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Table of contents

Preface	13
THEME 1	15
Teaching critical media/digital literacy in multicultural societies	
Content and Dynamics of Gender-Specific Behaviours in the Digital Educational Environment <i>Jeļena Badjanova, Dzintra Iliško, Svetlana Ignatjeva, Margarita Nesterova, Mariana Petrova</i>	17
Digital Storytelling, Video making and Media Education: an Experience of University Teaching <i>Filippo Bruni</i>	21
Utilising a Shared Critical Media Literacy Intervention to Challenge Stereotypical Representations of Minorities in the Classroom <i>Maria Campbell, Peter Stevenson</i>	25
From Predictive Algorithms to Eudaimonia. A Critical Review on Legal, Ethical and Pedagogical Issues in Educational Data Science <i>Claudia Cavicchioli, Laura Menichetti</i>	29
Digital History, Teaching and Social Inclusion in the United States Experience <i>Monica Dati</i>	33
Digital Artifacts as Cultural Machines: for an Intersectional Critical Analysis of the Relationship between Power and Technology <i>Martina De Castro, Umberto Zona, Fabio Bocci</i>	37
DigComp as a Theoretical Framework for Media Education. Issues and Implications <i>Andrea Garavaglia, Livia Petti, Serena Triacca</i>	41
Not Just Fun and Games: The Status-quo of Commercial Games in Teaching <i>Ida Kathrine Hammeleff Jørgensen, Michael S. Debus</i>	45
Learners' Spiritual Well-Being During the Pandemic in the Digital Learning Environment <i>Dzintra Iliško, Jeļena Badjanova, Svetlana Ignatjeva, Diāna Dūna</i>	49
Learning and Teaching Critical Skills: An Introduction to the Common Framework of Reference for Intercultural Digital Literacies <i>Ilaria Moschini, Sandra Petroni</i>	53

Developing Computational Thinking Among Preservice Teachers <i>Marta Peracaula-Bosch, Juan González-Martínez</i>	57
Digital Competence and Critical Thinking in the Citizenship Education. National Investigation and Didactic Perspectives <i>Loredana Perla, Laura Sara Agrati, Viviana Vinci, Alessia Scarinci</i>	61
Art and Citizenship: Intercultural and Civic Soft Skills in the School Projects of the Triennial Plan of Arts <i>Alessia Rosa, Gabriella Taddeo</i>	65
About University Teachers' Transmedia Profile <i>Anna Sánchez-Caballé, Juan González-Martínez</i>	69
Educating Digital Competence in Early Childhood. A Possible Model of Action <i>Maria Grazia Simone</i>	73
Digital Contexts Mediated Communication Between Teachers and Parents: a Transversal Research in a Multicultural School <i>Alessandro Soriani, Elena Pacetti</i>	77
Virtual Exchange in Teacher Education: New Challenges to Address Social Injustice and Foster Gender Equality <i>Roberta Trapè</i>	81
THEME 2	85
Decommodifying teacher (digital) education	
The Bridge Across, Not Over the Digital 'Stream': a Critical Digital Media Course for Pre-service Teachers <i>Pinar Ayyildiz</i>	87
Developing Professional Digital Competence in Collaborative Partnerships Between Teachers and Teacher Educators <i>Stine Brynildsen, Halvdan Haugsbakken, Susanne Kjekshus Koch</i>	91
Teachers' Experiences of Developing Professional Digital Competence by Participating at TeachMeets <i>Stine Brynildsen, Ilka Nagel, Irina Engeness</i>	95
Quality Culture and Knowledge Management: Learning Analytics to Improve Education and Training Services <i>Giovanna Del Gobbo, Glenda Galeotti</i>	99

Analytic Philosophy for a decommodified teacher training to coding <i>Margherita Di Stasio, Beatrice Donati, Matteo Bianchini</i>	103
Increased Legalisation and Reconfiguration of Education Into an Instrumental Commodity State? New Challenges for Nordic Teachers <i>Eyvind Elstad</i>	107
Dialectical Method and Theatre for the Training of Teachers in Citizenship Education <i>Francesco Fabbro, Colin Isham</i>	111
Digital Learning Culture at School: How to Promote it (also) Without Using Technology <i>Laura Carlotta Foschi, Graziano Cecchinato</i>	115
Challenges of Parents During Online Learning of Children in the Pandemic Period <i>Rita Loloci</i>	119
Challenges of Students' Art Education in Digital Environment at the Faculties of Teacher Education in Croatia <i>Svetlana Novaković, Jelena Blašković, Zlata Tomljenović</i>	123
First Year University Students Digital Competence Self-Perception <i>Anna Sánchez-Caballé, Mercè Gisbert-Cervera, Francesc Marc Esteve-Mon</i>	127
Student Teachers' Pedagogical Reasoning for Effective Technology Integration <i>Ottavia Trevisan, Marina De Rossi</i>	131
SYMPOSIUM – Digital Technology, Education Policy and the Commodification of Schools <i>Gianna Cappello, Juliana Elisa Raffaghelli, Elena Gabbi (discussant Maria Ranieri)</i>	135
THEME 3 Digital technology and equity for inclusive teaching	141
The Local Context and the Curriculum. An Identity for the Small and Rural Schools <i>Alessandra Anichini, Giuseppina Cannella, Rudi Bartolini</i>	143
Non-Believers in School: Beyond the Social Stigma with Media Education and Critical Thinking <i>Gianfranco Bandini</i>	147

