1. Record Nr. UNISA996542663703316

Titolo	Learning and Collaboration Technologies [[electronic resource]] : 10th International Conference, LCT 2023, Held as Part of the 25th HCI International Conference, HCII 2023, Copenhagen, Denmark, July 23–28, 2023, Proceedings, Part II / / edited by Panayiotis Zaphiris, Andri Ioannou
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2023
ISBN	3-031-34550-9
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (620 pages)
Collana	Lecture Notes in Computer Science, , 1611-3349 ; ; 14041
Disciplina	370.285
Soggetti	User interfaces (Computer systems) Human-computer interaction User Interfaces and Human Computer Interaction
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Foreword -- HCI International 2023 Thematic Areas and Affiliated Conferences -- List of Conference Proceedings Volumes Appearing Before the Conference -- Preface -- 10th International Conference on Learning and Collaboration Technologies (LCT 2023) -- HCI International 2024 Conference -- Contents - Part II -- Contents - Part I -- XR for Learning and Education -- Enhancing Usability in AR and Non-AR Educational Technology: An Embodied Approach to Geometric Transformations -- 1 Introduction -- 1.1 Embodied Learning -- 1.2 BRICKxAR/T -- 2 Overview of Usability Tests -- 3 Benchmark Usability Test -- 3.1 Method -- 3.2 Results -- 4 Redesign of Video Instructions -- 5 Updated Usability Tests -- 5.1 Methods -- 5.2 Results -- 6 Conclusion -- 6.1 Limitations and Future Research -- References -- Why the Educational Metaverse Is Not All About Virtual Reality Apps -- 1 Introduction -- 2 The Metaverse Realised as a Metaphor -- 3 Social Media and Social Learning -- 4 The Costs and Options for Implementing the Metaphor -- 5 Why Low Cost Bandwidth and Technology Solutions are Desirable -- 6 Case Studies for the Use of Low Cost Metaverse for Learning and Collaboration Technologies -- 6.1 Evaluation Methods -- 7 Conclusions and Further

