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IMPLICATIONS AND OPPORTUNITIES OF OPEN ONLINE COURSES FOR HIGHER EDUCATION IN RUSSIA

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Abstract

The need for the study has been caused by the ongoing search for new teaching/ learning strategies and potentially effective technology-based means for quality education at university level in Russia. Rapid shift from traditional education to online learning practices has been actualized by the advent of the Internet and ubiquitous use of various gadgets and electronics in all spheres of life, including education. The new cohort of university students, known as Generation Z, cause their teachers to entirely alter their concepts, attitudes and methods of teaching so as to meet the requirements of a digitizing world with its innovative global economy, competitive markets and multicultural diversity. As a result, open online learning is increasingly forming an integral part of university course delivery and instruction and dramatically reshaping traditional teaching/ learning paradigm. The purpose of this paper is to analyze whether open online courses (OOC), especially MOOCs (massive open online courses) and SPOCs (small private online courses) may support different learning needs and styles of Russian students, enrich university learning environment and the higher school's curriculum with alternative educational modes and models for better learning outcomes.

The methodological framework of the study rests on the comparative approach allowing accumulating best practices of using open online courses by top universities worldwide. The main result of the study is the design of the open online learning model that enhances the quality of university education in general and foreign language training in particular.

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Keywords: University, students, open online courses, MOOCs, SPOCs, technology.

1. Introduction

The information revolution that started in the last decades of the 20th century on a global scale has led to transition of human civilization from its industrial phase to technologically enhanced stage of development. The new reality facilitated rapid growth and expansion of the so-called information society where various significant activities of individuals or groups of people would increasingly depend on their awareness and ability to effectively access, retrieve, utilize and exchange all available information via technologically mediated means of communication (Harshbarger, 2016). Bell (1979), an American sociologist and professor at Harvard University, who is generally considered as the creator of the term "information society", emphasized the importance of both information and knowledge for a community as key inputs into its economic, political and social processes. Back in 1979, Bell wrote in one of his books: "By information I mean data processing in the broadest sense; storage, retrieval, and processing of data becomes the essential resource for all economic and social exchanges (...) By knowledge, I mean an organized set of statements of facts or ideas, presenting a reasoned judgment or an experimental result, which is transmitted to others through some communication medium in some systematic form" (Bell, 1979, p. 510). The crucial point in Bell's perception of information society is that knowledge and information become its strategic and transforming resources. Moreover, the society itself provides strong support for knowledge discovery strategies, knowledge retention, and knowledge networking (Moore, 1993).

The invention of computers, growth in telecommunications and availability of the broadband Internet enhanced the concept "information society" and enriched it by such new and closely related notions as "digital society", "network society", etc. (Castells, 2009). No matter how we call it, information society is a reality today where multiple technology-based advances and developments generate new demands for information and knowledge, which in their turn gradually affect and change all aspects of social life and organization, including the economy, governments, education and science, medical care and home security, business opportunities and employment, etc. (Harshbarger, 2016). The main drivers of the upcoming digitizing world are information and communication technologies (ICT) which have become a regular and habitual fixture in many facets of our lives, including educational settings (Castells, 2009). The "residents" of the ICT-mediated society being sometimes called digital citizens are inter alia university teachers and their students, the latter being referred to as often as Generation Z (aka Gen Z, iGen or Centennials) (Oblinger, 2003; Villa & Dorsey, 2017).

According to the research provided by generational experts from the Center for Generational Kinetics based in Austin (Texas, USA), most of the current students are members of the so-called Gen Z community (Villa & Dorsey, 2017). One key aspect of this generation is their widespread use of the Internet and various ICT-based toys and means from an early age. Consequently, they feel comfortable with digital technologies in various settings be that online or off-line. Moreover, Gen Z is the first generation to be raised in the era of smartphones and tablets that have strongly influenced them in terms of communication and education. They are typically interacting with friends, peers and family on social media websites via really fast messaging apps, such as Snapchat, Vine, Instagram, etc. (Villa & Dorsey, 2017). Gen Z students are actively seeking digital freedom and tending to access, retrieve, share, exchange and store different types of information regularly but in a quite fast, affordable and easier way. This "digital" lifestyle and

experience could hardly fail to influence Gen Z` learning styles and needs too (Oblinger, 2003; Villa & Dorsey, 2017).

