearman, M., Boud, D. & P. Dawson (2023). Beyond emergency remote teaching: Did the pandemic lead to lasting change in university courses? *International Journal of Educational Technology in Higher Education, 20,* 58. https://doi.org/10.1186/s41239-023-00428-z

Ermilinda, L., Handarkho, A., & Emanuel, A. (2024). Factors influencing student intention to continue using e-learning platform post-COVID-19 pandemic: Case study of University of Nusa Nipa, Indonesia. *Procedia Computer Science, 234,* 1043–1052. https://doi.org/10.1016/j.procs.2024.03.098

Ganesh, G. S., Mishra, M., & Dalei, N. N., Khan, S., Ranjan, R., & Dhiman, S. (2022). Role of social media tools in online teaching: a perception of physiotherapy students and knowledge translation. *Bulletin of Faculty of Physical Therapy, 27,* 7. https://doi.org/10.1186/s43161-021-00065-5

Han, H., & Trimi, S. (2022). Cloud Computing-Based Higher Education Platforms During the COVID-19 Pandemic. *arXiv*:2203.03714. https://doi.org/10.48550/arXiv.2203.03714

Harper, C. V., McCormick, L. M., & Marron, L. (2024). Face-to-face vs. blended learning in higher education: a quantitative analysis of biological science student outcomes. *International Journal of Educational Technology in Higher Education, 21*, 2. https://doi.org/10.1186/s41239-023-00435-0

Imran, M., Almusharraf, N., & Abbasova, M. (2025). Digital learning transformation: A study of teachers' post-COVID-19 experiences. *Social Sciences & Humanities Open, 11,* 101228. https://doi.org/10.1016/j.ssaho.2024.101228

Imran, R., Fatima, A., Salem, I. E., & Allil, K. (2023). Teaching and learning delivery modes in higher education: Looking back to move forward post-COVID-19 era. *The International Journal of Management Education, 21*(2), 100805. https://doi.org/10.1016/j.ijme.2023.100805

Kuromiya, H., Majumdar, R., Ogata, H., & Miyabe, G. (2022). E-book-based learning activity during COVID-19: Engagement behaviors and perceptions of Japanese junior-high school students. *Research and Practice in Technology Enhanced Learning,* 17, 12. https://doi.org/10.1186/s41039-022-00184-0

McCullogh, N., Allen, G., Boocock, E., Peart, D., & Hayman, R. (2022). Online learning in higher education in the UK: Exploring the experiences of sports students and staff. *Journal of Hospitality, Leisure, Sport & Tourism Education, 31,* 100398. https://doi.org/10.1016/j.jhlste.2022.100398

Qiao, P., Zhu, X., Guo, Y., Sun, Y., & Qin, C. (2021). The development and adoption of online learning in pre- and post-COVID-19: Combination of technological system evolution theory and unified theory of acceptance and use of technology. *Journal of Risk and Financial Management, 14*(4), 162. https://doi.org/10.3390/jrfm14040162

Rasli, A., Tee, M., Lai, Y. L., Tiu, Z. C., & Soon, E. H. (2022). Post-COVID-19 strategies for higher education institutions in dealing with unknown and uncertainties. *Frontiers in Education, 7,* 992063. https://doi.org/10.3389/feduc.2022.992063

Ratten, V. (2023). The post COVID-19 pandemic era: Changes in teaching and learning methods for management educators. *The International Journal of Management Education, 21*(2), 100777. https://doi.org/10.1016/j.ijme.2023.100777

Rueda-Gómez, K. L., Rodríguez-Muñiz, L. J., & Muñiz-Rodríguez, L. (2024). Factors that mediate the success of the use of online platforms to support learning: The view of university teachers. *Education and Information Technologies, 29,* 2459–2482. https://doi.org/10.1007/s10639-023-11916-0

Miladinov, O., & Slavchev, I. (2023). Razvitie na distantsionnoo onuchenie v Natsionalna sportna akademia "Vassil Lavski" [Development of distance learning at the National Sports Academy "Vassil Levski"]. V sbornik dokladi ot naucho-practicheska konferentsia "Digitalna transformatsia na obrazovanieto - problemi, resheniya, otseniavane i akreditatsiya" *[Proceedings of the scientific-practical conference "Digital transformation of education – problems and solutions, assessment and accreditation"]* (p. 220–225). Ruse. https://www.conf-dte.bg/docs/2023/p-40.pdf

Corresponding author:
Ognyan Miladinov, DSc
Track and Field Athletics Department
National Sports Academy "Vassil Lavski"
21, Acad. Stefan Mladenov, str.
Sofia, Bulgaria
E-mail: ogimil@nsa.bg

IV International Scientific Congress "Applied Sports Sciences"

PROCEEDING BOOK

Peer-Review Statement

All full-text papers included in this conference proceedings volume have undergone a rigorous peer-review process. Each submission was evaluated by at least two independent reviewers with academic expertise relevant to the topic of the paper. Reviews were conducted in accordance with established scholarly standards, ensuring the quality, validity, and originality of the published contributions. Only papers that met the required scientific and ethical criteria were accepted for publication.