Work -- References -- An Exploratory Case Study on Student Teachers' Experiences of Using the AR App Seek by iNaturalist When Learning About Plants -- 1 Introduction -- 2 Background -- 2.1 Student Teachers' Learning About Plants -- 2.2 The Linnean Taxonomy -- 2.3 Augmented Reality -- 2.4 AR in Science Teacher Education -- 3 Method -- 3.1 The Educational Context of the Case Study -- 3.2 Description of the Biology Course Module -- 3.3 The AR App Seek by iNaturalist -- 3.4 Data Collection -- 3.5 Data Analysis -- 4 Findings and Discussion -- 4.1 The Student Teachers' Experiences of Using the Seek App.
4.2 Pedagogical Implications of Integrating Seek in a Biology Course Module -- 4.3 Summary -- References -- Introducing Dreams of Dali in a Tertiary Education ESP Course: Technological and Pedagogical Implementations -- 1 Introduction -- 2 Description -- 2.1 General Description of Dreams of Dali -- 2.2 Navigation Within the 3D Environment -- 2.3 Technological Features of Dreams of Dali -- 3 Analysis -- 3.1 Pedagogical Implementations of Dreams of Dali in the Language Course -- 4 Reflective Insights Gained from Dreams of Dali -- 4.1 Reflective Examples -- 5 Classroom Activity Using Dreams of Dali -- 6 Conclusions -- References -- Implementation of Augmented Reality Resources in the Teaching-Learning Process. Qualitative Analysis -- 1 Introduction -- 1.1 Benefits -- 1.2 Limitations for AR Implementation -- 1.3 Application of Augmented Reality in Education -- 2 Methodology -- 2.1 Participants -- 2.2 Information Collection Techniques -- 2.3 Data Analysis Plan -- 2.4 Procedure -- 3 Results -- 3.1 Learning Experience -- 3.2 Adaptation to a New Learning Methodology -- 3.3 Motivation -- 3.4 Benefits and Disadvantages -- 4 Conclusions -- References -- Teachers' Educational Design Using Adaptive VR-Environments in Multilingual Study Guidance to Promote Students' Conceptual Knowledge -- 1 Introduction -- 2 Review of Research -- 2.1 Multilingual Study Guidance -- 2.2 Using VR in Instruction -- 3 Materials and Methods -- 3.1 Study Design and Participants -- 3.2 Design for Learning: The Design Dice Framework -- 3.3 Analysis -- 4 Result -- 4.1 Design for Learning -- 4.2 Subject Content Enactment -- 4.3 Relation to Subject Teachers -- 4.4 VR Technology and Its Limitations -- 5 Discussion and Conclusion -- References -- Didactics and Technical Challenges of Virtual Learning Locations for Vocational Education and Training -- 1 Introduction.
2 Initial Situation and Objective -- 3 Analysis and Conception of the Prototype -- 3.1 VR Implementation as a Collaborative, Multidisciplinary Process -- 3.2 Pedagogical Framing as the Basis of Learning in VR Simulation -- 3.3 Selection of Use Case -- 4 Technical Design of the Prototype -- 4.1 The Measurement Device "Fluke" -- 4.2 The Electric Circuit -- 4.3 The Rule System -- 4.4 The Help System -- 5 The Field Experiment -- 6 Results of the Field Experiment -- 7 Discussion -- 8 Conclusions -- References -- WebAR-NFC to Gauge User Immersion in Education and Training -- 1 Introduction -- 2 Literature Review -- 3 Methodology -- 3.1 The Research Questions Are -- 3.2 The Hypotheses Are -- 4 System Design -- 4.1 Learning Experience -- 4.2 Gamified Blockchain Challenge -- 5 Conclusion and Future Work -- References -- Evaluation of WebRTC in the Cloud for Surgical Simulations: A Case Study on Virtual Rotator Cuff Arthroscopic Skill Trainer (ViRCAST) -- 1 Introduction -- 2 Method -- 2.1 Integrating WebRTC with a Surgical Simulation -- 2.2 Getting Data from the Specialized Hardware to the Surgical Simulation -- 2.3 Deploying WebRTC Integrated Surgical Simulation in the Cloud -- 3 Experiment and Results -- 3.1 Wireless Performance -- 3.2 Wired Performance -- 3.3 Hardware Lag Measurement -- 4 Discussion -- 5