2. Problem Statement

The analysis of the literature (Moore, 2013; Jansen & Van der Merwe, 2015; Harshbarger, 2016; Ainoutdinova, Khuziakhmetov, & Tregubova, 2017) on the topic allowed us to assume that most of the common trends of the 21st century teaching and learning involve various ICT-based technologies, tools and methods, including e-Learning, Web-based learning (WBL), mLearning (mobile learning), distance learning, distributed learning, open electronic resources and other forms of online education – being considered by most educational institutions as clue solutions for continued educational success in a digital era (Warschauer, 2007; Ainoutdinova et al., 2017). In recent years MOOCs (massive open online courses) are of particular interest. UNESCO named them among the 30 most promising drivers in the development of education until 2028. The importance of these courses, as the name suggests, is that they are open to lots of people at the same time. It is believed that namely xMOOCs and cMOOCs may provide new opportunities in the field of distance education for university students today. Contrary to MOOCs, the aim of SPOCs (small private online courses) is to address a small group of people and offer them a tailor made course. The target groups for these two types of online courses may vary depending upon the aims and purposes. It is obvious though that students would always be given the advantage when enrolling for any open online courses (Harshbarger, 2016).

3. Research Questions

3.1. Conceptual apparatus of online learning.

The terms "online learning" and "virtual learning" are often associated with their umbrella term "e-Learning", which emerged as early as in 1999 during a CBT systems seminar in Los Angeles (Duff, 2000). The term e-Learning was used to qualify as a way to learn based on the use of new technologies allowing access to online, interactive and sometimes personalized training through the Internet and other electronic media (intranet, extranet, interactive TV, CD-Rom, etc.), so as to develop competencies while the process of learning was expected to be independent from time and place (Khan, 2005; Downes, 2006). In this sense, e-Learning resembles the other term – "distance learning" and these terms have long been widely used by many authors interchangeably, though in practice they could have meant quite different things. In many cases, two terms "distance learning" and "online education" are also generally used to describe the same mode of educational instruction and content delivery, being often provided on an individual basis, to students who are not physically present in a traditional setting such as a classroom. Despite this common approach, the need to clarify the conceptual apparatus is still urgent due to the avalanche of multiple notions in this field of knowledge (Fleming & Hiple, 2004; Khan, 2005; Warschauer & Kern, 2000; Ainoutdinova et al, 2017). Distance learning is any form provides education to students who are separated by distance (who are not physically present in the same space) and in which the pedagogical material is planned and prepared by an educational institution. In addition to being separated by space, distance learning students can also be separated by time; that is, they may learn at their own pace, in accordance with their schedules. Such separation by time is referred to as asynchronous distance learning, and the alternative (simultaneous

study) is referred to as synchronous distance learning. Distance learning can be facilitated by a wide range of media, including, but not limited to, letter correspondence, radio, TV, telephone, or the Internet. It can be enhanced by other elements, such as the existence of bidirectional communication or the requirement that students be taught individually versus in groups (Kaplan & Haenlein, 2016).

An online learning course is one students take without meeting a teacher in a classroom too. They can study at home or at work – wherever they like, whenever they like, but within a prescribed time frame. The courses normally have a set schedule, being delivered over a certain period of time. Most courses do not require that students be online at a certain time of day or night, but that they are active in the course during the schedule. Students cannot start courses late nor finish early (Hollands & Tirthali, 2014). Normally, all university programs, whether delivered online or on campus – are subject to the same rigorous criteria, which mean they must meet strict academic standards before being approved by the university's governing body or the administration. Thus, online programs are of equal value to on-campus programs in terms of entry criteria and overall workload. The only difference is in the way the course is delivered (Bonk, Lee, Reeves, & Reynolds, 2015; Kaplan & Haenlein, 2016).

3.2. Specific types of distance learning options conducted online: MOOCs and SPOCs.

Let's focus on two specific types of distance learning options conducted online: these are online courses MOOCs and SPOCs, which differ primarily in the size of student population to which they cater (Kaplan & Haenlein, 2016). MOOC (massive open online course) is an open-access online course, which does not specify any participation restrictions thus allowing for unlimited (massive) participants (Hollands, & Tirthali, 2014). SPOC (small private online courses) is also an online course but it generally offers only a limited number of places and therefore requires some type of formal enrollment. As a matter of fact, SPOCs frequently have a competitive application process and might charge a tuition fee (Kaplan & Haenlein, 2016).

