

# Contents

<b>1 Digital Systems for Open Access to Formal and Informal Learning</b> .....	1
Demetrios G. Sampson, Dirk Ifenthaler, Pedro Isaías and J. Michael Spector	
<b>Part I Open Access to Formal and Informal Learning: Theory and Practice</b>	
<b>2 The Open Discovery Space Portal: A Socially-Powered and Open Federated Infrastructure</b> .....	11
Athanasiadis Nikolas, Sofoklis Sotiriou, Panagiotis Zervas and Demetrios G. Sampson	
<b>3 The Evolution of University Open Courses in Transforming Learning: Experiences from Mainland China</b> .....	25
Ronghuai Huang, Liang Yu and Junfeng Yang	
<b>4 Massive Open Online Courses (MOOCs) and Massively Multiplayer Online Games (MMOGs): Synergies and Lessons to Be Learned</b> .....	41
Iro Voulgari and Demetrios G. Sampson	
<b>5 Supporting Open Access to Teaching and Learning of People with Disabilities</b> .....	57
Panagiotis Zervas, Vassilis Kardaras, Silvia Baldiris, Jorge Bacca, Cecilia Avila, Yurgos Politis, Deveril, Jutta Treviranus, Ramon Fabregat, Lizbeth Goodman and Demetrios G. Sampson	
<b>6 Development of Visualization of Learning Outcomes Using Curriculum Mapping</b> .....	69
Takashi Ikuta and Yasushi Gotoh	

<b>7</b>	<b>Assessing Student Learning Online</b> .....	83
	Stephen D. Arnold	
<b>8</b>	<b>Theorizing Why in Digital Learning: Opening Frontiers for Inquiry and Innovation with Technology</b> .....	101
	Jonathan Charles Mason	
<b>Part II Open Access to Formal and Informal Learning: Methods and Technologies</b>		
<b>9</b>	<b>Mobile Language Learners as Social Networkers</b> .....	121
	Emma Procter-Legg, Annamaria Cacchione, Sobah Abbas Petersen and Marcus Winter	
<b>10</b>	<b>A Mobile Location-Based Situated Learning Framework for Supporting Critical Thinking: A Requirements Analysis Study</b> .....	139
	Abeer Alnuaim, Praminda Caleb-Solly and Christine Perry	
<b>11</b>	<b>Developing Technological and Pedagogical Affordances to Support the Collaborative Process of Inquiry-Based Science Education</b> .....	159
	Manoli Pifarré, Rupert Wegerif, Alba Guiral and Mercè del Barrio	
<b>12</b>	<b>Learning <i>in</i> or <i>with</i> Games?</b> .....	181
	Jan Hense and Heinz Mandl	
<b>13</b>	<b>Digital Game-Based Learning in the Context of School Entrepreneurship Education: Proposing a Framework for Evaluating the Effectiveness of Digital Games</b> .....	195
	Hercules Panoutsopoulos and Demetrios G. Sampson	
<b>14</b>	<b>Stimulating Learning via Tutoring and Collaborative Simulator Games</b> .....	213
	António Alves, Anabela Maria de Sousa Pereira, Hélder Castanheira, Inês Direito and A. Manuel de Oliveira Duarte	
<b>15</b>	<b>A Methodology for Organizing Virtual and Remote Laboratories</b> .....	235
	Panagiotis Zervas, Alexandros Kalamatianos, Eleftheria Tsourlidaki, Sofoklis Sotiriou and Demetrios G. Sampson	
<b>16</b>	<b>Creative Collaboration in a 3D Virtual World: Conducting Educational Activities, Designing Environments, and Preserving Results</b> .....	257
	Mikhail Fominykh, Ekaterina Prasolova-Førland and Monica Divitini	

<b>17 Active Creation of Digital Games as Learning Tools</b> .....	275
Alejandro Catala, Fernando Garcia-Sanjuan, Patricia Pons and Javier Jaen	
<b>18 Augmented Reality and Learning in Science Museums</b> .....	293
Susan A. Yoon, Joyce Wang and Karen Elinich	
<b>19 From Teachers' to Schools' ICT Competence Profiles</b> .....	307
Stylianos E. Sergis and Demetrios G. Sampson	
<b>20 I<sup>2</sup>Flex: The Meeting Point of Web-Based Education and Innovative Leadership in a K–12 International School Setting</b> .....	329
Maria D. Avgerinou, Stefanos Gialamas and Leda Tsoukia	
<b>Index</b> .....	345

*Muhammad Kiro Sami University, Riyadh, Saudi Arabia*

*Aurélia Alves Department of Electronics, Telecommunications and Informatics, University of Aveiro, Aveiro, Portugal*

*Stephan D. Arnold University of Arizona South Tucson, AZ, USA*

*Maria D. Avgerinou American Community Schools Athens, Patandri, Athens, Greece*

*Cecilia Arilla Institute of Informatics and applications, Universitat de Girona, Girona, Spain*

*Jorge Baeza Institute of Informatics and applications, Universitat de Girona, Girona, Spain*

*Silvia Baldiris Institute of Informatics and applications, Universitat de Girona, Girona, Spain*

*Marek del Barrio Faculty of Education, Universitat de Lleida, Lleida, Spain*

*Annamaria Cecchi Department of Social Science & Linguistic Centre, University of Molise, Campobasso, Italy*

*Francis Cook Colby-Sally Department of Computer Science and Creative Technologies, University of the West of England, Frenchay Campus, Bristol, UK*

*Helder Costambeiro Social Services, University of Aveiro, Aveiro, Portugal*

*Alejandro Catala Grupo IS3I–DSIC, Universitat Politècnica de València, Valencia, Spain*

*Deveril SMARTlab, School of Education, Keele Castle, University College Dublin (UCD), Dublin, Ireland*

*Inês Direito Department of Education, University of Aveiro, Aveiro, Portugal*

*Monica Øystad Program for Learning with ICT, Norwegian University of Science and Technology, Trondheim, Norway*