Publication Ethics and Malpractice Statement

The editors of this conference proceedings volume are committed to upholding the highest standards of publication ethics, following the principles outlined by the Committee on Publication Ethics (COPE).

By submitting their manuscripts, all authors confirm that:

- their work is original and has not been previously published or submitted elsewhere;
- the research presented is conducted in accordance with accepted ethical standards;
- all sources used are properly cited;
- there is no plagiarism, data fabrication, or falsification;
- all authors have contributed substantially to the manuscript and approve its final version;
- any conflicts of interest have been disclosed.

The editors maintain responsibility for the integrity of the publication process, ensuring fair and unbiased review, confidentiality of submissions, and immediate action in cases of suspected misconduct. Any breaches of ethical standards will lead to correction, retraction, or other appropriate measures.

21–22 November 2025

Sofia, Bulgaria

IV International Scientific Congress "Applied Sports Sciences"

21–22 November 2025
Sofia, Bulgaria

PROCEEDING BOOK

EDITORS OF THE PROCEEDING BOOK:

Prof. Ognyan Miladinov, DSc
Assoc. Prof. Milena Kuleva, PhD
Assoc. Prof. Stefka Djobova, PhD

SCIENTIFIC COMMITTEE

INTERNATIONAL MEMBERS OF THE SCIENTIFIC COMMITTEE

Prof. Suzanne Lundvall – University of Gothenburg, Sweden
Prof. Nenad Stojiljkovic – University of Nish, Serbia
Prof. Monica Stanescu – National University of Physical Education and Sport, Bucharest, Romania
Prof. Jean-Paul Belgrado – Free University of Brussels, Belgium
Prof. Thierry Zintz – Catholic University of Louvain, Belgium
Prof. Cevdet Cengiz – Canakkale Onsekiz Mart University, Turkiye
Prof. Alejandro García Mas – University of the Balearic Islands, Spain
Prof. Lana Ružić Švegl – University of Zagreb, Croatia
Prof. Javier Pérez-Tejero – Polytechnic University of Madrid, Spain
Prof. Biljana Popeska – Goce Delchev University, North Macedonia
Assoc. Prof. Branislav Antala – FIEP World Vice-president, Comenius University in Bratislava, Slovakia
Assoc. Prof. Dario Novak – FIEPS Europe President, University of Zagreb, Croatia
Assoc. Prof. Simone Digennaro – University of Cassino and Southern Lazio, Italy
Assoc. Prof. Jirí Balas – University of Prague, Czech Republic
Assoc. Prof. Gülşah Şahin – Canakkale Onsekiz Mart University, Turkiye

MEMBERS OF THE SCIENTIFIC COMMITTEE FROM THE NATIONAL SPORTS ACADEMY "VASSIL LEVSKI"

Prof. Krasimir Petkov
Prof. Ognyan Miladinov
Prof. Daniela Lyubenova
Prof. Nikolay Popov
Prof. Nikolay Izov
Prof. Ivan Maznev
Prof. Tatiana Iancheva
Prof. Valentin Panayotov
Prof. Mihail Konchev
Prof. Mihail Mihailov
Prof. Eleonora Mileva
Prof. Daniela Dasheva
Prof. Albena Alexandrova
Prof. Antonio Antonov
Assoc. Prof. Hristo Andonov
Assoc. Prof. Ivan Slavchev
Assoc. Prof. Milena Kuleva
Assoc. Prof. Stefka Djobova
Assoc. Prof. Korneliya Naydenova
Assoc. Prof. Petar Peev
Assoc. Prof. Nina Atanasova
Assoc. Prof. Marina Petrova
Assoc. Prof. Ivan Ivanov
Assoc. Prof. Antoaneta Dimitrova
Assoc. Prof. Ina Vladova

Design: Slavka Asenova, Svetla Kostova
Publisher: Scientific Publishing House NSA Press
ISBN (Online): 978-954-718-803-7