

6 - 8 December

Melbourne, Australia

PROCEEDINGS

of the International Conferences

INTERNET TECHNOLOGIES & SOCIETY 2016

Edited by:
Piet Kommers
Tomayess Issa
Theodora Issa
Elspeth McKay
Pedro Isaías



ICEduTEch

educational technologies 2016

STE 2016

A hand holding a white puzzle piece against a background of a blue sky and green field. The puzzle piece is being held in the bottom right corner of the cover. The background features a large gear and a computer mouse with a globe on its cord.

SUSTAINABILITY, TECHNOLOGY AND EDUCATION



iadis

international association for development of the information society

TABLE OF CONTENTS

FOREWORD	xi
PROGRAM COMMITTEE	xv
KEYNOTE LECTURES	xxi
FULL PAPERS	
ECG IDENTIFICATION SYSTEM USING NEURAL NETWORK WITH GLOBAL AND LOCAL FEATURES <i>Kuo-Kun Tseng, Dachao Lee and Charles Chen</i>	3
SMARTENING UP: ONGOING CHALLENGES FOR AUSTRALIA'S OUTBACK <i>Lucy Craddock</i>	11
EXTRACTION OF GRAPH INFORMATION BASED ON IMAGE CONTENTS AND THE USE OF ONTOLOGY <i>Sarunya Kanjanawattana and Masaomi Kimura</i>	19
APPLICABILITY OF DOMAIN-SPECIFIC APPLICATION FRAMEWORK FOR END-USER DEVELOPMENT <i>Takeshi Chusho</i>	27
APPLICATION OF BUSINESS INTELLIGENCE SYSTEM IN COMPANY RESTRUCTURING PROCESS: THE CASE OF CROATIA <i>Iva Bakula, Katarina Ćurko, Mirjana Pejić Bach and Vesna Bosilj Vukšić</i>	35
METHOD TO IDENTIFY DEEP CASES BASED ON RELATIONSHIPS BETWEEN NOUNS, VERBS, AND PARTICLES <i>Daisuke Ide and Masaomi Kimura</i>	43
LEVERAGING DATA ANALYSIS FOR DOMAIN EXPERTS: AN EMBEDDABLE FRAMEWORK FOR BASIC DATA SCIENCE TASKS <i>Johannes-Y. Lohrer, Daniel Kaltenthaler and Peer Kröger</i>	51
INVESTIGATING THE IDENTITY THEFT PREVENTION STRATEGIES IN M-COMMERCE <i>Mahmood Hussain Shah, Javed Ahmed and Zahoor Ahmed Soomro</i>	59
ELECTRONIC INVOICE IN COSTA RICA: CHALLENGES FOR ITS IMPLEMENTATION <i>Juan José Ramírez-Jiménez, Mario De La O-Selva and Roberto Cortés-Morales</i>	67
CAR APP'S PERSUASIVE DESIGN PRINCIPLES AND BEHAVIOR CHANGE <i>Chao Zhang, Lili Wan and Daihwan Min</i>	75

EVALUATING THE QUALITY OF EXPERIENCE OF A SYSTEM FOR ACCESSING EDUCATIONAL OBJECTS IN HEALTH <i>Miguel Wanderley, Júlio Menezes Jr., Cristine Gusmão and Rodrigo Lins</i>	83
AN EVALUATION OF IPAD AS A LEARNING TOOL IN HIGHER EDUCATION WITHIN A RURAL CATCHMENT: A CASE STUDY AT A SOUTH AFRICAN UNIVERSITY <i>Ruth Diko Wario, Bonface Ngari Ireri and Lizette De Wet</i>	91
TOWARDS A FRAMEWORK TO IMPROVE THE QUALITY OF TEACHING AND LEARNING: CONSCIOUSNESS AND VALIDATION IN COMPUTER ENGINEERING SCIENCE, UCT <i>Marcos Lévano and Andrea Albornoz</i>	100
MOOCS – THEORETICAL AND PRACTICAL ASPECTS: COMPARISON OF SELECTED RESEARCH RESULTS: POLAND, RUSSIA, UKRAINE, AND AUSTRALIA <i>Eugenia Smyrnova-Trybulska, Ewa Ogrodzka-Mazur, Anna Szafrńska-Gajdzica, Nataliia Morze, Rusudan Makhachashvili, Tatiana Noskova, Tatiana Pavlova, Olga Yakovleva, Tomayess Issa and Theodora Issa</i>	107
EVALUATING THE DESIGN AND DEVELOPMENT OF AN ADAPTIVE E-TUTORIAL MODULE: A RASCH-MEASUREMENT APPROACH <i>Allaa Barefah and Elspeth McKay</i>	115
ANALYSING STUDENTS' INTERACTIONS THROUGH SOCIAL PRESENCE AND SOCIAL NETWORK METRICS <i>Vanessa Cristina Martins da Silva and Sean Wolfgang Matsui Siqueira</i>	123
DIFFERENCES BETWEEN PERCEIVED USEFULNESS OF SOCIAL MEDIA AND INSTITUTIONAL CHANNELS BY UNDERGRADUATE STUDENTS <i>Leandro Sumida Garcia and Camila Mariane Costa Silva</i>	131
INTEGRATE WECHAT WITH MOODLE TO PROVIDE A MOBILE LEARNING ENVIRONMENT FOR STUDENTS <i>Zhigao Li, Yibo Fan and Jianli Jiao</i>	142
SCALING A MODEL OF TEACHER PROFESSIONAL LEARNING – TO MOOC OR NOT TO MOOC? <i>Deirdre Butler, Margaret Leahy, Michael Hallissy and Mark Brown</i>	150
A PRELIMINARY STUDY ON BUILDING AN E-EDUCATION PLATFORM FOR INDIAN SCHOOL-LEVEL CURRICULA <i>Rajeev Kumar Kanth and Mikko-Jussi Laakso</i>	159
AUTOMATED ASSESSMENT IN MASSIVE OPEN ONLINE COURSES <i>Dmitrii A. Ivaniushin, Dmitrii G. Shtennikov, Eugene A. Efimchick and Andrey V. Lyamin</i>	166
APPLICATION OF DIGITAL CYBERSECURITY APPROACHES TO UNIVERSITY MANAGEMENT – VFU SMART STUDENT <i>Anna Nedyalkova, Teodora Bakardjieva and Krasimir Nedyalkov</i>	173
DEVELOPING A TECHNOLOGY ENHANCED CS0 COURSE FOR ENGINEERING STUDENTS <i>Erno Lokkila, Erkki Kaila, Rolf Lindén, Mikko-Jussi Laakso and Erkki Sutinen</i>	181