Conclusion -- References -- Building VR Learning Material as Scaffolding for Design Students to Propose Home Appliances Shape Ideas -- 1 Research Background -- 2 Literature Review -- 2.1 Scaffolding Theory and Zone of Proximal Development -- 2.2 Spatial Ability -- 2.3 VR Design Applications and Education -- 3 Method -- 3.1 Experimental Steps -- 3.2 Course Material Production Processes -- 3.3 Course Material Testing -- 3.4 Curriculum Design and Planning -- 4 Research Results -- 4.1 VR Teaching Outcomes -- 4.2 Scaffolding Removal.
4.3 Acceptability Evaluation -- 4.4 VR Teaching Feedback -- 5 Conclusion -- 5.1 The Usefulness of VR Three-Dimensional Spaces -- 5.2 VR Teaching Effects -- 5.3 Future Recommendations -- References -- Digital Interactive Learning Ecosystems in Metaverse -- 1 Learning Ecosystem and Its Digitalization -- 1.1 Digital Learning Ecosystem and Its New Stakeholders -- 1.2 The Layout of Education in Metaverse and Its Impact on Learning Ecology -- 2 Metaverse Learning Ecology: Digital Narrative Tools and Methods -- 2.1 New Stakeholders in Digital Learning Ecosystem -- 2.2 New Biotic Factors and "Between Biotic and Abiotic Factors" -- 3 Discussion: The Development Path of Online Learning Ecology and Education in Metaverse -- 4 Conclusion -- References -- 3D Geography Course Using AR: The Case of the Map of Greece -- 1 Introduction -- 2 Background -- 2.1 Puzzle Games -- 2.2 Geography Games -- 2.3 Learning Styles -- 3 The AR Geography Game -- 3.1 Development Phase -- 3.2 The Game -- 4 Experimental Setup -- 5 Results and Discussion -- 5.1 Pre-test, Post-test Comparison -- 5.2 Game Elements Liking -- 5.3 Gameplay -- 6 Conclusion and Future Work -- References -- Educational Effect of Molecular Dynamics Simulation in a Smartphone Virtual Reality System -- 1 Introduction -- 2 Lecture Settings and Requirements -- 3 Hardware -- 4 Implementation -- 4.1 Hand Tracking -- 4.2 Molecular Dynamics Engine -- 4.3 Interaction Between Molecule and Hand Model -- 4.4 Computational Acceleration by Parameter Tuning -- 4.5 AR/VR Switching Function -- 5 On-Site Lectures -- 5.1 Contents -- 5.2 Evaluation Method -- 6 Results and Discussion -- 6.1 Lecture Using VR-MD -- 6.2 Questionnaires -- 7 Conclusion -- References -- The Effect of Changes in the Environment in a Virtual Space on Learning Effectiveness*-4pt -- 1 Introduction -- 1.1 Background -- 1.2 Purpose -- 2 Related Work.
2.1 Education Between Remote Locations -- 2.2 Effects of the Surrounding Environment -- 2.3 Psychological Impact of Color -- 3 Design and Implementation -- 3.1 System Overview -- 3.2 Comprehension Evaluation System for Video Lectures on a Virtual Environment -- 3.3 Memory Evaluation System for Word Lists on a Virtual Environment -- 4 Experiment 1 -- 5 Experiment 2 -- 5.1 Experiment 2.1 -- 5.2 Experiment 2.2 -- 6 Conclusion and Future Prospects -- 6.1 Conclusion -- 6.2 Future Prospects -- References -- Perceived Effects of Mixed Reality in Distance Learning for the Mining Education Sector -- 1 Introduction -- 2 The MiReBooks Project -- 2.1 Mixed Reality in Education -- 2.2 Developed VR-Tools -- 3 Research Design -- 3.1 Online Questionnaire -- 4 Results -- 4.1 Answers to the Closed Questions -- 4.2 Answers to the Open Questions -- 5 Discussion -- 5.1 Limitations -- 6 Conclusion and Outlook -- References -- Developing an Augmented Reality-Based Interactive Learning System with Real-Time Location and Motion Tracking -- 1 Introduction -- 2 Methods -- 2.1 System Design and Development -- 2.2 System Deployment and Experiment Setup -- 3 Results -- 3.1 Demographics on the Participants -- 3.2 Learning Performance -- 3.3 System Usability Scale (SUS) -- 3.4 Real-Time Tracking Data -- 4

Discussion -- 5 Conclusion -- References -- Study on VR Science Educational Games Based on Participatory Design and Flow Theory -- 1 Introduction -- 2 PD and Educational Games -- 2.1 PD and Related Applications -- 2.2 Science Educational Games and Related Applications -- 3 Participatory Educational Game Design Practices -- 3.1 Concept Generation -- 3.2 Concept Refining -- 3.3 Prototype Building -- 4 Educational Game Testing and Research -- 4.1 PD Method Validity Test -- 4.2 MF Test -- 5 Data Analysis and Statistics -- 5.1 Participative Test Result Analysis.
5.2 Analysis of MF Test Results.

Sommario/riassunto

This two-volume set of LCT 2023, constitutes the refereed proceedings of the 10th International Conference on Learning and Collaboration Technologies, LCT 2023, held as Part of the 24th International Conference, HCI International 2023, which took place in July 2023 in Copenhagen, Denmark. The total of 1578 papers and 396 posters included in the HCII 2023 proceedings volumes was carefully reviewed and selected from 7472 submissions. The papers of LCT 2022 Part II are organized in topical sections named: XR for Learning and Education; Learning with Robots; Virtual, Blended and Hybrid Learning.