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Gabriela Grosseck

Carmen Holotescu

Open Educational Resources in Romania

Good practices

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Timișoara
2019

EUROIN

EUROPEAN INNOVATION AND INCLUSION THROUGH OPEN EDUCATION: AN INTERDISCIPLINARY APPROACH

Gabriela Grosseck and Carmen Holotescu

OPEN EDUCATIONAL RESOURCES IN ROMANIA
GOOD PRACTICES

Timișoara

2019

Open Educational Resources in Romania. Good Practices.

Gabriela Grosseck and Carmen Holotescu

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ABOUT THE PROJECT

In Romanian universities, European Studies are traditionally focused on social and political sciences, economics, law or history, as well as international relations. Lately, EU aspects have increasingly been included in study areas that are not specifically related to the EU, and tailor-made courses on specific EU issues have been introduced that are relevant for graduates in their professional life.

Unfortunately, only a few interdisciplinary modules have been developed over the last few years in Romanian universities. Therefore, West University of Timisoara (WUT) through the project lifespan looked to the best ways of delivering the European dimension in all study programmes, by involving the use of new technologies and innovative teaching methods.

Thus, the general aim of the project was to integrate a short teaching programme about digital literacy (DL) into different European contexts, into curricula of different specialisations within WUT. The proposed module adopted innovative teaching methodologies based on Open Educational Resources (OERs), Open Educational Practices (OEP), such as flipped classroom and MOOCs.

More details can be found on the project website: <http://euroin.mystrikingly.com/>

PREFACE

The purpose of this textbook is to provide an overview and good practices of Open Education and Open Educational Resources (OERs) policies and initiatives in Romania.

This assessment examines the development and the environment of the policies, the opportunities and barriers of policy development, the role and the capacity of key and potential actors in this space. Likewise, there are highlighted initiatives and projects at national and local level and their impact, stressing that embedding Open Educational Resources in education increases both the efficiency and fairness of education and training.

In the last section of this textbook, the authors propose a set of recommendations in order to facilitate the openness of education in the country, aiming to enable stakeholders to make more informed strategic decisions to promote Open Educational Resources and Massive Open Online Courses integration in all forms of education. The recommendations are organized on three levels: teachers, institutions and policy makers.

AUTHOR INFORMATION

Gabriela GROSSECK is Associate Professor in the Department of Psychology at the West University of Timisoara, Romania. She has particular expertise in ICT in education (teaching, learning and researching), a solid experience in students'/teachers' training both f2f and online environments. For almost a decade she was an editor-in-chief of Romanian Journal of Social Informatics. An author of many articles in the field of e-learning 2.0, a speaker at different international events, workshop organizer and member of editorial committees (journals and conferences). Her research interests cover main aspects of open education, OERs/OEPs and MOOCs, Web 2.0 tools and technologies in higher education, collaborative aspects and proper use of social media (by teachers, students, researchers, policy makers and other educational actors), digital literacy and digital storytelling.

Professor dr. **CARMEN HOLOTESCU** is the Dean of the Faculty of Engineering, also the Director of the Center for Open Education and Blockchain, at "Ioan Slavici" University of Timisoara, Romania. She has conducted innovative research over the last 18 years, in Open Education (OE), conceiving and building Social Media learning spaces and integrating emerging educational technologies, OERs and MOOCs in formal/informal learning settings. She has also been involved in many European projects. She is a Certified Online Instructor of University of Maryland University College, USA, acting as Online Tutor for 12 years, between 2002-2013. She wrote over 100 articles and book chapters related to eLearning/Blended Learning/Open Learning, Social Media, OERs and MOOCs, Blockchain, having more than 1400 citations. Carmen Holotescu is also the organizer and chair of many national and international conferences, workshops and webinars on OE and Blockchain.

CASE OVERVIEW

STATE PROFILE

Romania is a country located at the intersection of Central and Southeastern Europe, north of the Balkan Peninsula, on the Lower Danube, within and outside the Carpathian arch, bordering on the Black Sea. Almost all the Danube Delta is located within its territory. It shares borders with Hungary, Serbia, Ukraine, Republic of Moldova and Bulgaria. Romania



has the 9th largest territory and the 7th largest population (with 19.50 million resident population) among the European Union (EU) member states. Its capital and largest city is Bucharest with more than 2 million people.

With the fall of the Iron Curtain in 1989, Romania started a series of political and economic reforms. Thus, since December 1989, Romania has pursued a policy of strengthening relations with the West in general, more specifically with the United States and the EU. It joined the North Atlantic Treaty Organization (NATO) on 29 March 2004 and the EU on 1 January 2007. Between January-June 2019 Romania held the presidency of the Council of the European Union (<https://www.romania2019.eu>).

GENERAL SITUATION OF EDUCATIONAL DEVELOPMENT

Since the Romanian Revolution of 1989, the Romanian educational system has been in a continuous process of reform that has received mixed criticism. Romania's education system is centralized, both horizontally and vertically. All key responsibilities for education strategy, policy and delivery are concentrated within the Ministry of National Education (www.edu.ro). The 2011 Education Law defined the current organization and operation of the education system and it consists of the following levels: early childhood (0-6 years), primary education, including the preparatory class and grades I-IV, secondary education (V-XII/XIII classes, general, vocational and technological), vocational education (lasting 6 months to 2 years), pre-university tertiary education, including post-secondary education. There also exists a semi-legal, informal private tutoring system used mostly during secondary school, which has prospered during the Communist regime.