TEACHING DATA SCIENCE TO POST GRADUATE STUDENTS: A PRELIMINARY STUDY USING A “F-L-I-P” CLASS ROOM APPROACH <i>Sunet Eybers and Mariè Hattingh</i>	189
EDUCATIONAL ROBOTS IN PRIMARY SCHOOL TEACHERS’ AND STUDENTS’ OPINION ABOUT STEM EDUCATION FOR YOUNG LEARNERS <i>Eugenia Smyrnova-Trybulska, Nataliia Morze, Piet Kommers, Wojciech Zuziak and Mariia Gladun</i>	197
TOWARDS THE SUCCESSFUL INTEGRATION OF DESIGN THINKING IN INDUSTRIAL DESIGN EDUCATION <i>Omar Mubin, Mauricio Novoa and Abdullah Al Mahmud</i>	205
INTERNATIONAL STUDY TOURS: A KEY TO 21ST CENTURY ACADEMIC AND INDUSTRY EXCHANGES <i>Ana Hol, Danielle Simiana, Gilbert Lieu, Ivan Ong, Josh Feder, Nimat Dawre and Wakil Almazi</i>	213
A RETHINK FOR COMPUTING EDUCATION FOR SUSTAINABILITY <i>Samuel Mann</i>	221
TECHNICAL EDUCATION AS A TOOL FOR ENSURING SUSTAINABLE DEVELOPMENT: A CASE OF INDIA <i>Gagan Deep Sharma, Raminder Singh Uppal and Mandeep Mahendru</i>	229
EVALUATING ECO-INNOVATION OF OECD COUNTRIES WITH DATA ENVELOPMENT ANALYSIS <i>Reza Kiani Mavi and Craig Standing</i>	237
REVEALING GREENWASHING: A CONSUMERS’ PERSPECTIVE <i>Anne Brouwer</i>	245
BENCHMARKING ANTHROPOGENIC HEAVY METALS EMISSIONS: AUSTRALIAN AND GLOBAL URBAN ENVIRONMENTAL HEALTH RISK BASED INDICATORS OF SUSTAINABILITY <i>Nick Dejkovski</i>	253

SHORT PAPERS

RACING TO THE FUTURE: SECURITY IN THE GIGABIT RACE? <i>Mark A Gregory and Lucy Craddock</i>	263
AN E-LEARNING SYSTEM WITH MR FOR EXPERIMENTS INVOLVING CIRCUIT CONSTRUCTION TO CONTROL A ROBOT <i>Atsushi Takemura</i>	267
SIMULATIONS FOR CRISIS COMMUNICATION: THE USE OF SOCIAL MEDIA <i>Siyoung Chung</i>	272
SOCIAL NETWORKING FRAMEWORK FOR UNIVERSITIES IN SAUDI ARABIA <i>Sulaiman Alqahtani</i>	277
RETHINKING E-LEARNING MEDIA: WHAT HAPPENS WHEN STUDENT LIKE MEETS PROFESSOR ME? <i>Stephen Arnold</i>	281

