

SCIENTIFIC REPORT

regarding the implementation of the project

„Innovative development and implementation of MOOCs in higher education”

between January-December 2016
PN-II-RU-TE-2014-4-2040

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Host institution: West University of Timișoara (WUT)

The activities for 2016 can be divided into three main categories: activities focused on the development of an international research network, activities focused on scientific studies and dissemination of results, activities focused on developing a pilot MOOC.

I. Activities focused on development of an international research network

Between 7-20 August 2016, Alexandru Topirceanu and Mihai Vilcea (PhD students) visited Massachusetts Institute of Technology, Cambridge, MA, Columbia University, N.Y. and University of Pennsylvania, Philadelphia, PA. The main purpose of the visit was to learn and experience in designing and delivering a MOOC, preparing and teaching a MOOC, certificates and validation of competences, and how to launch one. During the visit they had the opportunity to interact with Elizabeth Hutner, manager of EDx series, MITx of MIT and to discuss about more or less divergent research activities, mainly focused on the technical problems related with the MOOC platform. Also, Prof. Ryan Baker, learning analytics and Big Data researcher at Columbia University offered them feedback regarding the present research project, and ideas about future research projects. Assoc. Prof. Susan Yoon from University of Pennsylvania offered a complete set of recommendations about the content of a MOOC, the backward design, the type of data collection to be used as learning analytics, the video production and the activities based on volunteers (PhD/master students and young researchers). Based on the valuable ideas collected, we revised the pilot phase of the MOOC concerning which platform to choose and the content and one manuscript to be submitted for publication to *Computers&Education Journal* (impact factor 2,881).

Between 4-20 November 2016, Gabriela Grosseck and Laura Malita visited higher education institutions from South Korea and Japan. The goal of the mobility was multiple: research visits at prestigious universities from the above mentioned countries, bilateral discussions about the challenges related to the implementation and the development of MOOC courses in the two countries, the problems related to OER and digital literacy and the participation to the ICEPL conference International Conference on Education, Psychology, and Learning.

The research and/or documentation visits were developed such as:

a) in South Korea at:

- *NILE* – National Institute for Lifelong Education, contact person director Min-Seon Park, International Programme Specialist at NILE
- *Hanyang University* (the biggest private university from South Korea), contact person university professor PhD. Nam Jae Cho
- *Seoul National University of Education* (place 23 in the Shanghai top), contact person university professor PhD. Sunyoung Kim

b) in Japan at:

- *Open University of Japan (OUJ)*, contact person university professor PhD. Kumiko Aoki (international interchange committee responsible from OUJ)
- *Tsukuba University* (for with West University of Timisoara has an Erasmus partnership), contact person university professor PhD. Simona Vasilache
- *Kansai Osaka University*, contact person university professor PhD. Tosh Yamamoto.

The contents of the activities:

At NILE with Min Seok Park (and with other meeting participants from NILE, including the director of K-MOOC) the focus of the discussions were the national MOOC educational policies, the providing and recognition of credits for the prior learning system, how the employers can recognise online courses' credits, how to choose the key persons in order to implement a MOOC department which is dealing with policy recommendations, MOOCs quality assurance, MOOCs evaluation, the measures of recommendations for MOOCs efficiency and for drop-out decreasing.

With Professor Simona Vasilache the discussions were focussed on OER, the usage and implementation in formal education, the university policies for information/digital literacy, the decreasing of academic drop-out both for online and blended courses, the usage of OER in teaching/learning. We visited the university, departments of interest, the Centre for Open and Distance Education, the library, university campus etc.

With Professor Tosh Yamamoto discussions were related to the development of MOOCs for pre-university level, both for teachers and especially for the students with almost 6 months before to enter the academic life, but even related to other special courses, for disciplines they didn't studied in the high schools or colleges.

With Professor Sunyoung Kim from Seoul University of Education the discussion were related to the way a MOOC platform can be chosen, the advantages and disadvantages for the Coursera, Future Learn and Open EDx platforms, how to choose the key persons for MOOC's maintenance, which are the software and hardware conditions for developing a MOOC, which are the requirements for the personnel (ranging from the professors to the designer(s) and volunteers – especially master and PHD students), how are the students recruited, how the online courses credits are provided and recognised.

With Professor Yamada from OUJ the discussions were focussed on the J-MOOC's experiences, what does it mean to be part of the AAOU (Asian Association of Open Universities), which are the opportunities and the limits of such collaborations, how the courses are developed, how such courses' credits are recognised, how are they using the data collected during

such courses for learning analytics (questionnaires, big data, social networks, courses' forums etc.), which are the privacy and ethics restrictions, how are they using the internal university broadcast system etc.