Higher education is aligned with the European Higher Education Area, the Bologna Agreement. As a result, most Bachelor's programs take 3 years to complete. However, some programs last longer – for example, some technical fields, medicine, law and architecture. Master's programs take 2 years beyond the Bachelor's degree. Master's programs are a prerequisite for admission to Ph.D. programs. Romania has a large higher education sector with 54 public universities and approximately 40 accredited private universities. Among them, "Alexandru Ioan Cuza" University of Iași, Babeș-Bolyai University of Cluj-Napoca, University of Bucharest, and West University of Timișoara have been included in the QS World University Rankings' top 800 and Shanghai Top Rankings.

Despite the fact that “the education system does not sufficiently prepare people for employment and better social integration” (EC COMM SWD(2019), 1022) there is a particular sector where Romania has a fastest-growing rate, namely - the Information and Communication Technology (ICT) sector. Romania is the leader in Europe, and sixth in the world, in terms of the number of certified ICT specialists, with density rates per 1,000 inhabitants greater than in the US or Russia. There are almost 100,000 specialists in the ICT sector. Approximately 5,000 of the 30,000 engineers graduating every year in Romania are trained in ICT. According to Microsoft (who acquired since 2003 the Romanian Antivirus Technology Bitdefender), Romania has a clear potential in ICT, an area in which Romanian students, researchers and entrepreneurs excel. Its western-oriented culture and the high educational degree of its youth bring Romania forward as a huge potential market (the second largest software producer in Eastern Europe). In terms of ICT outsourcing services Romania is ranked in the third place worldwide successfully challenging India.

Currently Romania controls 5% of the offshore software development market and is the third leading country (after India and China) among software exporters.

However, despite all the scientific achievements through time, there is a growing gap between how Romania perceives itself and how it ranks in research and innovation compared to other European countries. On the one hand, Romania is home to new cutting-edge research infrastructure projects (such as the large Extreme Light Infrastructure - Nuclear Physics infrastructure project, at Măgurele or the International Center for Advanced Studies on River Delta Sea Systems at Tulcea, a pan-European research infrastructure dedicated to interdisciplinary studies of large-river systems), and, on the other hand, it is a *modest innovator*, as the Communication from the Commission to the European Parliament (2019) notes. At the beginning of 2019, Romania still ranks on the last place among the 28 EU member states for the spending on research and development (RD), and is one of the few European countries that reduced their RD spending during the last decade. More worryingly, Romania's innovation performance has deteriorated since 2011 in every region, including the most dynamic ones.

CURRENT SITUATION OF OER

Over the last two decades the impact of technology can be seen in every field of education. More and more emerging technologies are shaping our practices, emphasizing on the idea of openness in education, Open Educational Resources (OERs), Open Education Practices (OEPs) or Massive Open Online Courses (MOOCs) have already made their headlines in education.

According to Inamorato dos Santos, Punie and Muñoz (2016), Open Education (OE) is an umbrella term which implies different understandings through time. More specifically, they refer to OE as a “mode of realizing education, often enabled by digital technologies, aiming to widen access and participation to everyone, by removing barriers and making learning accessible, abundant, and customizable for all. It offers multiple ways of teaching and learning, building and sharing knowledge, as well as a variety of access routes to formal and non-formal education, bridging them”. In a nutshell, OE means access to content, courses, support, assessment and certification in ways that are flexible, and accommodate diverse needs. Barriers, as regards, for example entry or cost, are reduced or eliminated.

There are two key concepts of Open Education: *Open Educational Resources* and *Massive Open Online Courses*.

In 2002, at the “Forum on the Impact of Open Courseware for Higher Education in Developing Countries”, UNESCO brought for the first time to the public attention the term of *Open Educational Resources*. The OERs were defined as any teaching, learning and research materials that are freely and openly available to be used, shared, combined, adapted or expanded by teachers, educators, students and independent learners, without an accompanying need to pay royalties or license fees (UNESCO, 2002). In 2019, UNESCO

proposed an updated definition of OERs: Open Educational Resources are teaching, learning and research materials in any medium that may be composed of copyrightable materials released under an open license, materials not protected by copyright, materials for which copyright protection has expired, or a combination of the foregoing.

Open Educational Practices are closely related to OERs, and are defined as a whole “range of practices around the creation, use and management of OERs with the intent to improve quality and innovate education” (OPAL, 2011). A broad perspective of the notion of “openness” can be found in Conole (2013), “covering each major phase of the education life cycle, namely, design, delivery, evaluation and research”.

A decade ago, education was challenged by a new paradigm, the *Massive Open Online Courses*, which have brought innovation at all levels, aiming to respond to the most pressing learning needs, generated by the new development policies and the rapid evolution of technology.

It has already been noticed in the literature that every letter in the MOOC acronym is negotiable. Therefore, the MOOC definition embraced by the majority of scholars and researchers and adopted as an operational definition by the authors is the one proposed by the partners of three important European projects (HOME¹, ECO project², OpenupEd³) as: *Massive Open Online Courses* are “courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free” (OpenupEd, 2015).

As we shall see later in the chapter, in Romania the paradigm of OE has been strongly promoted in the last 5 years by individuals and civil society organizations. Their proposals for action for opening up education did/does not require major legislative changes or a new

¹ <https://home.eadtu.eu>

² <http://project.ecolearning.eu>

³ <https://www.openuped.eu/>

"reform", but are compatible with elements of the current strategic programs. However, it is necessary to re-prioritize the construction of specific projects.

INFRASTRUCTURE

With the information and communications technology (ICT) sector accounting for 6% of the Romanian GDP in 2016, the country ranks fourth among 28 European Union (EU) countries regarding these criteria, as specified by GISWatch Report (2016). There are two major hubs in Bucharest and Cluj, but important ICT investments are registered in other cities.

With a download speed of 21.8 Mbps, Romania has dropped from fifth to 37th, in a ranking of internet speeds around the world in 2019⁴. In 2018, the average download speed was 38.6 Mbps, and 21.33 Mbps in 2017 (18th position).

