

# **E-learning**

**Vol. 13**

## **E-learning in the Time of COVID-19**



University of Silesia in Katowice  
Faculty of Arts and Sciences  
of Education in Cieszyn

# **E-learning**

**Vol. 13**

# **E-learning in the Time of COVID-19**

**Monograph**

**Scientific Editor  
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## INTRODUCTION

The 13<sup>th</sup> volume of the Series on E-learning monograph is “*E-learning in the Time of COVID-19*” and includes articles of authors from twelve countries and from more than twenty universities – participants of the 13<sup>th</sup> annual international scientific conference “Theoretical and Practical Aspects of Distance Learning”, subtitled: “*E-learning in the Time of COVID-19*”, held online on 11–12 October 2021, organized by the University of Silesia in Katowice, Poland – Faculty of Arts and Sciences of Education, Faculty of Social Sciences, Institute of Pedagogy, Faculty of Science and Technology, Institute of Computer Science. Co-organizers and Partners: University of Ostrava (UO), Czech Republic, Silesian University in Opava (SU), Czech Republic, Constantine the Philosopher University in Nitra (UKF) Slovakia, University of Extremadura (UEX), Spain, University of Twente (UT), The Netherlands, Lisbon Lucíada University (LU), Portugal, Curtin University in Perth (CU), Australia, Borys Grinchenko Kyiv University (BGKU), Ukraine, Herzen State Pedagogical University of Russia, St.Petersburg (HSPU), Russian Federation, Dniprovsk State Technical University (DSTU), Ukraine, IADIS – International Association for Development of the Information Society, a non-profit association, Polish Pedagogical Society, Branch in Cieszyn, Polish Scientific Society for Internet Education, Association of Academic E-learning, Poland.

Experts on e-learning from 12 countries, in particular Austria, Australia, Bulgaria, Czechia, Poland, Portugal, Slovakia, Spain, Sweden, Russia, Ukraine, Turkey, reflected on e-learning in the time of COVID-19, presented research results, contemporary trends and scientific an educational project devoted MOOCs, artificial intelligence (AI), augmented reality (AR), virtual reality (VR), selected Web 2.0 and Web 3.0 technology, LMS, CMS, STEM, mobile learning other topics.

The speakers representing the Comenius University in Bratislava (Slovakia), University of Silesia in Katowice (Poland), Plovdiv University “Paisii Hilendarski” (Bulgaria), Innsbruck University, (Austria), Ternopil Volodymyr Hnatiuk National Pedagogical University (Ukraine), RMIT University, Melbourne (Australia), Borys Grinchenko Kyiv University (Ukraine), Gdańsk University of Technology (Poland), Dniprovsk State Technical University (Ukraine), Pedagogical University of Krakow (Poland), Herzen State Pedagogical University of Russia, St. Petersburg (Russia), Zhytomyr Polytechnic State University (Ukraine), Lisbone Lusiada University, Lisbone (Portugal), K.D. Ushynskyyi South Ukrainian National Pedagogical University (Ukraine), Abant İzzet Baysal University, Bolu, Turkey, Mykhailo Drahomanov National Pedagogical University, Kyiv, (Ukraine), Toki Eder Ikastola (Spain), Sumy State Pedagogical University (Ukraine), Izmail State University of Humanities

(Ukraine), and other educational institutions delivered lectures providing insights into interesting studies, presented their recent research results and discussed their further scientific work.

The authors include experts, well-known scholars, young researchers, highly trained academic lecturers with long experience in the field of e-learning, PhD students, distance course developers, authors of multimedia teaching materials, designers of websites and educational sites.

I am convinced that this monograph will be an interesting and valuable publication, describing the theoretical, methodological and practical issues in the field of e-learning in STEM education offering proposals of solutions to certain important problems and showing the road to further work in this field, allowing exchange of experiences of scholars from various universities from many European countries and other countries of the world.

This book includes a sequence of responses to numerous questions that have not been answered yet. The papers of the authors included in the monograph are an attempt at providing such answers. The aspects and problems discussed in the materials include the following:

The conference topics include the following thematic sections:

1. **E-learning in COVID-19 Pandemic Time**
  - Educational technologies for e-learning
  - Modern ICT tools for e-learning – review, implementation, opportunities for effective learning and teaching
  - Innovative methods for e-learning – theoretical and practical aspects
  - MOOCs – methodology of design, conducting, implementation and evaluation
  - Artificial intelligence (AI), augmented reality (AR), virtual reality (VR)
  - Selected Web 2.0 and Web 3.0 technology
  - LMS, CMS, VSCR, SSA, CSA
  - Cloud computing environment, social media, multimedia resources, (video) tutorial design
  - Simulations, models in e-learning and distance learning
  - Networking, distance learning systems
  - M-learning
2. **E-learning and internationalisation in higher education. E-environment and Cyberspace**
  - Contemporary trends in world education – globalization, internationalization, mobility
  - Legal, social, human, scientific, technical aspects of distance learning and e-learning in different countries
  - European and national standards of e-learning quality evaluation
  - Psychological and ethical aspects of distance learning and e-learning in different countries
  - Collaborative learning in e-learning
  - E-environment of the University
  - SMART Universities. SMART technology in education
  - E-learning in a sustainable society

- Comparative approach
- 3. **E-learning and STEM education**
  - Robots and coding in education
  - Immersive learning environments. Blockchain. Bots
  - Internet of things. 3D printing
  - STEM education contemporary trends and challenges
  - Successful examples of e-learning
  - Distance learning in humanities and science
  - Quality of teaching, training
  - Evaluation of synchronous and asynchronous teaching and learning, methodology and good examples
- 4. **Development of Key Competences and Soft Skills and E-learning**
  - Effective development of teachers' digital skills
  - Key competences and soft skills in the digital society
  - Use of e-learning in improving the level of students' digital competences
  - E-learning for humanities
  - E-learning for science and technologies
  - E-Learning and Lifelong Learning
  - Self-learning based on Internet technology

Publishing this monograph is a good example of expanding and strengthening international cooperation. I am very grateful for all valuable remarks and suggestions which contributed to the quality of the publication. Here I especially want to thank Prof. Ryszard Kalamarz and Dr John Starnes for their assistance in editing and proofreading this publication. Also, I would like to say 'thank you' to the authors for the preparation and permission to publish their articles and the reviewers and experts who assessed and reviewed the manuscripts, which enhanced the value of the monograph. I wish all readers a pleasant read. Thank you.

*Eugenia Smyrnova-Trybulska*