At Hanyang University it was visited the university campus, including the Media Centre, seeing evaluation activities for prospective students as well as some training courses/activities with other students.

The mobility evaluation:

After the mobility in the two countries (South Korean and Japan) we consider to reach the envisaged goals related to the project for these activities, by bonding prospective research collaborations, research experiences, and receiving lot of practical advices related to the development of different MOOCs (for both teachers and students from pre-university and university level), which is the main goal of the NOVAMOOC project.

From the multicultural perspective, we collected materials (pictures, videos, online and offline resources such flyers and guides, but even other promotional materials), some of them in online format, available on the project platform as well as on the project Facebook page, which are presenting how the Asian society is supporting and perpetuating the impulse for education and auto-education, the civic spirit, the will for education no matter form where and when, the age or professional status of students.

For research purposes, team members took part in several webinars and/or attended several MOOCs, in order to develop skills and competencies, both at technical and pedagogical level.

Webinars on EMMA (European Multiple MOOC Aggregator) platform

(<http://project.europeanmoocs.eu/project/get-involved/webinar-series/>):

- *Using Social Media effectively in your MOOC*, <http://project.europeanmoocs.eu/project/get-involved/webinar-series/using-social-media-effectively-in-your-mooc/>
- *Capturing and delivering effective video as part of your MOOC including the innovative use of video to enrich your learning offer*, <http://project.europeanmoocs.eu/project/get-involved/webinar-series/capturing-delivering-effective-video-for-your-mooc-innovative-use-video/>

sMOOC Step by Step (<http://hub0.ecolearning.eu/course/smoooc-step-by-step-3ed/>). This Massive Open Online Course which offers a practical and theoretical approach, is designed to help you experience a booming 21st century learning process as well as help you create your own sMOOC (social MOOC) in a step by step way.

CoR MOOC 2016: EU budget and funding for regions and cities (<https://www.fun-mooc.fr/courses/CoR/114001/session01/about>). The new free massive open online course (MOOC) of the European Committee of the Regions (CoR) focuses on 'EU budget and funding for regions and cities'. The course has been co-created with the European Investment Bank and the European Commission – DG REGIO and DG BUDG.

eMOOCs preconference MOOC, (http://imoox.at/wbtmaster/startseite_en/emooocs2016.html). This online course consists of EMOOCs2016 conference (<http://emooocs2016.eu>) presentations from both research and experience tracks. It includes short videos that demonstrate the main outcomes of the authors' contributions in the fields of Massive Open Online Courses

(MOOCs). It is a preMOOC before the conference and it takes place to enhance the discussions and exchange between the participants.

II. Activities focused on scientific studies and dissemination of results

Started in 2008, the new Massive Open Online Courses (MOOCs) paradigm has brought challenges and innovation at all levels of education, aiming to respond to the most pressing learning needs, generated by the new development policies and the rapid evolution of technology. In this respect, the research carried out in 2016 was focused on the following axes: **learning needs for students, teachers and community** as a smart learning environment (with the university as a pillar toward the city's smartness).

a) **STUDENTS.** In the digital age of the Internet, the abilities of people to share information, collaborate with others, or work from a distance have created a synergy that is shaping educational systems as well. Massive online open courses are one of the trending game changers of formal, institutionalized education, and students are joining the trend with increasing excitement. Currently, engineering is working together with academia to increase the number of available open educational resources and broaden the coverage of MOOCs worldwide. Yet, we take a step further and combine complex network analysis and sociology to model and analyze the emerging profiles of the new digital student. As such, we have used an online questionnaire to gather detailed opinion from 632 students from Romania regarding the advantages, disadvantages and reasons to choose MOOCs. Based on their expressed opinions, we created two graph models of compatibility based on key individual traits, and found six distinct student profiles in terms of engagement in MOOCs, and seven profiles for non-participants. Furthermore, in an article that we want to submit to an ISI journal, we discussed these profiles and explained the implications, limitations and perspectives of this study. We consider our findings an important milestone both in understanding the needs of future students and in optimizing the way MOOCs are developed to serve the challenges in education.

b) **TEACHERS.** In order to determine the need for MOOCs of Romanian educational actors, we have initiated a survey addressed to preuniversity teachers. This is still open until 15 December. On the 17th of November 2016 the sample had 1,008 respondents (now there are 1057). The objectives were focused on identifying:

- the use practices of the online environment in the teaching activity and, in general, in the professional activity of the teachers in the pre-university environment;
- the training needs of the teaching members regarding the use of online tools.

The research tool was developed by the project team based on the specialized literature review and based on the previous experience on the online study as a learning-teaching and research space. The questionnaire was built on two dimensions that reach the estimated objectives:

- previous experience in using the online environment as a learning environment
- teachers' training needs on the use of online tools.