There were 14,387,477 Internet users in December 2018, representing 73.8% of population, according to Internet World Stats⁵. This means an important increase comparing with the penetration of 62.8% in 2017 and the doubling in 6 years of the percentage of 39.2% reported in 2012.

Digital inclusion has been a high priority on the Romanian ICT and Education Ministries agenda. Developing the ICT infrastructure and internet connection for the Romanian education institutions, training teachers, developing quality online resources and providing access to online learning spaces were the core goals of the following major programs (further information on Holotescu, 2012):

- a) *EUR200 Program* was launched in 2004, and by 2011, it helped 200 thousand students from low-income families purchase computers (GISWatch, 2011).
- b) *SEI Program* (Sistem Educational Informatizat / IT-Based Educational System⁶): carried out during 2001-2009, the project was implemented by the Ministry of Education in

⁴ Cable (2019). Worldwide Broadband Speed League. <https://www.cable.co.uk/broadband/speed/worldwide-speed-league/>.

⁵ Internet World Stats, Usage and Population Statistics. Retrieved from <https://www.internetworldstats.com/europa.htm>.

⁶ IT Based Educational System ("SEI"), <http://portal.edu.ro/index.php/articles/c11/en>.

partnership with Siveco (<http://siveco.ro>), a company specialized in eLearning, HP Romania, and IBM Romania, under the Romanian Government Strategy in the field of information and computer-aided education. It has equipped all the Romanian schools with 15,000 laboratories with 10-25 computers each, with the latest technology and with internet connection, trained teachers and developed digital lessons. In 2012 the number of students per school computer was 4.6, better than the worldwide average value (OECD, 2015).

SEI covers the following major activities in the education sector:

- *Education*. AeL (from Advanced eLearning) is the core of the SEI program, offering support for teaching and learning, testing and evaluation, content management, and training programs for more than 140,000 teachers;
- *School management and educational resources management*;
- *IT support for national exams* - admission to colleges and professional schools (ADLIC), Baccalaureate;
- *Creating National Education Database*;
- *Communication and collaboration* on a national education portal (<http://www.portal.edu.ro>), forums, newsletters, training sessions, educational initiatives.

Users and beneficiaries (almost 7 million) are situated at all levels of the education system: local, regional and national level, being teachers, students, parents, managers, operators, policy makers and the general public.

c) *RoEduNet* (Romanian National Research and Education Network, <http://www.roedu.net>): was initiated in 1993 and represents the Romania's research and education network, that connects universities, schools, research centers and cultural institutions across the country.

d) *Knowledge Economy Project (KEP)*: KEP was implemented by the Ministry of Communication and Informational Society in partnership with the Ministry of Education, between 2005-2013, and was funded by the World Bank. During the project 255 rural/disadvantaged communities from 38 counties, addressing over 1,8 million people

(8% of Romania's population), got internet access, and supported small business development and content creation. The schools of these communities were the beneficiaries of ICT infrastructure, training of teachers, and inclusion of new technologies in education. The project was awarded with the European Commission's Inclusion medal in 2008, in the Geographical Inclusion section.

At the Central and Eastern Europe Innovation Roundtable event (21 January 2019), organized in Warsaw, the Secretary of the State with the Ministry of Communications and Information Society (MCSI) said that "the development of the ICT sector is one of the Romanian government's priorities"⁷, the focus being placed on the implementation of 5G technologies, cloud services, Internet of Things (IoT) and Artificial Intelligence (AI). Moreover, in the context of Romania's Presidency of the Council of the EU, the Digital Assembly 2019⁸ was organized in partnership with the European Commission and MCSI (Ministry of Communication and Information Society), in June 2019, in Bucharest. The event brought together high-level representatives and stakeholders from EU member states, who discussed European digital policies and the implications of the latest technological developments.

POLICY

The most important initiatives for policies at national level are mentioned below (Holotescu, 2012; Holotescu & Grosseck, 2018):

- The first proposals at government level related to OERs, Web2.0, collaborative platforms for learning were formulated in a report of the Knowledge based Economy Project (KEP) (Holotescu, 2007); since then, only a few were adopted in official documents.

⁷ Comunicat de presă MCSI (23 January 2019). *Participarea secretarului de stat Ionuț-Valeriu Andrei la Central and Eastern Europe Innovation Roundtable*, <https://www.comunicatii.gov.ro/participarea-secretarului-de-stat-ionut-valeriu-andrei-la-central-and-eastern-europe-innovation-roundtable/>.

⁸ <https://ec.europa.eu/digital-single-market/en/events/digital-assembly-2019>

- The National Strategy on Digital Agenda for Romania 2020 (February 2015) considers the usage of OERs and Web 2.0 in formal and life-long learning education as strategic lines of development for ICT in education⁹.
- In the spirit of this agenda, the government program published in 2017 has mentioned the implementation of an e-learning platform and online repositories. In November that year, a project to implement online repositories for OERs was launched at the level of the counties inspectorates, but the products miss a coordination and quality criteria¹⁰. At the end of 2018, almost all County School Inspectorates (40 out of the 42) had OERs sections on their official websites and have implemented procedures to collect and publish OERs from teachers (over 5000 resources were submitted by more than 2000 teachers).
- Under the CRED project (CRED: Relevant Curriculum, Open Education for all, <http://educred.ro>, 2017-2021), the most ambitious project of MEN in the past 10 years, with European funds (see details later), the MEN will deliver training on digital skills and Open Educational Resources for 55,000 teachers, in addition to creating at least 7,200 new OERs.
- Since the autumn of 2014, digital textbooks for pre-university education are freely available for download from a section of the Ministry of Education site (<http://manuale.edu.ro>). However, the e-books are not published under open licenses and do not use open formats. One very good aspect is that for the first-time pupils with hearing disabilities have digital textbooks tailored to their needs. Also, there are digital textbooks for 26 disciplines in 9 languages of national minorities. The textbooks law was adopted in the spring of 2019, specifying that the digital textbooks become OERs¹¹.
- The Educated Romania (2016-2019) is a project of the Romanian Presidency, conducting a broad public debate on education and research for a set of policies, for resettling Romanian society around values and the development of a culture of success based on performance, merit, work and professionalism (<http://www.romaniaeducata.eu>).