The Bridge21 Framework: Impact on Teachers and Implications for Equitable, Inclusive Classrooms <i>Aibhín Bray, Jake Byrne, Brendan Tangney, Elizabeth Oldham</i>	151
Case Study: Analysing Twitter Sentiment in the Context of Anti-Bullying Campaign #Neklusē (Don't be silent!) in Latvia <i>Linda Curika, Zanda Rubene</i>	155
Innovative Approaches for the Inclusion of Each and Every One <i>Giuseppe Filippo Dettori, Barbara Lettieri</i>	159
Analytic Philosophy for a Decommodified Teacher Training to Coding <i>Margherita Di Stasio, Beatrice Donati, Beatrice Donati</i>	163
Self-Assessment of Digital Competence at the End of University Studies: Outgoing Profile of Prospective Teachers <i>Floriana Falcinelli, Mirko Susta</i>	167
Technology-Enhanced Learning as a Driver of Inclusive Approaches: A Cross-Case Analysis of Teacher Training Programmes <i>Laura Fedeli</i>	171
Toward a Broader Concept of Risky Play: Methods and Tools to Encourage Risk-Taking in ECEC and Primary School Context <i>Daniela Frison, Laura Menichetti</i>	175
Applying the Bifocal Modeling Framework in the Italian School System: "Making-Science" with Special Needs Students <i>Tamar Fuhrmann, Lorenzo Guasti, Jessica Niewint, Livia Macedo</i>	179
Reading Comprehension and Technologies for Students with Deafness <i>Cristina Gaggioli, Moira Sannipoli</i>	183
Inclusive Designing Through Educational Robotics. A Training Course for Pre-Service Support Teachers <i>Francesca Gratani, Lorella Giannandrea, Alessandra Renieri</i>	187
Presentations of Persons with Disabilities in Norwegian Textbooks for Primary School. A Contribution to an Inclusive School? <i>Marte Herrebrøden, Magne Skibsted Jensen, Rune Andreassen</i>	191
Digital Technology and Equity for Inclusive Teaching <i>Douha Jemai</i>	195
Before and After the Lockdown: Analysis of the Perceptions of a Group of Students Involved in an Educational Robotics Project <i>Beatrice Miotti, Daniela Bagattini</i>	199

Moving Forwards: Using Search Tools on The Classroom <i>Emiliana Murgia, Monica Landoni, Theo Huibers, Maria Soledad Pera</i>	203
Teachers' Perceptions of their Technology Skills their use of Technology in the Classroom, and the Factors that Influence Use <i>Moya O'Brien, Aisling Costello, Eileen Winter, Grainne Hickey</i>	207
Can Digital Education Provide an Effective Bridge Between Formal and Non-Formal Education? Experiences from Teachers and Youth Workers <i>Connie O'Regan, Bernadine Brady, Cornelia Connolly, Cliona Murray, Paul Flynn, Pat Dolan, Gerry Mac Ruairc</i>	211
Pleiade: A Playful and Participatory Approach to Teacher Professional Development on Social Inclusion <i>Donatella Persico, Marcello Passarelli, Francesca Dagnino, Flavio Manganello, Francesca Pozzi, Andrea Ceregini</i>	215
Strategies for Integrating Students with Disabilities in Presence and Distance Learning <i>Natasha Poroçani, Manjola Lumani Zaçellari</i>	219
On the relationship between ethics and simulations in teacher education in Israel <i>Amalia Ran</i>	223
Build to learn <i>Margherita Maria Sacco, Elena Liliana Vitti, Alberto Parola</i>	227
Educational Technologies, Social and Emotional Learning and School <i>Alessia Signorelli</i>	231
Making Sense of Collaborative Learning Practices in the ICTPED MOOC Ammar B. Singh	235
Pediatric Chronic Illness and School Experience: Technologies for Promoting Hospital-School Link <i>Lucrezia Tomberli, Andrea Smorti, Laura Vagnoli, Elena Amore, Francesca Maffei, Enrica Ciucci</i>	239
Teacher's Thinking About Sensory Impairments and Technologies: An Exploratory Study Within a Specialisation Course <i>Viviana Vinci</i>	243

Technology-Enhanced Learning as a Driver of Inclusive Approaches: A Cross-Case Analysis of Teacher Training Programmes

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Keywords: Universal Design for Learning, Special Needs Teacher Training, Technology-Enhanced Learning, Instructional Design, Inclusion.