TELLING THE STORY OF MINDRISING: MINECRAFT, MINDFULNESS AND MEANINGFUL LEARNING <i>Deirdre Butler, Mark Brown and Gar Mac Criosta</i>	287
GREEN IT MODEL FOR IT DEPARTMENTS IN GULF COOPERATION COUNCIL (GCC) ORGANISATIONS <i>Abdulaziz Albahlal</i>	292
HOW DOES THE USE OF MOBILE DEVICES AFFECT TEACHERS' PERCEPTIONS ON MOBILE LEARNING? <i>Dong-Joong Kim, Daesang Kim and Sang-Ho Choiv</i>	297
CATEGORIZING 'OTHERS': THE SEGMENTATION OF OTHER ACTORS FOR 'FAITH IN OTHERS' EFFICACY (FIO) <i>Chi Kwan Ng and Clare D'Souza</i>	301
DESIGN THINKING: A METHODOLOGY TOWARDS SUSTAINABLE PROBLEM SOLVING IN HIGHER EDUCATION IN SOUTH AFRICA <i>Keneilwe Munyai</i>	306
NEW ECOLOGICAL PARADIGM AND SUSTAINABILITY ATTITUDES WITH RESPECT TO A MULTI-CULTURAL EDUCATIONAL MILIEU IN CHINA <i>Mona Wells and Lynda Petherick</i>	311

REFLECTION PAPERS

SYNTHETIC BIOLOGY: KNOWLEDGE ACCESSED BY EVERYONE (OPEN SOURCES) <i>Patricia Margarita Sánchez Reyes</i>	319
ENVISIONING THE CITY OF THE FUTURE: KNOWLEDGE SOCIETIES VS. ENTERTAINMENT SOCIETIES <i>Yolanda Alicia Villegas González</i>	322
BLUE OCEAN STRATEGY FOR HIGHER EDUCATION <i>Ricardo Bragança</i>	325
EXPLORING HOW DIGITAL MEDIA TECHNOLOGY CAN FOSTER SAUDI EFL STUDENTS' ENGLISH LANGUAGE LEARNING <i>Abdulmohsin Altawil</i>	329
CLOUD COMPUTING IN HIGHER EDUCATION SECTOR FOR SUSTAINABLE DEVELOPMENT <i>Yuchao Duan</i>	333
EXPLORING CONNECTIVISM IN THE CONTEXT OF ONLINE SOCIAL TRADING <i>Endrit Kromidha</i>	337

POSTERS

A PRELIMINARY INVESTIGATION INTO THE INFORMATION SHARING BEHAVIOR OF SOCIAL MEDIA USERS AFTER A NATURAL DISASTER <i>Yukiko Maruyama</i>	341
EFFECTS OF A TECHNOLOGY-FRIENDLY EDUCATION PROGRAM ON PRE-SERVICE TEACHERS' PERCEPTIONS AND LEARNING STYLES <i>Dong-Joong Kim and Sang-Ho Choi</i>	344
USE OF COGNITIVE AND METACOGNITIVE STRATEGIES IN ONLINE SEARCH: AN EYE-TRACKING STUDY <i>Mingming Zhou and Jing Ren</i>	347
DEVELOPMENT OF A DIAGNOSTIC SYSTEM FOR INFORMATION ETHICS EDUCATION <i>Shingo Shiota, Kyohei Sakai and Keita Kobayashi</i>	350
A PRACTICAL STUDY OF MATHEMATICS EDUCATION USING GAMIFICATION <i>Kyohei Sakai and Shingo Shiota</i>	353
DEMONSTRATING THE COLLATREX FRAMEWORK FOR COLLABORATIVE CONTEXT-AWARE MOBILE TRAINING AND EXPLORATION <i>Jean Botev</i>	355
DEVELOPMENT OF TRAINING/SELF-RECOGNIZING TOOLS FOR DISABILITY STUDENTS USING A FACE EXPRESSION RECOGNITION SENSOR AND A SMART-WATCH <i>Taku Kawada, Akinobu Ando, Hirotaka Saito, Jun Uekida, Nobuyuki Nagai, Hisashi Takeshima and Darold Davis</i>	357
ANALYSIS OF USAGE TRENDS OF SOCIAL MEDIA AND SELF-ESTEEM BY THE ROSENBERG SCALE <i>Hiroko Kanoh</i>	360

DOCTORAL CONSORTIUM

A MODEL FOR AN INFORMATION SECURITY RISK MANAGEMENT (ISRM) FRAMEWORK FOR SAUDI ARABIAN ORGANISATIONS <i>Naser Alshareef</i>	365
--	-----

AUTHOR INDEX

MOOCS – THEORETICAL AND PRACTICAL ASPECTS: COMPARISON OF SELECTED RESEARCH RESULTS: POLAND, RUSSIA, UKRAINE, AND AUSTRALIA

Eugenia Smyrnova-Trybulska¹, Ewa Ogrodzka-Mazur¹, Anna Szafrńska-Gajdzica¹,
Nataliia Morze², Rusudan Makhachashvili², Tatiana Noskova³, Tatiana Pavlova³, Olga Yakovleva³,
Tomayess Issa⁴ and Theodora Issa⁴

¹*University of Silesia in Katowice, Poland*

²*Borys Grinchenko Kiev University, Kiev, Ukraine*

³*Herzen State Pedagogical University of Russia, Saint Petersburg*

⁴*Curtin University, Perth, Australia*

ABSTRACT

Many higher education students are interested in MOOCs. At the same time, numerous questions are still without answers: formal aspects of participation in MOOCs, the type of motivation on the part of students for participation in MOOCs, quality of MOOCs, students' opinions about type, structure, contents, communication in MOOCs and other aspects. The authors of this article have tried conducting analyses of some aspects of MOOCs in Europe and in Australia as well as presenting and analysing the research results of a survey conducted among students of several countries within the framework of the European Union project IRNet (www.irnet.us.edu.pl).