MOOC seems to be a hard-to-define concept with many variants and derivatives. The terminology includes cMOOC, xMOOC, SPOC, etc. (Hollands & Thirtalli, 2014). Analyzing the parts that compose the term, MOOC should be a "massive" event comprising numbers of participants that significantly exceed the capacity of the classical university auditorium. Tens, hundreds or even thousands of course members can be involved (Juwah, 2006). The element "open" cannot be unambiguously determined since it may mean a free course, or at times it may mean the absence of registration. "Open" may also sometimes refer to the access to course material, in the sense that legal, open licensing of course material allows anyone to view, use, download and eventually mix it with own content. The element "online" is another discerning feature of MOOCs. The medium for the course is the Internet. However, the difference from traditional online courses offered by traditional universities and open universities is still unclear. In addition, divergences can be identified in the sense that, sometimes, offline elements are incorporated into MOOCs, while in other instances, MOOCs are incorporated into regular courses or in blended learning situations. The element "course" concerns the binding nature of attending the course. There is a well-defined start and end date of the course, and the frequency of the modules is given (one or two weekly). Within this timeframe the participants are free to choose their pace of study (Hollands & Thirtalli, 2014). The relative clarity of this definition of MOOC is immediately inhibited by the contrast between cMOOCs and xMOOCs (Zhang, Zhang, & Jin, 2018).

3.3. The essence of MOOCs and its analogues.

The first mention of MOOCs appeared in 2008, when, independently of each other, two experts in the field of education from the United States and Canada, Alexander and Cormier coined the word "MOOC" to describe the essence of the then open online course "Connectivism and connective knowledge (CCK08)" developed by Cormier and Siemens (2010) and Downes (2006) on the basis of the University of Manitoba, Canada, to attract as many insolvent students as possible from different parts of the world. The other objective of this course was for people to experience what it means to be part of a social, technical system of learning where the teacher's voice is not an essential hub but, instead, a node in an overall network (Hollands & Thirtally, 2014). The network of students was central in this approach, while the role of the teacher remained minimalistic. Through the network course, members could participate by contributing and reacting to each other (Downes, 2006). As a result, the CCK08 course attracted more than 2300 students who received training content via RSS feeds (Really Simple Syndication/ very simple distribution), while all the extensive information was collected, processed and presented in this format by aggregator software and online services, which allowed users to receive news instantly and in a convenient form from virtually any site, without the need of accessing the site itself. The course also offered other convenient Web-based tools and learning tools, including LMS Moodle (Learning Management System), blogs, communication in the 3D virtual world with elements of the social network "Second Life", as well as unlimited online meetings in real time (Cormier & Siemens, 2010). The idea underlying the title and content of the course – "CCK08" – is important for understanding the phenomenon of cMOOC, since the course was devoted to the study of the theory of connectivity or connectivism itself (Cormier & Stewart, 2011), took its roots in it and, in fact, was built on its fundamental principles, which in general terms convey the following message: teaching and learning in the modern era will be successful if people learn to build the necessary relationships, provide communication and connections mediated by the goals and objectives of cooperation and interaction via electronic networking (Downes, 2006). The idea of creating networks of like-minded people or networking communities, connecting people to each other for the purpose of developing and gaining knowledge, and therefore creating a knowledge society – is one of the key and fundamental characteristics of MOOCs (Downes, 2006).

The cMOOC model (where "c" stands for connectivism as an essential feature of the first MOOCs) as a supplement to the structure of distance learning organization, according to a more traditional xMOOC model, extensively implements various tools and means of social online communication via the Internet, creates open forums, chats and blogs for users (students, teachers and tutors), both for maintaining online communication within the community, and to assist and solve possible problems of a technical and pedagogical nature (Hollands & Thirtalli, 2014; Zhang et al, 2018).

The xMOOC was another early MOOC. Here, "x" stood for extra enforcement of the "m" from massive, pointing at the exponential numbers of course members. The first Stanford MOOCs were the model xMOOCs. In its form, xMOOC is, in fact, an open electronic educational resource (electronic educational course or teaching methodological complex), which includes video lectures with subtitles, lecture notes, homework tasks, tests and final exams. Unlike traditional electronic educational resources actively created and employed, in particular, by the authors of this article, specifically for students of certain areas of preparation of Kazan Federal University, MOOCs are global in nature and operate beyond the boundaries of

one university. Most authors of MOOCs are also teachers and professors of the leading universities worldwide, but courses are posted on the sites of popular online educational resources (e.g., Coursera, Udacity, Udemy, etc,), they are often created by huge clusters of universities on either territorial or thematic basis. Besides, MOOCs are addressed to a wide range of potential students, listeners and tutors being their target audience. The process involves mainly large American and British universities, which actively participate in creation and dissemination of educational resources, training courses and programs, including open and free content; they also master the commercial market of electronic educational courses and services (Karakozov & Manyakhin, 2014; Zhang et al., 2018).