⁹ Digital Agenda for Romania 2014-2020, <https://www.comunicatii.gov.ro/agenda-digitala-pentru-romania-2020/>

¹⁰ Nota MEN (2017 4 November). *Rețele de resurse educaționale deschise, înființate la nivelul inspectoratelor școlare județene*, <http://edu.ro/retea-de-resurse-educationale-deschise-la-nivelul-inspectoratelor-scolare-judetene>

¹¹ Senatul României (22 October 2018). *Propunere legislativă. Legea manualului școlar*, <https://www.senat.ro/Legis/Lista.aspx?cod=21761>.

OPEN LICENSE

The Romanian Law on Copyright and Neighboring Rights 8/1996 was adopted in March 1996, being further modified several times, last time in 2019, mainly to adapt it to the EU acquis communautaire¹². The law specifies the attributes of the Romanian Copyright Office (ORDA), established in 1997 (<http://www.orda.ro>).

The Article 35 of the Romanian Law on Copyright and Neighboring Rights specifies that the educational uses of (some parts of) a work already disclosed to the public are permitted without the author's consent and without payment of remuneration, being mandatory to mention the source and the author's name if it appears on the work used¹³:

- the use of isolated articles or brief excerpts from works in publications, television or radio broadcasts or sound or audiovisual recordings exclusively intended for teaching purposes and also the reproduction for teaching purposes, within the framework of public education or social welfare institutions, of isolated articles or brief extracts from works, to the extent justified by the intended purpose;
- the representation and execution of a work as part of the activities of educational institutions, exclusively for specific purposes and on condition that both the representation or execution and the public's access are free of charge.

Romania is also a member of the Berne Convention for the Protection of Literary and Artistic Works.

In September 2, 2008, the Creative Commons Romania version was launched with the help of ApTI - The Association for Technology and Internet¹⁴. This launch followed a period of prior work with iCommons, the entity that manages these licenses internationally, which involved the translation of licenses and their adaptation to the Romanian legal framework, a consultation period public, and finally the availability of these licenses in the country.

¹² Legea nr. 8/1996 privind dreptul de autor si drepturile conexe, <http://www.euroavocatura.ro/print2.php?print2=lege&idItem=1367>

¹³ Romanian Law on Copyright and Neighboring Rights (No. 8 of March 14, 1996), <http://www.legi-internet.ro/en/copyright.htm>

¹⁴ Creative Commons Romania, <http://creativecommons.org/licenses/by-sa/3.0/ro/>, <http://wiki.creativecommons.org/Romania>.

CURRICULUM AND TEACHING METHODOLOGY

According to EC (2017 and 2018) Romania is reforming its primary and secondary curriculum for the first time in almost two decades. In a nutshell here are some highlights drawn out from these documents:

- Plans are underway to train teachers to teach the modernized curriculum. According to the Federation of Education Unions, Romania is the only country in the EU in which unqualified teachers are officially part of the education system — there were 4,500 such teachers in 2017.
- Underachievement in basic skills (digital included) remains one of the highest in the EU. This is due to educational factors and equity challenges. According with OECD (2018), today 40% of Romanian 15-year-olds still lack the foundation skills needed for lifelong learning and productive employment.
- Access to quality mainstream education is particularly a challenge for students in rural areas and for Roma.
- Funding for education is very low. Romania spends the lowest amount on education in the EU at EUR 248 per capita, compared to an EU average of EUR 1,400, which can be seen as a reflection in the funding which in turn creates a new teacher shortage. Furthermore, teachers in Romania on average earn around EUR 300 per month, which is 10 times less than some of their European counterparts.
- Early school leaving risks remain high, with consequences for the labor market and for economic growth. According to EC (2018) Romania still has among the highest dropout rates in the EU in both primary and lower secondary education. The dropout rate at both levels has increased in the past decade.
- The labor market relevance of higher education is improving, but tertiary educational attainment is the lowest in the EU. Also, there is an urgent need to adopt measures addressing quality and labor market relevance.
- Efforts to introduce dual vocational education and training are underway. Dual VET was launched in 2017 and it is organized at the initiative of interested companies, based on a

partnership contract between schools and employers and individual training contracts for students.

- Roma inclusion in education remains a major challenge.
- Adult participation in learning remains low, despite the need for upskilling.

Practically, in Romania, at this moment we cannot talk about a consolidated curriculum for the development and exploitation of OERs. Efforts exist in the work of practitioners in the country, but as we have seen, it has only recently become a necessity to coagulate efforts by establishing the Open Educational Resources Coalition. However, there is a major preoccupation at the level of the Ministry of Education to introduce OERs in the curriculum.

In this respect, between 2017-2021, the Ministry of Education runs the “CRED: Relevant Curriculum, Open Education for all” project, financed by the ESF, to support the ongoing curricular reform, with a total budget of EUR 42 million.

The aim of the project is to facilitate the understanding of the new competence-based student-centered curriculum and to modernize teaching practices. The main objectives of the project are to review the curriculum for primary and secondary education and to create open educational resources.