KEYWORDS

MOOCs, higher education institution, International research network, survey, students

1. INTRODUCTION

The current education system is undergoing a global change because it is expected to fully develop individuals, prepare future professionals for living in an open information space, to form their 21st century skills, to ensure their continuous lifelong learning in informal form. There is a need for interaction between different social, economic and technological developments in the field of education in a global context, which specially develops technologies, tools and means of open education.

Many higher education students are interested in MOOCs. Research conducted by staff at Duke University shows that students choose MOOC for several reasons (Belanger, Thornton, 2013 in: Smyrnova-Trybulska, Morze, Varchenko-Tritsenko 2015):

To support lifelong learning or gain an understanding of the subject matter, with no particular expectations for completion or achievement;

For fun, entertainment, social experience and intellectual stimulation;

Convenience, often in conjunction with barriers to traditional education options;

To experience or explore online education.

Theoretical and methodological aspects of (MOOCs) and analysis of selected examples have been described in the authors' study (Szulc 2014). Selected social and educational aspects of MOOCs were analyzed in (Smyrnova-Trybulska, Morze, Varchenko-Tritsenko 2015). The authors explored a trend in modern education referred to as the Massive Open Online Course (MOOC), analyzed the main types of MOOCs as well as current projects involving MOOC, and examined the ways in which they are used to ensure openness in education.

Analyzing MOOCs as disruptive technologies: strategies for enhancing the learner experience and quality of MOOCs have been described by Conole (2013). A taxonomy of 8 types of MOOC was developed by Donald Clark (2013), who described and characterised all types of MOOCs. In an independent study (Gurba

2015) the history of MOOCs as well as contemporary and future MOOCs were analysed and described. MOOCs and pedagogy, didactics of massive open online courses, mass open on-line training courses as a trend in education progress were examined by researchers from different countries (Kukharensko 2013), (Larry 2012), (Lebedeva 2015). MOOCs and open education: implications for higher education were studied by Yuan, Li, Powell, Stephen (2013). The MOOC model for digital practice was analyzed by (Mcauley, A., et al. (2010). Simultaneously, numerous questions are still without answers: formal aspects of participation in MOOCs, the type of motivation on the part of students for participation in MOOCs, quality of MOOCs, students' opinions about type, structure, contents, communication in MOOCs and other aspects.

The authors of this article have tried conducting analyses of some aspects of MOOCs in Europe and in Australia; they also presented and analysed the research results of a survey conducted among students of several countries within the framework of the European Union project IRNet (www.irnet.us.edu.pl).

2. BACKGROUND

In 2008, a new teaching facility was presented in the education sector especially in the e-learning landscape called MOOC or a massive open online course. MOOCs provide low cost and effective teaching and learning for ordinary people globally and locally. MOOC use technology and distance education applications to provide knowledge and skills to students and learners by sharing and transforming cutting edge, advanced information and data. This type of teaching is pushing educational learning and teaching to new pursuits and chases. According to Kesim and Altınpulluk (2015, p. 15) MOOC courses “taught by elite academics in elite universities draw a lot of interest, and provide a complete distance learning environment through assignments, presentations, videos and other course materials”.

A MOOC facility allows students and learners, especially in the field of distance education, to employ vast tools to develop, build, and manage their own learning by using the Internet facility and web technologies. MOOC courses are massive, open access, free, accessible to students globally and locally, to enroll and complete their units fully online and in a synchronous mode. This type of teaching is different from traditional teaching as it has various features and components, such as: dynamic, accessibility while the course is open, assessments, accreditation and collaborative nature (Fini, 2009; Martinez, 2014).

MOOC unit materials should be available in various formats, such as text, video and audio, to students, gradually, to understand, recognize, and capture the unit aims in line to complete the assessments and tests and achieve the accreditation at the end. MOOC assessments should be presented in various methods from self-test quizzes and exams, and should be self-scoring to provide immediate feedback to the students and to minimize the lecturer's workload. Usually, MOOC units should be presented and developed with outstanding content, well delivered presentations, and clear guidelines and instructions inline to make students and learners journey with MOOC efficient, effective and well-organized (Simonson, 2012).

MOOCs are divided into two types, namely: cMOOCs, xMOOCs; these two types were coined by Stephen Downers in 2008. cMOOCs are based on learning theory of Connectivism, as students and learners are using digital platforms such as wikis, blogs, discussion forum to connect and collaborate with learning communities and other learners to create and develop concept knowledge. On the other hand, xMOOCs are based on a traditional classroom structure. This type of MOOC involves pre-recorded video lecture with quizzes, tests, and assessments. xMOOCs are created around an academic rather than a community of students and learners. xMOOCs courses can be found on Coursera, EdX, Udacity, Open2Study, and NovoEd.