Derived from the MOOC are courses such as SPOCs: small private online courses. SPOCs are not open, but closed, and the MOOC material is integrated in a normal course. DOCC – is a distributed open collaborative course that involves students and teachers from different institutions. It is built upon a network of participants situated in diverse institutional contexts, within diverse material, geographic, and national settings, and who embody and perform diverse identities (as teachers, as students, as media-makers, as activists, as trainers, as members of various publics, etc.) SMOC stands for synchronous massive online course and is characterized by online "life lectures" on the Internet. Furthermore, there is the MOUC: the massive Open University course, which seems to be the European online higher education community's adaptation of the American MOOC. Equally, large numbers of students are envisaged. The course is open in the sense of freedom of choice of moment, speed and location. Different, however, is that the MOUC is paid for and leads to credits (ECTS in fact).

One of the analogues of the MOOCs platforms in Runet (Russian Net) is the project by the Internet University of Information Technologies (http://www.intuit.ru/), which provides free-of-charge distance learning at the National Open University "INTUIT" to all wishing to be educated. Another Russian system of electronic online education, built on the MOOCs technology, Universarium (http://universarium.org/) was launched on the Internet in 2013. The system provides free educational courses by teachers and professors from a number of Russian universities (Lomonosov Moscow State University, Moscow Institute of Physics and Technology, Plekhanov Russian Academy of Economics, etc.), as well as by the leading Russian scientific centers. In contrast to the distance learning systems normally being used at Russian universities, the Universarium offers full-fledged free courses designed according to the educational e-learning standards. The project is implemented with the support of Russian Information Agency Nauka and the Agency for Strategic Initiatives. The other successful Russian MOOCs platforms are: Courson (https://www.courson.ru/), the Russian equivalent of Udemy; educational project Lecterium (https://www.lektorium.tv/); the leader in teaching of foreign languages Lingualeo (https://lingualeo.com/ru) with 13 million users; the leader in teaching of programming – GeekBrains (https://geekbrains.ru/), etc. (Karakozov & Manyakhin, 2014; Kuzmina, 2015; Ainoutdinova et al., 2017). The MOOC concept is constantly evolving and takes such multiple forms that it becomes difficult to discern it from traditional forms of higher education. It also shows that perception of MOOCs should not be restricted by the original ideas of the concept. In any case, MOOCs stand apart from conventional education, which for this matter employs e-learning and online education (Kuzmina, 2015).

4. Purpose of the Study

The need for the study has been caused by the ongoing search for new teaching/ learning strategies and potentially effective technology-based means for quality education at university level in Russia. Rapid shift from traditional education to online learning practices has been actualized by the advent of the Internet and ubiquitous use of various gadgets and electronics in all spheres of life, including education. The new cohort of university students, known as Generation Z, cause their teachers to entirely alter their concepts, attitudes and methods of teaching so as to meet the requirements of a digitizing world with its innovative global economy, competitive markets and multicultural diversity. As a result, open online learning is increasingly forming an integral part of university course delivery and instruction and dramatically reshaping traditional teaching/ learning paradigm. The purpose of this paper is to analyze whether open online courses (OOC), especially MOOCs (massive open online courses) and SPOCs (small private online courses) may support different learning needs and styles of Russian students, enrich university learning environment and the higher school's curriculum with alternative educational modes and models for better learning outcomes.