According to DESI, in 2018 Romania ranks last out of the EU-28. Overall, the progress of the country from last year was slow and Romania did not manage to catch up. In most of the DESI dimensions, the digitisation of the economy and the digital skills in the population is low. Therefore, through the CRED project almost 55,000 teachers and 2,500 students will be trained in how to teach the new curriculum and how to adapt teaching and learning processes to the specific needs of students, including students at risk of dropping out. Also, 18 methodological guides on curricular areas will be elaborated to cover all the disciplines foreseen in the new framework plans for primary and secondary education, respectively 7,200 open educational resources for all disciplines, which are equally accessible to students and teachers from OERs centers, but also on an on-line e-learning platform.

According to MEN, CRED is necessary for the Romanian education system, as a new curriculum was approved for both primary and secondary education, the latter being under implementation. The project achieves all the necessary elements for training for a quality Open Education.

It is clear that we are dealing with a large-scale educational project, maybe the most important MEN project after 1989, with a huge stake: the chance, even the obligation to change the face of the Romanian education in four years by modernizing the teaching methods and the alignment of the education system in our country to those in the other EU states and beyond.

OUTCOMES

This section presents projects and initiatives related to OERs and MOOCs at regional and institutional levels. As mentioned under the Policy section, a national OERs repository is not implemented yet, only collections of OERs on the websites of the counties inspectorates. A repository is expected to be implemented by the CRED project until 2021.

There are several directories and projects for open resources maintained by online communities or private companies, most of them providing open access to digital resources for the pre-university level, without clearly specifying open licenses. Some of them are: Educational Forum of MEN (<http://forum.portal.edu.ro>), the Community of preuniversity teachers and the largest portal of educational resources from Romania (<http://didactic.ro>), Educational Online community of Mureş County (<http://educatie.inmures.ro>), Online community addressed to primary education sector of education (<https://kidibot.ro>), Digital education program funded by Orange (<http://digitaliada.ro>), Education through technology portal (<https://dacobots.com>), Platform for publishing educational digital textbooks (<http://livresq.com>).

Open educational journals are published on websites such as iTeach platform (<http://iteach.ro/experiencedidactice>), eLearning Romania platform (<http://www.elearning.ro>) or New Projects (<http://revista.newprojects.org>).

There are strong communities and events for open source, open access, open data and open licenses projects. Also many projects such as KEP, Moodle Romania, Didatec, iTeach, Sloop2desc and ActiveWatch have offered training and courses related to open educational pedagogies¹⁵.

In the following we mention several ongoing institutional and inter-institutional MOOC initiatives developed in the Romanian space, at different educational level and by different educational actors (Holotescu, Andone and Grosseck, 2016; Holotescu, 2017):

a) Platforms and MOOCs implemented by *academic institutions*:

- *UniCampus* (<http://unicampus.ro>). Started in April 2014 by University Politehnica Timisoara, Unicampus offers MOOCs on a version of Moodle platform based on cMOOCs methodology (Vasiu and Andone, 2014).
- *NOVAMOOC* (<http://novamooc.uvt.ro>) is a project for development and innovative implementation of MOOCs in Higher Education, run by West University of Timisoara (WUT) during 2015-2017. There were developed the MOOCs: Practicing English with Technology, Teaching with OERs, Fake news, Digital storytelling (<https://west-university-timisoara.teachable.com>).
- *UniBuc Virtual* (<http://www.unibuc-virtual.net>) by Credis (Department of Distance Learning from Bucharest University) developed and ran three MOOCs for teachers training on a Google Apps-based platform.
- “Critical Thinking MOOC” was developed and ran in 2014 by the Maastricht School of Management Romania on Iversity (<https://iversity.org/en/courses/critical-thinking-for-business>).

¹⁵ Due to the lack of space, for a detailed classification of projects, initiatives and resources related to OER, please refer to the POERUP project and work of the authors, which presents a map of all the resources available in Romania at this moment.

- University “Babes Bolyai” Cluj Napoca developed in the eLIADA project materials for four MOOCs (<http://eliada.granturi.ubbcluj.ro>).

b) Platforms and MOOCs implemented by *companies and NGOs*:

- *MOOC.ro* (<http://mooc.ro>) developed by Moodle.ro. Currently offers two MOOCs about Moodle and Articulate.
- *eStudent* (<http://estudent.ro>) is a platform that offers MOOCs on psychology, communication, business, geography and Romanian language. It was developed by APIO (Association of Industrial and Organizational Psychology), CTRL-D (an association created for designers, developers, communication and advertising people) and university teachers/experts.
- *Startarium* (<http://startarium.ro>) is a platform nurturing an entrepreneurship ecosystem. It gathers a group of organizations and experts that offer MOOCs, mentoring and crowdfunding around 8,000 potential entrepreneurs, who design and develop their start-up plans using the platform features.
- *Cursera* (<http://cursera.ro>) developed MOOCs by medical universities, organizations and hospitals.
- *MOOCs on Udemy*: NGO Management, Association Young Initiative (<http://udemy.com/management-ong>).
- *MOOC in medical education* offered by Romanian Angel Appeal Foundation (<http://raa.ro>).

c) *MOOC presence in formal education*:

- *MOOC integration in blended academic courses*. Politehnica University of Timisoara was a pioneer by integrating MOOCs in the following courses: “Web Programming” (Holotescu et al., 2014), “Instructional Technologies” (Vasiu and Andone, 2014) and “Embedded Systems” (Bogdan, 2017). There are also such initiatives at “Ioan Slavici” University of Timisoara for the Multimedia, OOP and Blockchain courses and at West University of Timisoara for “Digital storytelling course”, a transversal discipline for all second-year bachelor students, regarding their specializations.