Integrating and adopting MOOCs in higher education can bring various challenges and opportunities to students and learners, such as developing and enhancing professional skills in Reading; Writing; Research; Information; Critical Thinking; Decision Making; Technology; Digital oral presentation; Drawing (i.e. concept maps); Teamwork; and Languages; personal skills such as Motivation; Leadership; Negotiation, Communication, Problem solving, Time Management, Reflection, Self-Management, and Self Appraisal (Isaias & Issa, 2014; Issa, 2014). These skills are essential for research and workforce in the future. However, challenges can impact both lecturers and students in terms of ICT skills, time consuming character and accessibility (Hew & Cheung, 2014; Martin, 2012).

2.1 Massive Open Online Courses in Australia

In Australia the MOOC idea has become essential for universities and education sector to be able to present cutting edge information about the latest and most recent topics. MOOC started to attract a great number of students and learners from Australia and globally to undertake this type of teaching instead of traditional teaching as this type is practical, flexible, free and dynamic (Guthrie, Burrirt, & Evans, 2013). This platform aims to deliver and supply students and learners with new knowledge by using the latest technologies from social network tools i.e. blogs and wikis, as these technologies aim to develop personal and professional skills and develop more collaboration and communication among students compared with traditional teaching (Issa, 2014). Finally, MOOC teaching becomes available for postgraduate and undergraduate students to advance their learning knowledge and to increase their collaboration and communication with students and learners nationally and internationally. The question we need to ask ourselves is whether MOOC teaching will fully replace traditional and face to face teaching.

2.2 Massive Open Online Courses in Europe

In the Bologna Process, 'virtual learning' has mostly been understood as enabling 'internationalisation at home' (European Commission/EACEA/Eurydice, 2015), allowing non-mobile students to have an international experience through virtual mobility. However, in recent years there has been growing interest in so-called 'massive open online courses' (MOOCs), which has forced European countries and higher education institutions to consider this 'new' internationalisation instrument to enhance their international visibility and competitiveness (European Commission/EACEA/Eurydice, 2015).

2.3 MOOCs are Courses intended to Reach Learners anywhere in the World via the Internet

However, it is difficult to say precisely where the boundary lies between MOOCs and more 'traditional' online courses aimed often at a more specific and local public. As developments in this field are changing rapidly, such boundaries may become irrelevant in the near future. (European Commission 2015)

According to a recent study on e-learning in European higher education institutions, enhancing international visibility is by far the most common motivation for setting up MOOCs, followed by developing innovative learning and teaching methods (Gaebel et al. 2014, p. 55).

Generally, in most countries, the share of higher *education institutions offering MOOCs* is very low and is rarely above 10 %. A notable exception is Spain where 30 % of institutions are offering MOOCs. In addition, in Ireland and the United Kingdom (Scotland), they are relatively common. MOOCs are most numerous *in Spain (over 200 courses)* and the *United Kingdom (over 150 courses)*.

(1) This was highlighted in the 2013 European Commission's Communication 'Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources' (Opening up Education).

2.4 Massive Open Online Courses (MOOCs) in Europe

Overall, the use of *internationalisation instruments* such as joint programmes/degrees, campuses abroad and MOOCs varies across the EHEA.

This is clearly a fast-evolving arena and efforts are needed both at national and institutional level to optimise the full potential of these internationalisation instruments (European Commission/EACEA/Eurydice, 2015).

2.5 Massive Open Online Courses (MOOCs) – still a Hot Topic in Europe

MOOCs are still of high and seemingly growing interest at European universities. At the time of the survey, only 31 of the responding institutions (12% of the sample), either offered MOOCs or were just about to

launch them. But almost *half of the 218 institutions* that did not offer MOOCs indicated their *intention to introduce them*.

This is further confirmed by the fact that one third of all the institutions had a formal position on MOOCs – a positive one for the majority – and a further 42% intended to develop one. There is no convincing correlation between taking up MOOCs, and a particularly strong engagement in other forms of e-learning. However, *technical universities* were more likely, in the small sample of institutions, to already have MOOCs.

2.6 What are MOOCs?

“*The future is already here, it’s just not very evenly distributed*” said William Gibson (Gibson in: Clark 2013); that is certainly true of MOOCs. We have MOOC mania but ‘all MOOCs are not created equal’ and there’s lots of species of MOOC. This is good and we must learn from these experiments to move forward and not get bogged down in old traditionalist v modernist arguments. MOOCs will inform and shape what we do within and without institutions. What is important is to focus on the real needs of real learners (Clark 2013).

2.7 Taxonomy based on Pedagogy

It is important to define taxonomy of MOOCs not from the institutional but the pedagogic perspective, by their learning functionality, not by their origins. Figure 1 shows the eight Taxonomy based on pedagogy (Clark 2013).