1. Introduction

A cross-case study is presented to discuss the dimensions of efficacy of the Information and Communication Technology course (henceforth referred to as ICT) run within the “Special Needs Teacher Training Specialization Course” developed by the University of Macerata (Italy) in the academic years 2016-2017, 2018-2019 and 2019-2020. Specifically, the focus of the analysis will be the role of digital technology and the design choices applied by the course professor in the different editions of the course in terms of integration of the Universal Design for Learning (UDL) construct.

An analytical focus is dedicated to technology-enhanced learning (TEL) and the last edition of the ICT course where trainees (Primary School teachers) had to experience their learning path entirely online. The study will underline how the online teaching/learning ecosystem represented an opportunity to approach, practice and activate meta-reflection processes on UDL learning significance.

2. Theoretical framework

In order to make technology a catalyst for change (Laurillard, 2009) research in the areas of higher education and teacher training is required to explore how inclusive approaches, whose objectives are nowadays even more hard to reach and whose practices need an additional effort for teachers and students (due to the social distancing measures required by the COVID19 spread), can take advantage of the opportunity of TEL environments (Evmenova, 2018; Rose & Meyer, 2002). As underlined by Passey (2019) “There is often lack of or inappropriate use of theoretical underpinnings in research studies on educational technologies” (p.973) and the complexity of the theoretical background of TEL is to be analysed taking into account the different areas of scholarship (discovery, teaching, integration, application).

The connection between technology and the UDL construct has been widely explored (CAST, 2018; Hall, Meyer, & Rose, 2012; King-Sears, 2009) and can receive additional inputs by theoretical and applied studies on the way it can be modeled in online courses (Evmenova, 2018; Hamlin, 2015; Morra & Reynolds, 2010).

The UDL conceptual framework aims at offering teaching/learning principles which can satisfy all students’ needs by making teachers/educators able to design activity plans where equal opportunities for each student is the priority. TEL environments can create learning ecologies where digital technology can help offer a flexible learning approach able to overcome information access barriers and learning obstacles. In order to design, implement and manage online TEL environments, which apply the UDL approach and principles and act as a modelling learning strategy for trainee teachers as well, it is needed to identify what drivers can be exploited in terms of motivation, engagement and learning significance.

3. Methodological design

3.1. Course structure

The whole ICT course, run within the 2019/2020 “Special Needs Teacher Training Specialization Course”, was structured to be developed online due to the restrictions of the COVID19 pandemic emergency. Specifically, the ICT teaching/learning offer was organized around two main environments, which satisfied both the synchronous and asynchronous communication and interaction processes, a video-conferencing tool (TEAMS) and a Learning Management System (LMS OLAT). Differently from previous editions technology was, this time, not only the focus of the disciplinary path, but it represented the primary and only teaching/learning space-time. Live sessions with the teacher had the main aim to present the objectives of each class and take advantage of the real time interaction to offer learners the opportunity to gradually grow as a learning group, thanks to synchronous small group work and collective discussions. Moreover, trainee teachers had the opportunity to enhance their learning experience in an augmented space-time offered by the LMS which played the function of course content (video, audio, textual supporting study resources) and activity aggregator. Learners could, in fact, find sequential modules, each with different inputs (discussion activities, peer assessment/review and collaborative writing).

3.2. Research methodology

A cross-case analysis (Yin, 2014) was carried out to focus on the drivers of efficacy of online learning. Specifically a content analysis (Bardin, 1977) was applied to narrative answers to an initial questionnaire that trainee teachers were invited to compile before starting the ICT course and to the activity plans they produced at the end of the course as part of a final course output. Participant observation was an additional data gathering tool which was used to collect inputs on learners’ approach towards technology, group work and inclusion. The research questions aim at highlighting how a full online teaching/learning process has contributed in acquiring a UDL perspective during the course activities and how this perspective was reified in the final artifacts (activity plan, multimedia resource, presentation) that learners produced in small groups.

4. Conclusions

If it is true that inclusion, at the beginning of the ICT course, was a widely known concept for trainee teachers in its general assumptions, as underlined by respondents’ statements in the initial questionnaire, the same question when addressed the connection with technology highlighted the respondents’ difficulty to focus their answers. When asked to provide their opinion about their understanding and their perceptions of what inclusion means for the group class and for the teacher who manage the educational/didactical process they showed an awareness of theoretical methods, but did not provide any discussion on how technology could affect any of the principles of UDL.

The hands-on approach, which characterized the whole course duration (75 hours), and the deep integration with a TEL environment showed how trainee teachers, not only had the chance to appreciate UDL principles in the organization of the course content, but also approach and apply them to start designing instructional activities. The final exam of the course required learners to collaboratively produce three artifacts: a lesson plan, a multimedia resource and a presentation of their work in which each group was expected to address the inclusive aspects and the modalities they were applied in the design process. The analysis of those documents/resources highlights how the synchronous and asynchronous communication and interaction tools experimented in the online course had a role in guiding trainee teachers in reaching the due competences for a meaningful implementation of technology in UDL based teaching/learning paths.

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