- *Credit (marks) recognition for students' participation in MOOCs.* It involves the students' activity in different projects for some courses at the three universities above.
- *MOOC accreditation* at the Politehnica University of Timisoara: "Digital Marketing" offered by Google (<http://atelieruldigital.jaromania.org>).
- *Teacher continuing professional development* using MOOCs at "Ioan Slavici" University of Timisoara: participation in MOOCs related to OE, but also to the topics of the taught courses and research.
- *Virtual mobility project:* A summer-day's MOOC, partners Business Faculty, University Babes-Bolyai, Cluj-Napoca Romania, Georgia, and the Netherlands.

d) *Scientific events related to open education:*

- Workshops and national conferences organized by the Romanian Coalition for OERs.
- Workshops organized by the Politehnica University of Timisoara during the Open Education Week (<http://elearning.upt.ro>).
- Since 2014, the International Conference "eLSE - eLearning and Software for Education Conference" has a section dedicated to OER and MOOCs, co-chaired by the authors (<http://elseconference.eu>).
- SMART Conference, co-organized by the authors since 2013, has a special focus on open education (<http://academia.edusoft.ro/category/conferences>).
- The International "New Trends and Perspectives in Open Education" conference was the first event organized by a higher education institution on Open Education topics (https://novamooc.uvt.ro/?page_id=445).

The projects related to OERs and MOOCs represent an important achievement, but to reach the objectives of OE (quality, innovation and equal access to education), there is the need for better coordination of teacher training projects, resource generation and encouragement of resource reuse, and it is equally useful to attract more actors into the process of producing and reusing content.

STAKEHOLDERS

This section presents the most important institutions and organizations supporting open education initiatives and projects in the country.

Ministry of National Education (Ministerul Educației Naționale, MEN, <http://www.edu.ro>), along with its strategic partners - Institute of Educational Sciences (ISE, <http://www.ise.ro>), Teaching Houses and School Inspectorates. As mentioned in the chapter, starting with 2017, MEN has taken concrete steps towards opening up education, stimulating the creation and publication of OERs, and reforming the system of designing and acquiring textbooks. In the last national debate on March 5, 2019, "Open Education for the Future: Challenges in the Digital Age", the current Minister of Education, Ecaterina Andronescu, said that the new National Education Law, currently being drafted, has to include as many concrete provisions as possible in order to develop relevant competences, skills and attitudes in the context of digital transformation.

The Ministry of Research and Innovation (Ministerul Cercetării și Inovării, MCI, <http://www.research.gov.ro>) is the public body responsible for organizing and coordinating the Romanian RDI system. MCI is also responsible for the development and adoption of the Open Access (OA) national strategy to transpose the developed OA rules into future funding programs for research, mapping of institutional OA practices and policies in Romania. In its efforts to do so, the Ministry benefits from the support of UEFISCDI (the Executive Agency for Higher Education, Research, Development and Innovation Funding, <https://uefiscdi.ro>), and of two other non-governmental organizations: Center for Public Innovation and Kosson. Its activity is guided by the National RDI Strategy 2014-2020, implemented according to the RDI National Plan 2015-2020.

The **Romanian Coalition for OERs** (Coalitia pentru Resurse Educationale Deschise Romania) was launched in October 2013, gathering persons and organizations that support and

promote the concepts of open access and OERs¹⁶. The main categories of actions/activities the Coalition carries out are: advocacy and public statements, open content creation, training, sharing best practices, information campaigns and awareness of the role of open educational resources in various fields. Therefore, the coalition has published guides¹⁷, has organized different awareness events such as workshops and five National Conferences for Open Education, and formulated concrete OE-related proposals for the government.

The Centre for Public Innovation (Centrul pentru Inovare Publică, CPI, <http://www.inovarepublica.ro/>) established in 2014 has as mission to build the open society in Romania. As a coordinator of the OERs Coalition, CPI has played a substantial role in introducing the concept of OERs and open education on the public agenda in Romania. For e.g. in 2016 they successfully managed to include the open education in the Romanian Open Government Partnership Action Plan¹⁸.

Association for Technology and Internet (ApTI) and Creative Commons Romania. ApTI (<http://www.apti.ro>) is an independent non-governmental organization (NGO) aiming to support and promote a free and open Internet, where human rights in the digital space are guaranteed and protected. They also contribute on improving digital policies and practices. In relation to OERs, ApTI plays a crucial role in providing digital education for Internet users and professional groups. Thus, they were actively involved in carrying out OERs related trainings for librarians and higher education staff which include awareness campaigns and practical hands-on workshops on open licenses and open educational resources.

ApTI has been also involved in the process of translating the Creative Commons licenses in Romanian, adapting them to the Romanian legislation as well as in the promotion of open licenses in Romania.

¹⁶ The Coalition has a solid and active presence on social media (see the Facebook group, <https://www.facebook.com/groups/REDRomania/>).

¹⁷ For e.g. the COE wrote up the first report on Open Education in the Pre-university Education System in Romania, which was the third in the Open Society Reports series.

¹⁸ CPI is currently holding the secretariat of the Open Data Coalition, a civil society platform advocating for open data and open government in Romania, http://ogp.gov.ro/wp-content/uploads/2018/11/Romania-2018-2020_NAP_EN.pdf.

ApTI is a member of European Digital Rights (EDRI), ICANN's European Regional At-Large Organisation (EURALO) and Civil Society Information Society Advisory Council (CSISAC).

IMPACT

The number of Open Education and OERs initiatives is not so large, but one can note the diversity of projects and of the involved organizations. We appreciate that Romania is active in the OER movement on the following axes/directions:

- trainings/courses related to Open Educational Resources and Practices organized for both pre-university and university sectors;
- proposals at governmental level related to OER – but not yet in formal policies; the CRED project, in which one of the partners is MEN, aims to introduce OER in the curriculum;
- national events related to open resources produced by pre-university teachers; national guides (in Romanian language) were published too;
- directories with open resources (more numerous for pre-university level);
- projects for MOOCs development and integration at university level and for continuing education;
- strong communities/events for open source, open access, open data, open culture, open science and open licenses.