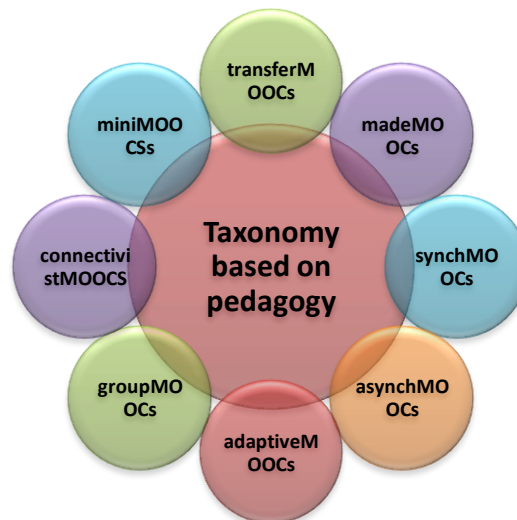


Figure 1. Taxonomy based on pedagogy
Source: (Clark 2013)

2.8 Overview of MOOC Experience in Russia

In Russia, MOOCs are now actively used in learning foreign languages. However, in general, the activity of Russian universities in the development of quality content for MOOCs is relatively low. A number of universities began to develop their own public resources, but they rather may be called experimental, i.e. they are created in order to work out effective technologies of interaction with a large audience of students (Lebedeva, 2015).

In April 2015, eight of the leading Russian universities formed a non-profit organization - the association “The National Platform of Open Education” for the joint development of on-line learning. The Association’s task is to create a resource that will host the Russian-language courses that give basic knowledge on the subject matters of basic educational programs (undergraduate and graduate). [Leading universities of Russia

non-profit organizations have created for sharing development of online education [Electronic resource] // Mode of access: <URL: минобрнауки.рф/новости/5369>.

The Ministry of Education and Science is considering several ways of using MOOCs to enhance the variability of educational programs tailored to the individual needs of students:

- As an additional content for self-study, with no requirements for monitoring results.
- As a mixed model of learning, but it only applies to courses that are available on the project “The National Platform of Open Education”. In this case, a MOOC is part of the curriculum, which is obligatory for the theoretical and practical study, as well as taking into account the results obtained.
- As a prerequisite for developing a university special regulatory framework for formal credit of results obtained in a MOOC study, selected by students themselves.

All of this suggests that the practice of developing and using MOOCs in Russia has a positive dynamics. Teachers need to develop not only the specifics of MOOCs inclusion in the educational process, but also courses as such because they are one of the factors determining the competitiveness of the university. These courses have a high potential for in-service training and retraining of teachers. For example, after the development of a MOOC a learner takes an official final examination and obtains a certificate of professional development. This model currently is seen as temporary, because not all educational institutions have already adopted regulations allowing certifying the results of undertaking a MOOC.

It can be also noted that the development of mass online education in Russia is hampered by a number of factors. These factors are the following: language barriers, lack of MOOC inclusion experience in higher education programs, lack of students’ readiness to work with a high degree of self-organization, lack of employers’ experience in consideration of MOOCs results when hiring employees or offering financial incentives. Nevertheless, in the pedagogical research and practices, the technology of effective MOOC development and use is an up-to-date issue. A number of technologies and ICT tools used in MOOCs are being tested in e-learning practices in Russian universities.

On the Coursera platform, several Russian universities offer a number of MOOCs. These universities are the following: Natural Research Nuclear University, Saint-Petersburg State University, High School of Economics, Peter the Great St. Petersburg Polytechnic University. Analysis of the offered courses content shows that most of the courses originate from the natural science field. For example, such courses as Physics, Bioinformatics, 3D Printing, Programming, etc. are offered. At the same time, there are also such courses as “Social Media Platforms: history, the audience, the possibility of using”, “Psycho diagnostics”, “Russian language for foreigners”. The majority of the courses are offered in Russian, and there are just a few courses available in English.

2.9 Methodology and Some Research Results

A survey has been conducted in several IRNet project partners’ universities: University of Silesia (US), Poland, Borys Grinchenko Kiev University (BGKU), Kiev, Herzen State Pedagogical University of Russia (HSPU), Saint Petersburg, Russia, Curtin University (CU), and Perth, Australia). Below are presented survey results, with participation of 99 respondents (US, PL), 69 respondents (BGKU, UA), 54 respondents (HSPU, RU). The questionnaire was prepared in Google Drive (Google Form), was anonymous and students of different specializations were invited to complete it. The University of Silesia conducted the survey at the Faculty of Ethnology and Sciences of Education among students of the humanistic specialization: Integrated Primary Education and Kindergarten Education, Kindergarten Education with Child’s Development Early Support, Social-Cultural Animation with Cultural tourism, Integrated Primary Education and Pedagogical Therapy; in total 99 students took part in the survey. The results of the students’ responses of to the some question presented on the Table 1 – 6.

Table 1. Results of the students’ responses of to the question: *Are you familiar with the term MOOC (Massive Open Online Course) (Single answer question)*

	US	BGKU	HSPU
Yes	37,7%	44,9%	81,3%
No	62,6%	55,1%	18,8%

Source: Own research

Table 2. Results of the students' responses to the question: *Have you attended a MOOC course? (Single answer question)*

	US	BGKU	HSPU
Yes	24,2%	23,2%	37,5
No	75,8%	76,8%	62,5%

Source: Own research

Table 3. Results of students' answers to the question: *Which MOOC platforms are you familiar with? (Multiple choice question)*

	US	BGKU	HSPU
EdX	12,1%	11,6%	25%
Coursera	7,1%	24,6%	59,4%
UDACITY	5,1%	7,2%	15,6%
Udemy	6,1%	15,9%	0%
P2Pu	11,1%	2,9%	0%
Khan Academy	4%	14,5%	15,6%
Prometheus	5,1%	17,4%	0%
I am no familiar with MOOC platforms	70,7%	11,6%	34,4%
Other	0	24,6%	15,6%

