

Editorial

Sustainable Higher Education: From E-Learning to Smart Education

Silvia Parusheva ^{1,*} , Samo Bobek ² and Simona Sternad Zabukovšek ² 

¹ Department of Computer Science, University of Economics—Varna, 9002 Varna, Bulgaria

² Department of E-Business, Faculty of Economics and Business, University of Maribor, SI-2000 Maribor, Slovenia; samo.bobek@um.si (S.B.); simona.sternad@um.si (S.S.Z.)

* Correspondence: parusheva@ue-varna.bg

In recent years, education has been increasingly influenced by information technology and digitization. Distance learning via an electronic environment during the two-year COVID-19 pandemic has further intensified the digitization of educational processes. By supplementing traditional education with e-learning, the use of learning management systems and e-learning platforms have become a standard for educational institutions, especially in higher education. Although the pandemic situation is now a part of our past, enhanced electronic practices in the learning process are undergoing further development, and e-learning has entered its next, more mature stage. While e-learning was associated with digitalization of teaching in its earlier stages, more advanced maturity stages are focused on the digital transformation of teaching. E-learning is facing the appearance of disruptive technologies and the emergence of disruptive teaching innovations.

The trend toward digitization of all degrees in education, including in secondary and, especially, in higher education, finds its development in the next, more advanced level of the so-called smart education. Because of the use of new disruptive technologies and new disruptive innovations regarding teaching models and methods, e-learning is increasingly associated with a new paradigm of smart learning. Smart learning relates to the use of disruptive teaching technologies and immersive disruptive innovations in teaching.

Even though the concept of “smart learning” at this stage does not have a single definition, and many researchers have contributed to its interpretation, its developments are visible and fast. The understanding of the scope of smart learning is quite broad and has a different interpretation in different countries [1]. On the one hand, the understanding of researchers from some European countries equates smart learning with “digital education”. On the other hand, in countries in Asia, especially in China, the concept of “smart education” is being imposed. For a clarification of the concept of smart learning, authors’ views [1] on “a high-end form of digital transformation in education”, including advanced digital education and its features related to higher learning experience, learning content adaptation, and teaching efficiency, can be referred to. A more substantial specification of the technologies involved in its implementation can be found in the opinion of other researchers [2], according to whom smart learning is related to learning in interactive, intelligent, and personalized learning environments, including, for example, augmented reality, cloud computing, and social networking services. Specifically for smart learning environments, some authors state that they can be defined as systems designed to offer “innovative uses of emerging pedagogical approaches and technologies to support effective learning experiences” [3]. Other authors emphasize the ability of smart learning environments to provide just-in-time learning, which is based on the wide possibilities and levels of adaptation and greater specification of the learning conditions of students [4].

On the other hand, the concept of smart learning can be seen in a narrower sense as personalization of learning, not only anytime but also anywhere, by applying the tools of artificial intelligence and meeting the individual learning style of students [5].



Citation: Parusheva, S.; Bobek, S.; Sternad Zabukovšek, S. Sustainable Higher Education: From E-Learning to Smart Education. *Sustainability* **2023**, *15*, 10378. <https://doi.org/10.3390/su151310378>

Received: 13 June 2023
Accepted: 28 June 2023
Published: 30 June 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Emphasis is placed on the role of smart education to strengthen the opportunities of learners in the 21st century to meet and successfully cope with challenges under the conditions of a digitalized society, including developing the ability to solve problems [6].

A number of interesting topics are published in this Special Issue entitled “Sustainable Higher Education: From E-Learning to Smart Education”, including the role of blended learning to create a new and smart learning environment for effective learning; the use of smart approach to teaching and learning based on mobile and smart devices and applications; the importance of personalization of learning with learning analytics, gamification, and smart education; the creation of virtual, augmented, and mixed reality-based learning environments; the application of social media tools in e-learning; and the role of cloud computing for a successful transition to smart learning.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Zhuang, R.; Liu, D.; Sampson, D.; Mandic, D.; Zou, S.; Huang, Y.; Huang, R. (Eds.) *Smart Education in China and Central & Eastern European Countries; Lecture Notes in Educational Technology*; Springer: Singapore, 2023; p. 335. [\[CrossRef\]](#)
2. Yu, Y.; Qi, A. Teaching system of smart learning environment for aerobics course. *Int. J. Emerg. Technol. Learn. iJET* **2018**, *13*, 165–176. [\[CrossRef\]](#)
3. Pesare, E.; Roselli, T.; Corriero, N.; Rossano, V. Game-based learning and gamification to promote engagement and motivation in medical learning contexts. *Smart Learn. Environ.* **2016**, *3*, 1–21. [\[CrossRef\]](#)
4. Qin, X.; Zhang, Y.; Gu, P.; Lin, L. The Impact of Cooperative Learning Strategies on Pupils’ Learning Engagement in the Smart Classroom Environment. In *Blended Learning. Education in a Smart Learning Environment, Proceedings of the 13th International Conference, ICBL 2020, Bangkok, Thailand, 24–27 August 2020*; Cheung, S.K.S., Li, R., Phusavat, K., Paoprasert, N., Kwok, L.F., Eds.; Springer: Berlin/Heidelberg, Germany, 2020.
5. Bajaja, R.; Sharma, V. Smart Education with artificial intelligence based determination of learning styles. In *Proceedings of the International Conference on Computational Intelligence and Data Science (ICCIDS 2018)*, Procedia Computer Science, Gurugram, India, 7–8 April 2018; Volume 132, pp. 834–842. [\[CrossRef\]](#)
6. Nisiforou, E.A.; Vrasidas, C. Reflections on the Application of a Gamified Environment to Foster Young Learners’ Digital Competencies. In *Smart Pedagogy of Game-based Learning; Series Advances in Game-Based Learning*; Daniela, L., Ed.; Springer: Cham, Switzerland, 2021; pp. 168–178. [\[CrossRef\]](#)

Disclaimer/Publisher’s Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.