5. Research Methods

The methodological framework of this research work rests on the comparative approach that allowed discovering and accumulating best teaching/ learning practices and experiences of distance and online education including MOOCs (massive open online courses) and SPOCs (small private online courses) employment at the high-ranking universities worldwide for their further dissemination. A comprehensive analysis of technical, pedagogical and managerial issues of MOOCs and SPOCs as of efficient modes of online education and effective examples of ICT-based technology for teaching and learning at university level has also been provided as an integral part of the research. We examined and studied the broad international experience on distance education and open online courses delivery as a source of innovation and further advancement of higher education in Russia. Our study has been supported by deep analysis and synthesis of the best scientific findings on the topic presented by the prominent Asian and Western scholars (Warschauer & Kern 2000; King, Young, Drivere-Richmond, & Schrader, 2001; Warschauer, 2007; Aoki, 2010, 2012; Ragan, 2007); we also examined and analyzed the latest trends in the field of teaching and learning of university students in the ICT-based learning environment with the exact aim to improve the system of university education in Russia (Fleming & Hiple, 2004; Moore, 2013; Jansen & Van der Merwe, 2015; Harshbarger, 2016; Ainoutdinova et al., 2017; Ainoutdinova & Ainoutdinova, 2017); singled out some unique principles, elements and characteristics of online courses, specifically MOOCs and SPOCs applicable for university students in Russia (King et al., 2001; Sampson, 2003; Fleming & Hiple, 2004; Warschauer, 2007; Kaplan & Haenlein, 2016; Ainoutdinova et al., 2017).

Based on the empirical approach testing, evaluation and control of usability, accessibility, availability and safety of some major open online learning tools and resources have been performed. An experimental study has also been conducted in order to obtain and compare certain relevant data concerning the attitudes of teachers to ICT integration into education and students' reaction, expectations and learning outcomes in a conventional versus online learning environment (Brown & Lippincott, 2003; Khan, 2005). The process involved 36 teachers and more than 350 students who were temporarily placed into separate

learning environments, i.e. traditional (face-to-face) and ICT-based (online). We took into account the latest US national research statistics and findings on Generation Z published recently by the Center for Generational Kinetics (Villa & Dorsey, 2017). First, we analyzed the general and most defining characteristics of the Gen Z students; and then their preferred learning styles and modes. In the end, we examined with due diligence the applicable teaching and learning methods and techniques, which will simultaneously address academic and social skills of Gen Z students as well as support their "digital" learning expectations and needs (Villa & Dorsey, 2017). The data driven analysis proved that most of the students showed better learning outcomes in the ICT-mediated learning environment strengthened by multiple open online courses. If universities plan to remain competitive, they have to stay receptive to ideas and changes of the day.

To sum up the research we identified and enumerated most of advantages and disadvantages of online educational mode operating within the ICT-based university environment from the point of view of both teachers and students (Reid, 2002; Sampson, 2003; Aoki, 2010, 2012; Bonk et al., 2015; Kaplan & Haenlein, 2016; Ainoutdinova et al., 2017; Zhang et al., 2018). The provided analysis and study allowed us to systematize the theory and practice of the process of online courses employment at university level, MOOCs and SPOCs being particularly highlighted. We revealed the common nature of any online teaching and learning initiatives including their core elements and characteristics, found appropriate ICT-based open authoring tools to proceed in our experiments to create, implement and test the effectiveness of author's open online resources and materials (Khan, 2005; Downes, 2006; Cormier & Siemens, 2010; Cormier & Stewart, 2011; Hollands & Tirthali, 2014; Bonk et al., 2015; Kaplan & Haenlein, 2016; Ainoutdinova & Ainoutdinova, 2017; Zhang et al., 2018).

6. Findings

The main result of the study is the design of the model of an efficient ICT-based student-centered learning environment that involves distance education programs, employment of MOOCs or SPOCs and enhances the quality of university education. In our vision, university environment should be a multilingual educational space based on inclusion of the native language and one or more foreign languages being taught to students (usually English, German, French, or Spanish). Such learning environment functions in the interconnection and complementarities of all its components that are traditionally integrated into educational process of university. The learning environment should also be organized in accordance with the changing learning needs and styles of modern students, usually referred to as the "digital generation Z", their preferences and capabilities (Villa & Dorsey, 2017). The learning environment should thus be organized with a due ICT-based support where educational tools and resources might function as adaptive, familiar and comfortable instrumental facilitators and drivers of the learning process (Brown & Lippincott, 2003). The ICT-based environment of university, supported by direct quick access to computers and the broadband Internet, should include the well-structured university's website, educational portal for electronic online and distance learning offering inter alia access to massive open online courses (MOOCs) or small private online courses (SPOCs) depending on the needs of the users, information-sharing crowdsourcing communities, virtual networking platforms, digital libraries, etc. Classrooms and lecture rooms should be equipped with all sorts of digital devices and multimedia equipment, adapted for work with both external,

remote and internal ICT-based and other free and easily accessible educational resources (Brown & Lippincott, 2003). Moreover, universities shall not fear to connect their institutions with the communities in which they exist and operate. Culture of sharing ideas for enhancements in educational context is receiving the increasing support today. The reason is obvious: open online education initiatives give universities better chances to hear from students, faculties and community members about their current advances and drawbacks. Online education ideas help universities remain competitive, build their reputation, and enrol more and more new students. As a matter of fact, being receptive to ideas and changes makes universities much more attractive to prospective students (Sampson, 2003; Castells, 2009; Harshbarger, 2016).