Source: Own research

Table 4. Results of students' answers to the question: *Choose a reason for attending a MOOC (Multiple choice question)*

	US	BGKU	HSPU
Interesting new topic	55,6%	47,8%	37,5%
Need for a certificate	15,2%	19,6%	3,1%
Basic course to support a major course	15,2%	15,2%	6,3%
Your own satisfaction	30,3%	-	9,4%
other		17,4%	3,1%

Source: Own research

Table 5. Results of students' answers to the question: *What are your expected results of attending a MOOC? (Multiple choice question)*

	US	BGKU	HSPU
Mastering a new theory	39,4%	40,5%	53,1%
Mastering new practical skills	47,5%	21,6%	46,9%
Mastering new skills, necessary for new competences at the workplace	25,3%	18,9%	78,1%
Educational support	32,3%	18,9%	9,4%

Source: Own research

Table 6. Results of students' answers to the question: *Reasons to drop out of a MOOC (Multiple choice question):*

	US	BGKU	HSPU
Long duration of the course	35,4%	50,7%	56,3%
Unengaging thematic scope of particular parts	24,2%	62,7%	37,5%
Long duration of particular parts	19,2%	22,4%	40,6%
Assessment	12,1%	14,9%	25%
Lack of assessment	18,2%	13,4%	3,1%
Time-consuming tasks	22,2%	49,3%	56,3%
Lack of a logical structure	12,1%	40,3%	34,4%
Lack of feedback	15,2%	38,8%	46,9%
Lack of prescriptive guidance of the tutor	12,1%	22,4%	12,5%
Other	3%	0	9,4%

Source: Own research

One of the survey questions asked about Reasons to unsubscribe from MOOC. Among the most important reasons to unsubscribe from the course, cited by the respondents who participated in the survey, was too long duration of the course. In addition, as emphasized in the study (Gurba 2015), the authors of mass courses recognize more and more the necessity to provide more practical direction and implementation courses in order to keep their participants for longer and prevent them from leaving the course before completion. Not only the design of the course-design approach problem is a solution, but also a good set of partners from outside the academic world, and the industry, services and areas of practical applications. The development of design types of mass courses is one of the important directions of modification on the MOOC floor. Some authors use a new name MOOP, in which the letter P stands for “project”, instead of “course”. We are therefore faced with a creation massive open online projects, rather than the usual courses MOOC2 (T. Toikkanen, MOOP: The Next Step beyond MOOCs, "Tarmo.fi Blog" <http://tarmo.fi/blog/20x5/04/koop-the-next-step-beyond-moocs>) In: (Gurba 2015)).

3. CONCLUSIONS

When reviewing statistic data and maps concerning massive open online courses (MOOCs) in Europe and countries in which public higher education institutions offer MOOCs, 2013/14, we note that it is not yet an absolutely balanced and common phenomenon, but we can observe the dynamic growth in the number of courses and their diversity. The factors and conditions for developing new MOOCs in higher institutions are:

- Motivation on the part of students who study and will work in conditions of digital space, global world economy;
- Dynamic development of new competences, new professions, new skill which need to permanently improve the qualification;
- Self-study, lifelong learning, sometimes with no requirements for monitoring results.
- New IT-technology and creative tools for elaborating MOOCs
- resolution and regulation of the formal and legal aspects, which will provide the possibility for participation and successful completion of MOOCs not only as informal but also as a formal educational achievement (ECTS credits) for students.

The authors of the article, researchers of the international consortium IRNet will continue the research. Now the MOOCs “IT-tools for effective use in e-learning” are progressing. The editors, researchers will further analyze the results of the students’ survey and will improve the methodology, content, form of presentation of didactic materials, tools for communication of learners, etc. and will present results in their subsequent publication. We accept the fact that the development trend is still current, popular, quite effective, and it should take into account higher education institutions.

ACKNOWLEDGMENTS

The research leading to these results has received, within the framework of the IRNet project, funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement No: PIRSES-GA-2013-612536.

REFERENCES

- Belanger, V., Thornton, J. (2013), Bioelectricity: A Quantitative Approach - Duke University's First MOOC. [Online]. [Cit. 2014-11-26]. Available at: <<http://hdl.handle.net/10161/6216>>
- Clark, D., 2013: MOOCs: taxonomy of 8 types of MOOC. Donald Clark Paln B, Tuesday, April 16, 2013, [online] at <http://donaldclarkplanb.blogspot.co.uk/2013/04/moocs-taxonomy-of-8-types-of-mooc.html>, (accessed 20 March 2016)
- Conole, G., 2013: MOOCs as disruptive technologies: strategies for enhancing the learner experience and quality of MOOCs. RED - Revista de Educación a Distancia, Numero 39, 2013, p. 1-17, ISSN: 1578-7680
- Downes, S., 2010: Fairness and equity in education. Huff Post Education, August 20, 2014, [online] at http://www.huffingtonpost.com/stephen-downes/democratizing-education_b_794925.html, (accessed 20 March 2016)