From a methodological point of view this study is a real challenge, primarily because it seeks to attract a significant number of teachers from the pre-university environment as respondents. Even if the sample is not built by a dedicated sampling method, i.e. proportional sampling, the large number of respondents enables us to identify a direction of opinion existing in the investigated population regarding the use of the

online environment as a learning environment (a preliminary/interim report is uploaded on the platform and available on the project site).

c) COMMUNITY. In a previous paper¹ we underlined the fact that regarding the concept of „Smart City”, most MOOCs involved in one way or another are relatively new, and their contributions “to give” smart citizens can be indirect. We noticed a lack of clarity and consensus about the development of MOOCs discussing the definition of a smart city. Thus, many questions and aspects remained open and needed to be addressed by future research:

- Which features of smart / learning cities should be offered by MOOC platforms and how can such courses be facilitated?
- How can the authorities collaborate with universities and researchers to develop specific open educational resources (OERs) for smart cities and to organize such courses?
- What lessons can be learned from current projects targeting these issues?
- What are the literacy / competences people need in order to learn and live in a smart city environment?

Therefore, we propose (in collaboration with researchers from other universities and organizations specialized in training, research and consultancy) to build a package of MOOCs targeting the learning needs of young entrepreneurs in the context of „smart cities and specializations” policies. We focused on the concepts, the development, and implementation steps, from MOOCs design, pilot phase, consultancy activities, impact study to proposals for national policies and accreditation. As far as we know, this work could be a starting point for developing new programs and customized training courses on specific learning needs to support the „smart cities” interventions.

At the end of this year, I can report the following research papers written by the team members (sometimes in collaboration with other researchers), in which the project is mentioned in the Acknowledgements section:

- Grosseck, G. & Bran, R (2016). Towards research 2.0: The influence of digital and online tools in academic research. In *World Journal on Educational Technology*. 8(2):132-138.
- Holotescu, C. et al. (2016). MOOCs for innovative entrepreneurship in smart cities. In *World Journal on Educational Technology*. 8(3): 245-251.
- Holotescu, C., Andone, D. & Grosseck, G. (2016). MOOCs Strategies in Romanian Universities. In Jansen, D. & Konings, L. (eds.) (2016, June). *European Policy Response on MOOC opportunities*. EADTU Publisher. ISBN: 978-90-79730-20-9.
- Holotescu, C. et al. (2016). Entrepreneurship Learning Ecosystem for Smart Cities through MOOCs. Paper sent to *IxD&A – Interaction Design and Architecture (s) Journal*, ISSN: 1826-9745, e-ISSN: 2283-2998 (under review).
- Grosseck, G., Bran, R. & Holotescu, C. (2016). Let’s Learn English with Technology. In *Proceedings of ICVL – International Conference on Virtual Learning (ICVL2016)*, Craiova, 29 October 2016, pp. 407-414, ISSN 1844 – 8933.

¹ Grosseck, G., Ivanova, M., Holotescu, C., & Malita, L. (2014, October). Massive Open Online Courses as e-bricks for Smart Cities. In *The International Scientific Conference eLearning and Software for Education* (Vol. 4, p. 237-242). "Carol I" National Defence University.

Moreover, we successfully managed to relaunch the *Journal of Social Informatics*, new series available at www.ris.uvt.ro.

In addition to these outcomes, the NOVAMOOC team members participated in several scientific events² (conferences, workshops, webinars / for some of them as organizers, too), namely:

1. *8th World Conference on Educational Sciences*, 4-7 February 2016, Madrid. The conference is indexed in Conference Proceedings Citation Index (ISI Proceedings, access via Web of Science).
 - a. Ramona Bran and Vlad Chiriac, *Towards Research 2.0: The Influence of Digital and Online Tools in Academic Research*.
 - b. Carmen Holotescu, *MOOCs for Innovative Entrepreneurship in Smart Cities*.
2. *Open Education Week*, 11 March 2016, Timisoara.
 - a. Webinars “Open Education – concepts, tools, resources, practices”
 - i. Gabriela Grosseck and NOVAMOOC team. *What do WUT students think about online courses?*
 - ii. Carmen Holotescu (2016). *OER and MOOC initiatives in Romania*. Integration scenarios in schools and universities.
3. “*E-learning and software for education*” (21-22 April 2016, Bucharest). The conference is indexed in Conference Proceedings Citation Index (ISI Proceedings, access via Web of Science).
 - a. Gabriela Grosseck, *What do students think about MOOCs*
 - b. Workshop *Open Educational Resources and MOOCs*, 3rd edition organized by Gabriela Grosseck and Carmen Holotescu
4. *1st International Conference on Smart Learning Ecosystems and Regional Developments*, SLERD2016, 19-20 May 2016, Timisoara Romania
 - a. Carmen Holotescu, *Entrepreneurship learning ecosystem through MOOCs for Smart Cities*
5. “*High Transferable Skills – teaching and learning perspective*” International Conference, 28 May 2016, Craiova,
 - a. Laura Malita and Gabriela Grosseck, *Transversal Skills for Students from WUT developed through MOOCs*
6. *Workshop with WUT teachers*, 27 October 2016, West University of Timisoara
 - a. Gabriela Grosseck and NOVAMOOC team, *miniatelier de initiere in MOOC*
7. *CNIV (Conferinta Nationala de Invatamant Virtual)* and *ICVL (International Conference on Virtual Learning)* 29 October 2016, Craiova. The conference is indexed in Conference Proceedings Citation Index (ISI Proceedings, access via Web of Science).
 - a. Carmen Holotescu – *Open Education, Open Educational Resources and Massive Open Online Courses. Romanian Initiative*
 - b. Vald Chiriac, *Competente transversale la UVT prin MOOC*.
8. *Workshop – pre-university teachers (national coverage)*, 29 October 2016, Craiova University, *Dezvoltarea si implementarea MOOCurilor in invatamantul superior* (in cadrul CNIV2016)
9. *International Conference on Education, Psychology and Learning (ICEPL)*, 7-9 November 2016, Seoul, South Korea

² The electronic presentations are available on the project website (http://novamooc.uvt.ro/?page_id=229). On the Facebook page one can browse pictures, images and/or other materials from the events.

- a. Gabriela Grosseck and Laura Malita, *The MOOCs under microscope, Romanian Students' Insights*
10. *Scientific Methods in Academic Research and Teaching (SMART)*, 17-19 November 2016 Timisoara. The conference is indexed in Conference Proceedings Citation Index (ISI Proceedings, access via Web of Science).
- a. Carmen Holotescu, *Strategies for opening up education in European universities*
 - b. Vlad Chiriac, *Opening up education at WUT. Case study: integration of MOOCs in transversal disciplines*
 - c. Gabriela Grosseck, Ramona Bran and Carmen Holotescu, *Languages and participation in MOOCs*
 - d. Laurentiu Tiru, Laura Malita and Gabriela Grosseck, *Possibilities, Potential and Perils in Professional Development of Teachers through MOOCs*
 - e. NOVAMOOC team organized a pre-conference MOOC (under the umbrella of NOVAMOOC project). The MOOC consisted in selected conference presentations as short videos that demonstrate the main outcomes of the authors' contributions. The scope was to enhance the discussions and exchange between the participants in the conference and all those interested in the SMART topics

Based on these results, I can state that I achieved all objectives regarding the publication and dissemination outcomes of this project.

III. Activities focused on developing a pilot MOOC

Based on our research and previous experience, we chose as subject of the pilot MOOC to be about Open Educational Resources (OER). The content was designed to primarily appeal to teachers, without special digital prerequisites. It is an introductory course, with 6 modules addressing teachers' needs in using OERs.

After carefully analyzing many platforms, we selected as MOOC provider Teachable.com (<http://west-university-of-timisoara.teachable.com/>).

We are now finishing all the modules (we are introducing quizzes, videos and so on) and working on promoting the MOOC (to inform people at national level about its existence). We estimate that in spring 2017 we'll have full pilot course open to the public. The first draft is available on the project site.

In 2016, **the project NOVAMOOC won the Excellence Award³**, design to recognize Romanian best online educational practices (CNIV 2016).

For 2017, we intend to write and publish at least two scientific papers in ISI journals (we already have a full-text manuscript, Alexandru Topirceanu and Gabriela Grosseck - proposed title: "Defining Student Profiles For Massive Online Open Courses: A Complex Network Approach", to be sent for review and publication in *Computers&Education Journal*, impact factor 2,881, <http://www.journals.elsevier.com/computers-and-education> in the following days) and run our own MOOCs (<http://west-university-of-timisoara.teachable.com/>).

At the time of writing this report, all the digital presentations and full texts of the above mentioned issues, are available on the project's website - <http://novamooc.uvt.ro>.

³ press release: <http://www.agerpres.ro/comunicate/2016/11/23/comunicat-de-pres-a-universitatea-din-bucuresti-14-05-50>

The participation of the NOVAMOOC team in different events, other information regarding articles, studies, projects, or platforms analyzed by team members for research purposes, can be found on the project's Facebook page at: <https://www.facebook.com/novamooc/>.

In conclusion, we consider that we have achieved the indicators for the year 2016.

Project manager,
Assoc. prof. Gabriela Grosseck, PhD

A handwritten signature in black ink, appearing to be 'G. Grosseck', written in a cursive style.