The results of the survey provided by the authors during the empirical research confirmed that the majority of students of the so-called generation Z do realize the need for higher education as a start-up for their successful career (72%), favour the participation of teachers in their training (68%), and recognize that the delivery of educational activities at the university should be organized, managed and controlled (78%) (Villa & Dorsey, 2017). Some students believe that a true professionalism is achievable when training at university if only future specialists participate in additional online education programs (54%), purposefully take part in independent training courses on different open platforms as MOOCs (massive open online courses), SPOCs (small private online courses) and other open educational resources (66%); or have part-time work so as to apply in practice the acquired knowledge and skills (43%). Only a small number of the respondents who have provided information for the survey do not see the need to expand education and training process to "continuity", including further regular upgrading or lifelong learning (13%) either due to their young age or due to low motivation. The study has been conducted on the grounds of Kazan (Volga region) Federal University in April, 2018. The study involved 3 groups of students of the 2nd-4th courses of the Faculty of Law (field of training 40.03.01, Jurisprudence, bachelors). The total number of students aged 19 to 22 years having been surveyed (interviewees) comprised 350 people.

We also interviewed teachers of foreign languages working at Kazan (Volga region) Federal University. We aimed to identify teachers' attitudes and needs in the changing conditions enhanced by ICT. The total number of teachers surveyed was 36, aged from 25 to 60. The survey was conducted by distributing individual questionnaires issued to each participant. Participation in the study was voluntary and confidential. The survey does not pretend to show any in-deep scientific data; rather, it was an attempt to collect primary information to confirm our hypotheses. The data-driven analysis of the results proved that participants (36 teachers) could be divided almost equally into three groups as follows: (1) those who fully support ICT integration into educational settings and possess positive attitudes toward online education (42%); (2) those who oppose ICT and show negative attitudes towards online education (34%); (3) those who generally possess positive attitudes towards ICT, but feel scared when it comes to ICT integration into educational process or use of open online courses due to various reasons (24%). The survey also showed that at least four factors – confidence, ICT knowledge, gender and age – should be taken into account when measuring teachers' attitudes toward digital technologies (Blau & Peled, 2012; Kale & Goh, 2014; Player-Koro, 2012).

Though age and gender do not have direct influence on confidence, knowledge or attitudes toward ICT, they still obstruct and limit integration of technology in academic environment of university.

According to "Survey of schools", the latest report prepared by the European Commission (2013), 70% - 75% of teachers of foreign languages in Europe are women, and most of them, unfortunately, are less susceptible to the use of ICT in education rather than their male colleagues. Ironically, the teaching profession in Russia is also female-dominated (96,1%). In our case, from 36 participants of the experiment only 2 respondents were male teachers (~5%), while 32 respondents were females (~95%). Though gender is regarded in this study as one of the limitations, no direct relationships between gender and teachers' attitudes toward ICT were statistically proven. The fact that gender might affect teachers' attitudes toward ICT was also rejected earlier in Chen's study, where the author found no correlation between gender and teachers' attitudes (Chen, 1986). At the same time, the results revealed some slight differences between male and female teachers in using ICT.

Age and experience were the next factors whose effect on teachers' attitudes toward ICT integration into learning and teaching we aimed to measure during our experiment. It should be noted that the selection of teachers was conducted based on the cluster sampling method; the teachers were then virtually divided according to their age into the following groups: of 23-30, 31-40, 41-50, and 51 and above. The results indicate that there is no significant difference in using ICT between different groups of teachers according to their age or experience. Wherein the younger teachers (23-30, 31-40) demonstrate keen curiosity in various ICT tools including such novelties as new high-tech brands of smartphones, tablets, laptops, etc. for everyday use, their more mature colleagues (41-50, 51 and above) show more interest in ICT-based technologies, methods and resources including online education. Most of the teachers though recognized the need to enhance their ICT knowledge (86%) and widen their training up to "continuity" (76%), including further regular upgrading of ICT literacy via lifelong learning in order to enlarge their ICT competencies (Duff, 2000; Wake, Dysthe, & Mjelstad, 2007; Baumann, Shelley, Murphy, & White, 2008; Blau & Peled, 2012; Ainoutdinova et al., 2017).