The *drivers* for developing Open Education projects are:

- researchers and teaching staff, seldom the policy makers and managers of the institutions;
- companies and associations.

The *main barriers* in the Open Education development and adoption could be considered:

- rigid policies in formal education related to curricular systems and assessment practices;
- the lack of possibility to officially accredit online courses, despite an impressive number of projects related to online courses over the last 18 years, and of the policy proposals coming from different organizations (such courses can only be used in a blended approach in formal education);
- the lack of OE/OERs/MOOCs - related strategies at national level in formal and continuing education;
- teachers' lack of time and interest to explore, understand, evaluate and use new technologies, OERs and MOOCs in the teaching-learning process;
- a reduced number of training programs for adopting OEPs;
- lack of incentives, official recognition and promotion for teachers implementing open educational practices.

The Romanian achievements related to Open Education were also summarized in the EU OpenEdu study of Inamorato dos Santos et al. (2017). Moreover, a recent report found that Romania is the 4th most productive country in OERs-related studies, while the authors of this chapter are ranked to a top of researchers worldwide (Wang et al., 2017).

OPEN EDUCATION-RELATED STRATEGY IN ROMANIA

To foster the inclusion of Open Education, OERs and MOOCs in the Romanian educational system, a set of recommendations is proposed below.

The first of them are quoted and updated from the report (Holotescu, 2007) and have not been fully implemented, while some of them are new and original, as derived from our experience (Holotescu et. al, 2014; Bogdan et. al, 2017). Others are quoted and adapted from recent reports of the projects POERUP (POERUP, 2014), OpenEdu (Castaño Muñoz et al., 2016; Inamorato dos Santos et al., 2016), OpenCred (Witthaus et al., 2016), from recent studies (Patru and Balaji, 2016; Jansen and Konings, 2017; Grech and Camilleri, 2017), from UNESCO Recommendations (2019) and from OER Congress documents (OER AP, 2017). The

last were endorsed by ministers and their designated representatives of 20 countries, Romania included.

The recommendations are organized on three levels: for policy makers at national levels, for institutions and for teachers themselves, because real changes appear from grass roots level.

Recommendations for POLICY MAKERS

- The already existing publicly funded educational content should be used more intensively by teachers and students: connections with curricula, the skills they develop should be clearer; encourage and support the sharing of best practices; should be also licensed under CC.
- The creation of a repository under CC licenses with the educational projects in which Romanian schools, universities and educational organizations have participated.
- Establish a partnership of the Ministry of Education with publishers, broadcasters, libraries, cultural institutions to provide open access to their own resources.
- Encourage a competitive market to produce educational resources, ensure transparency of supply and equal opportunities to market actors, based on a set of quality criteria, containing pedagogic, design, accessibility and openness principles.
- Implement an online platform for collaborative production of OERs/MOOCs by institutions, teachers and students, based on open collaborative technologies, presenting open scenarios for learning (Holotescu, 2007).
- Any public outputs from the EC programs (specifically including Erasmus for All) should be made available as open resources under an appropriate license.
- Budgets for digital education should include money for developing and maintaining OERs/MOOCs.
- OERs should be allowed on approved materials lists.

- Quality agencies in ENQA (the European Association for Quality Assurance in Higher Education) should improve their understanding of new modes of learning (including online distance, OERs and MOOCs) and their impact on quality assurance and recognition.
- Encourage Europe-wide validation of the knowledge and competences developed through online study and informal learning, including but not restricted to OERs and MOOCs (POERUP, 2014).
- Promote the use of MOOCs for re-skilling and up-skilling both unemployed people and workers, especially those without employer support to training activities; this would help to reduce the unemployment rate.
- Promote digital competence development in both formal education and professional development activities. This could lead to a higher participation rate of individuals in an open education context and, indirectly, to reduced training costs and a greater flexibility in education (Castaño Muñoz et al., 2016).
- Foster dialogue and collaboration between actors in HEI internationalization, student mobility and the validation of non-formal and informal learning (Witthaus et al., 2016).
- The government should support and scale up multi-stakeholder partnerships for efficiency reasons, but also for the benefit of society as a whole (Jansen & Konings, 2017).
- Besides open-licensing policies, the government could support the creation of regional or national centers to finance and promote MOOCs and allied activities (Patru & Balaji, 2016).
- Strategic public-private partnerships are needed in order to fully exploit blockchain in (open) education. The implementations of blockchain technology for education are in initial stages, several organizations are in the initial stages of pilot-testing award of certificates using a blockchain, while others are accepting blockchain-based cryptocurrency payments. The potential of the blockchain in areas such as the issuing of certificates, verification of accreditation pathways, lifelong learning

passports, intellectual property management and data management should be further investigated (Grech and Camilleri, 2017).

- Sustained investment and educational actions by governments and other key education stakeholders are needed in order to achieve SDG4, in the creation, curation, regular updating, ensuring inclusive and equitable access, and effective use of high quality materials and programs of study.
- Encourage regional and global collaboration and advocacy in the creation, access, use, adaptation.
- Redistribution and evaluation of OER can enable governments to optimise their own investments in educational content creation, as well as ICT infrastructure and curation, in ways that will enable them to meet their defined national educational policy priorities more cost-effectively and sustainably (UNESCO, 2019).