- European Commission/EACEA/Eurydice, 2015. The European Higher Education Area in 2015: Bologna Process Implementation Report. Luxembourg: Publications Office of the European Union http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/182EN.pdf
- European Commission (2013). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Opening up Education: Innovative teaching and learning for all through new Technologies and Open Educational Resources. COM(2013) 654 final In European Commission/EACEA/ Eurydice, 2015.
- Fini, Antonio. (2009). The technological dimension of a massive open online course: The case of the CCK08 course tools. *The International Review of Research in Open and Distributed Learning*, 10(5).
- Gabel, M. et al., 2014. E-Learning in European Higher Education Institutions: Results of a Mapping Survey conducted in October-December 2013. Brussels: EUA.
- Gurba K. (2015) MOOC Historia i przyszłość, Kraków 2015 137 s. ISBN: 978-83-7438-470-4
- Guthrie, James, Burritt, ROGER, & Evans, Elaine. (2013). Challenges for accounting and business education: blending online and traditional universities in a MOOC environment. *The Virtual University: Impact on Australian Accounting and Business Education*, 9-22.
- http://www.ekspercibolonscy.org.pl/sites/ekspercibolonscy.org.pl/files/ii_tsw_dp_weryfikacja_3_4_1.pdf
- Inamorato dos Santos, A., Punie, Y., Castaño-Muñoz, J. (2016) Opening up Education: A Support Framework for Higher Education Institutions. JRC Science for Policy Report, EUR 27938 EN
- Isaias, Pedro, & Issa, Tomayess. (2014). Promoting Communication Skills for Information Systems Students in Australian and Portuguese Higher Education: Action Research Study. *Education and Information Technologies* 19(4), 841 - 861.
- Issa, Tomayess. (2014). Learning, Communication and Interaction via Wiki: An Australian Perspective. In H. Kaur & X. Tao (Eds.), *ICTs and the Millennium Development Goals* (pp. 1-17). UK: Springer.
- Kesim, Mehmet, & Altınpulluk, Hakan. (2015). A theoretical analysis of MOOCs types from a perspective of learning theories. *Procedia-Social and Behavioral Sciences*, 186, 15-19.
- Kukhareno, V., 2013: Didactic of massive open online courses MOOC Omsk, 2013 [on-line] at <http://www.slideshare.net/kvntkf/mooc-omsk/> (accessed 28 August 2014)
- Larry, C. (2012) MOOCs and Pedagogy: Teacher-Centered, Student-Centered, and Hybrids (Part 1). <<http://larrycuban.wordpress.com/2013/02/13/moocs-and-pedagogy-part-2/>> (Available 2014-11-26).
- Leading universities of Russia non-profit organization have created for sharing development of online education [Electronic resource] // Mode of access: <URL: минобрнауки.рф/новости/5369>
- Lebedeva M. (2015). Mass open on-line training courses as a trend in education progress. *Man and Education*, 1 (42), pp. 105-109 [in Russian]
- Martin, Fred G. (2012). Will massive open online courses change how we teach? *Communications of the ACM*, 55(8), 26-28.
- Martinez, Sergio. (2014). OCW (OpenCourseWare) and MOOC (Open Course Where?). *Proceedings of OpenCourseWare Consortium Global*.
- Mcauley, A., et al. (2010): "The MOOC model for digital practice." 33. http://www.elearnspace.org/Articles/MOOC_Final.pdf (Available 2014-11-26)
- Open Education Europa (2014). Report on web skills survey [online] <http://www.openeducationeuropa.eu/sites/default/files/news/MOOCs-for-web-skills-survey-report.pdf> (Accessed 21 September 2014).
- Siemens, G., Gašević, D., & Dawson, S. (2015). Preparing for the digital university: a review of the history and current state of distance, blended, and online learning. Athabasca: Athabasca University. Available on-line <<http://linkresearchlab.org/PreparingDigitalUniversity.pdf>> (Accessed 20 March 2016)
- Simonson, Michael. (2012). MOOC madness. *Distance Learning*, 9(4), 3.
- Smyrnova-Trybulska E. Morze, N., Varchenko-Tritzenko, 2015: MOOCS - Selected Social and Educational Aspects [In:] *Distance Learning, Simulation and Communication*, 2015, Proceedings, editor: Miroslav Hruby, Brno, Czech Republic, May 19-21, 2015, pp.159-165. ISBN 978-80-7231-992-3
- Stephen, D., 2008: "CCK08 - The Distributed Course". *The MOOC Guide*. Retrieved 11 September 2013 [online] at <https://sites.google.com/site/themoocguide/3-cck08---the-distributed-course>, (accessed 26 March 2016)
- Szulc J. 2014: "Theoretical and Methodological Aspects of (MOOCs). Analysis of Selected Examples" In: *E-learning and Intercultural Competences Development in Different Countries*, Monograph Edited by E. Smyrnova-Trybulska, University of Silesia, Studio-Noa, Katowice-Cieszyn, 2014, pp. 197-214.
- Yuan, Li, Powell, Stephen. MOOCs and Open Education: Implications for Higher Education <http://publications.cetis.ac.uk/2013/667> (2014-11-26)