Editorial: Digitalization in education: developing tools for effective learning and personalisation of education

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Editorial on the Research Topic
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Introduction

Technology-driven trends in the modern society have transformed the ways humans think and communicate. The latest technological artifacts and devices have a profound impact on the forms of interaction between individuals and also significantly influence the process of co construction of knowledge. The COVID-19 pandemic induced experience of remote teaching has significantly contributed to the widespread use of digital technologies in teaching—learning processes, faculty communications, research collaborations, conferences, and workshops. The crisis also led to an understanding of the uncertainty of returning to conventional normal and paved way for a new normal ushered by the COVID-19 pandemic. Such transformations create a need for Institutions to prioritize identification of perspective models of digitalization in education (Salmon, 2013). Teachers, teacher educators, and policymakers need to collaborate for co-constructing the technology-assisted classroom that will gradually evolve from teaching supplements to pivotal support for creating a personal learning environment (Dabbagh and Kwende, 2021).

This article Research Topic aims at examining teachers' experience in implementation of computer technologies and exploring gaps and challenges in the current academic educational practice with regard to use of digital tools. Various elements of digital environment including online courses, e-resources, virtual and augmented reality, artificial intelligence and robotics have become an integral component of learning and fostering students' skills, practical teaching experience and effective professional training. It is imperative that aspects of e education are discussed at the global level in order to stimulate creation of personal learning environments, meet inclusive learning needs, support life-long education and identify relevant digital technologies for upgradation of pedagogical methods and teacher strategies in education.

The Research Topic welcomed papers that explore the challenges and perspectives of using digital technologies in teacher education pedagogies and design tools for

personalization of learning pathways. Are collected works that draw upon theories and innovative trends in implementation of digital resources in educational environments; explore effective teacher strategies for engaging students in the educational process; discuss global pedagogical approaches for knowledge construction and methods of learning evaluation.

The articles allow readers to outline—from multiple investigative perspectives and international contexts—some strands that today characterize the actual scientific debate on digitalization in education.

Challenges and perspectives of using technologies in education and design of digital tools for teacher preparation and professional development

- The study by Karkina et al.—inspired by Shulman's theory and conducted at the Kazan Federal University—focuses on the development of professional skills of future music teachers within the MOODLE e-learning environment.
- Muchnik-Rozanov et al.'s study the emotional response of 32 in-service teachers to adopting Mobile Learning (ML) while attending ML training during the COVID-19 pandemic. It highlights the importance of factors such as the teachers' degree of emotional immersion and the use of emotion words.
- Pozas et al.'s investigation explores teachers' emotional state during emergency remote teaching (ERT) in Germany with respect to teachers' technology readiness profiles and gender. It discusses the implications of the findings for initial teacher education and professional development.

Designing flexible, adaptive and meaningful educational digital resources to accommodate students learning, work and life goals

- Campillo-Ferrer and Miralles-Martinez's article describes a study realized at the University of Murcia. It examines the effectiveness of Webquest—as a gamification resource— on developing teacher students' skills in organizing and planning learning.
- Aboud's study conducted with 120 teachers from Saudi Arabia, Bahrain, and the United Arab Emirates highlighted that gifted students tend to value teachers more for their personal characteristics than for their professional ones even in online learning environments.
- The article by Zhang et al. presents the pilot study conducted on 24 Chinese university students who experienced learning through Danmu videos. It noted motivating factors— such as information seeking, social presence and perceived entertainment—and obstacles—such as information pollution and attention failure.

Preparing professionals for a sustainable future and constructing computer aided educational ecosystems

- Silva's article presents the study conducted at the University of Verona (Italy) on the promotion of transversal skills of faculties through programs inspired by a systemic and multifocal approach and implemented in technological environments.
- The article by Asensio and Duñabeitia discusses the advantages, disadvantages and implications that the transition from paper-and-pencil to computer-based cognitive assessments (CCA) have with respect to the educational intervention practice of different professionals.
- The investigation of Du et al.—conducted with 347 teachers from six universities in eastern China—brings out that teachers' performance in online teaching is significantly influenced by satisfaction, perceived usefulness and perceived ease of use of online teaching.

Digital tools for educational assessment and evaluation of learning outcomes

- The study by Goto et al. conducted in primary and secondary schools in Japan demonstrates that the use of computer-adaptive tests does not reinforce students' anxiety regarding taking the test and could therefore be introduced more into school assessment practice.
- Chun and Yunus' study investigates the factors influencing English as a Second Language (ESL) teachers' behavioral intentions (BI) toward technology use in the post-COVID-19 era in Malaysia. It highlights the importance of performance expectancy (PE), effort expectancy (EE), and social influence (SI).

Conclusion

The collective insights from these diverse studies underscore the pivotal role of technology, emotional engagement, and professional development in modern education. Studies highlight how digital platforms can significantly enhance teacher training and support, illustrating the need for robust technological readiness and emotional support systems for educators. These studies also stress the importance of innovative, student-centered digital resources, showing how gamification and multimedia tools can effectively engage students and foster deeper learning. The research underscores the necessity for adaptive learning environments that cater to students' personal and academic needs, emphasizing the value of personal attributes in educational settings. The importance of satisfaction, perceived usefulness, and ease of use in online teaching environments is highlighted, reinforcing the need for continuous improvement in digital education tools. This Research Topic provide a comprehensive understanding of the multifaceted approaches required to enhance professional

development, create engaging and flexible learning environments, and implement effective digital assessment tools, ultimately contributing to the advancement of education in a rapidly evolving digital age.

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Conflict of interest

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