Recommendations for EDUCATIONAL INSTITUTIONS

- All teacher training programs should include topics related to OERs, MOOCs, open licenses and social media / Web2.0 / collaborative / free tools to create educational materials in a collaborative manner.
- Developing open-literacy both for the academic and administrative staff.
- Facilitate the sustainable implementation of OERs/MOOCs by creating incentives for use and reuse, and funding technical infrastructure to increase access to OERs/MOOCs (Holotescu, 2007).
- MOOCs could be adopted for individuals already trained in the efficient use of ICT and online learning; institutions should determine and increase the digital readiness of both teachers and students.
- Policies for MOOCs accreditation should be adopted, applied for students, but also for recognition of the teachers' continuous development and for career advancement opportunities (Bogdan et al., 2017).
- Establish strong and ongoing collaborations between schools, universities and other educational stakeholders involving OERs/MOOC projects.

- Accessibility should be a priority for all OERs/MOOCs, including disability accessibility standards (POERUP, 2014).
- Have a holistic strategy for opening up education that encompasses the 10 dimensions of the OpenEdu framework, making the open education strategy part of the overall institutional strategy.
- Explore new practices and welcome changes.
- Revise the practices at all levels: mission statement and vision, current organizational management structures and day-to-day policies, and the institution's role in the community and globally (Inamorato dos Santos et al., 2016).
- Validate open learning by offering credentials for MOOCs and free and open online courses.
- Provide flexible options for “free elective courses” or “self-study courses” in the curricula, including open learning for study progression.
- Join European consortia related to MOOCs and build partnerships with HEIs/employment bodies (Witthaus et al., 2016).
- Build the capacity of users to find, re-use, create and share OERs/MOOCs.
- Empower educators and learners to develop quality, gender-sensitive, culturally and linguistically relevant OERs/MOOCs appropriate to local cultures and to create local language OERs/MOOCs.
- Ensure inclusive and equitable access to quality OERs/MOOCs (OER AP, 2017).
- It is important to acknowledge the need for capacity-building amongst academic institutions in the management of MOOCs and to develop a system of recognition and incentives for the faculty.
- The design, development and delivery of MOOCs can be expensive for an institution; thus, continuous evaluation, reuse or adaptation of existing or available MOOCs is an important aspect to take into consideration (Patru and Balaji, 2016).

Recommendations for TEACHERS

- New skills and tasks are required for teachers facilitating blended courses that integrate OERs/MOOCs: complex course design and management, OERs and MOOCs curation, evaluation of the distributed and collaborative activities of students, facilitation of the local learning community and nurture of its integration in the global communities of MOOCs and many more.
- Teachers should be active in communities of practice and attend MOOCs too on topics they themselves teach and also on topics related to new educational technologies and pedagogies. Under these circumstances, each teacher could become a life-long and informed learner.
- Teachers should assist and guide students to assess their own learning needs for choosing the OERs/MOOCs to use / in which to participate in order to deepen the course topics and for continuing learning (Holotescu et al., 2014b).
- Teachers need digital skills to curate MOOCs, to assess MOOC quality and to use learning analytics (Bogdan et al., 2017).

According to COL (2017), the lack of national policies can limit OE adoption and discourage institutions from engaging in OE activities. The regional consultation in Europe shows the need that OE take the form of a bottom-up movement, focusing at the institutional level, and that national efforts be coordinated through a strategic policy initiative to complement the bottom-up approach.

As a conclusion, at present, there is no OERs defining practice in Romania, but only initiatives and projects that have the potential to turn into an OER outline movement. There is no doubt that these OERs initiatives in Romania at all educational levels are a real gain for teachers and learners, tailoring education as a real engine for change.

Romania does not have a national strategy on open education, only separate measures implemented without consistency. The only national, but insufficient benchmarks on this issue, are contained in the National Strategy on the Digital Agenda for Romania 2020 and in the National Action Plan 2016-2018 of the Open Government Partnership.

Therefore, a national strategy for open education is needed, to include both the development of a framework of professional digital competences for teachers as well as the development of a national initiative on the use of Open Educational Resources. This document must be developed not only in conjunction with the National Education Act, but also with the Digital Agenda of the European Union, the Digital Education Action Plan and other relevant European Commission instruments such as Digital Competence for Citizens (DigComp), for teachers (DigCompEdu) and educational institutions (DigEduOrg).

An example of coherent strategy is “Opening up Slovenia” (<http://www.ouslovenia.net>), which has built legal mechanisms for implementing open education and for carrying out concrete, cross-dimensional OE projects, consisting in policy actions, capacity building, services and content, research and development, and supportive environments. Another strategic path can be taken by learning from the experience of the Polish Coalition for Open Education (Śliwowski and Grodecka, 2013).

As specified by the Capetown Open Education Declaration (2017), the OE should be connected with other open movements and should place the next generation at its core (Capetown, 2017). Also, in order to implement SDG4, "education institutions and programs should be adequately and equitably resourced, books other learning materials, open educational resources and technology that are non-discriminatory, learning conducive,

learner friendly, context specific, cost effective and available to all learners – children, youth and adults" (UNESCO, 2019).

The recent Romanian initiatives, the proposal for educational policies made by several educational NGOs¹⁹ and the CRED project, together with the Romanian Coalition for OER could play an important role in shaping the policy of openness. We also believe that the involvement of each teacher is important for mainstreaming Open Education. Also more focus is needed on information and awareness campaigns targeted at decision-makers, educators, parents as well as pupils and students (Pavel et al., 2014).

We hope this work, with an overview of OERs and OE, with recommendations on three axes, will be a useful reference for further discussions within and between different institutions and policy makers in charge with educational policies in the country and also worldwide.

¹⁹ SYENE (4 June 2019). Digitalizarea sistemului educațional – propuneri de politici publice, Retrieved from <http://syene.ro/2019/06/04/digitalizarea-sistemului-educational-propunere-de-politici-publice/>

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