The results of teachers` interview confirmed that the majority realize the need for ICT integration into higher education as a driver for its reforming (82%); admit that ICT has totally changed the way teachers work in the classroom (77%); agree that ICT facilitates student learning modes and styles (75%); favor ICT in education since it contributes to cooperation between colleagues (68%). Some teachers believe that true professionalism of students is only achievable in multidisciplinary settings where ICT-based open online courses promote subject integration and makes students` work more active, experiential and problem-based (64%). Only a small number of the respondents do not see the need to integrate ICT into higher education (8%), since it takes time away from other important learning activities (10%). At the same time, even they admit that ICT and online courses might make learning more attractive to students (12%), and, as a result, increase their students` motivation and learning outcomes (15%).

7. Conclusion

Based on the research and analysis provided, we have to admit the revival of interest in online education among teachers and students in Russia. This tendency is largely supported by the increasing popularity of MOOCs and emerging role of SPOCs, serving as potential drivers of most of online learning initiatives at university level. Such high reputation of online courses could probably be explained by the fact that teaching/ learning here occurs in communities of like-minded people, who are connected not only

by network interaction, but also by common goals, attitudes, motivation and interests. As we have noted earlier, the original concept of MOOCs relies on the key principles of the theory of connectivism, which implies that the network community consists of people, each being a separate network. Personal knowledge is also a network that supports the overall development of the community, which in turn develops a social network, stimulates the learning of individual participants (Downes, 2006; Cormier & Siemens, 2010). Learning, in this respect, is the process of formation and development of a network to which the learner is gradually connecting all the new nodes with which communication is further established. Supporters of the theory of connectivism believe that the study of a certain scientific discipline is possible only through the prism of interdisciplinary knowledge, since for any learning it is necessary to combine sources of information of several disciplines (Cormier & Stewart, 2011; Stapleton, 2014). Ideally, the learning environment should reproduce application of a certain scientific discipline to the real world, and this is only possible in the interconnection of many disciplines and professions. The learning opportunities for connection are realized in the form of interaction with other people (students, teachers and tutors), practical study of educational objects, active design of real life situations and integration of applied knowledge and skills into the learning environment (Stapleton, 2014). According to Downes (2006), "connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks".

For all the apparent complexity of explanation of the theory of connectivism, the meaning of its refraction when being implementing via MOOCs and SPOCs is quite simple and attractive for students. First, this form of online learning provides a choice of an optimally acceptable personalized approach to cognition and learning, which, in the opinion of the adherents of connectivism, always represent a process and never a state. Besides, one of the important characteristics of OOCs is that each student has a personal learning environment (PLE), which allows to timely update knowledge, independently make decisions, see links and recognize the meanings of different areas of knowledge, concepts, ideas, etc. Secondly, habitual practice of working in network communities improves communication skills, increases responsibility, forms independence in decision-making and develops the students' motivation, while working with technical means allows them to obtain additional applied knowledge, being so necessary in their future profession in terms of a dynamically developing digital world. Thirdly, online-based interdisciplinary training offers a new form of knowledge and skills acquisition, when the learning environment is conditionally transformed into the real environment of the future profession. Fourthly, the enlargement of tools and resources for project training and gamification is opening new opportunities for self-expression and author's identity, thereby developing creativity, innovative thinking with a focus on a socially recognized success. From the practical point of view, after completing some OOCs, it is possible to obtain an official certificate or diploma (Karakozov & Manyakhin, 2014).

The personal experience allows the authors to come to conclusion about the advisability and practicability of further development of online electronic forms of teaching / learning at university level in Russia, including online education being distributed via MOOCs and SPOCs. It is necessary to further study and analyze the best domestic and foreign practices concerning creation and integration of MOOCs, other open educational resources into the teaching/ learning process at university thus accumulating and disseminating knowledge among the members of academic community. There is an urgent need to improve

technical equipment of the classrooms, motivate university teachers and professors to create and post competitive author courses at the best MOOCs sites worldwide, and support proactive and innovative teachers so as to enhance their participation in MOOCs promotion.

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