

Advantages And Disadvantages Of Distance Education For University Students In RussiaIrina N. Ainoutdinova¹, Anvar N. Khuziakhmetov^{2*}, Tatiana M. Tregubova³¹Institute of International Relations, History and Oriental Studies, Kazan (Volga region) Federal University, Kazan, Russia²Institute of Psychology and Education, Kazan (Volga region) Federal University, Kazan, Russia³Institute of Pedagogy, Psychology and Social Problems, Kazan, Russia**Abstract**

The need for the study is determined by the expanding global processes of integration, informatization and technologization that influence all spheres of our life including education. The rapid growth in telecommunications, availability of the broadband Internet and ubiquitous access to a variety of quick and user-friendly gadgets and electronics have definitely changed our living and learning styles. 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 and needs of the new digitizing world with its innovative global economy, competitive markets and multicultural diversity. The public request to reform higher education (HE) in order to improve its quality is extremely important in this regard. The appropriate organization of distance education (DE) for university students seems to be the key answer to most of the emerging challenges. The purpose of this article is to clarify the conceptual apparatus and analyze whether DE may support different learning needs and styles of modern students, change university learning environment for the better, enable learners and teachers to create distance education platforms, massive open online courses (MOOCs) and virtual worlds to share ideas, links or materials. The methodological framework of this research rests on the comparative approach allowing to accumulate best practices and experiences of distance education at major universities worldwide. A comprehensive analysis of the technical, pedagogical and managerial issues of distance education as of efficient technology for learning and teaching of university students has also been provided as an integral part of the research. On the basis of the empirical approach testing, evaluation and control of usability, accessibility, availability and safety of some major distance 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 learning outcomes of students in a traditional versus distance learning environment, possible advantages and disadvantages of DE. The main result of the study is the design of an efficient model of distance education that enhances the quality of university education in general and foreign language training in particular. The data driven analysis proved that most of the distance learning tools and resources used at university could be regarded as both sustaining and disruptive technologies determined though equally by innovative educational drivers and start-ups on the basis of student-centered paradigm. As a disruptive technology DE still lacks its complete realization, often has performance problems, seems to be known to a limited group of educators or students and might not yet have a proven practical application in Russia. Conversely, the appropriate use of DE technology enhances learning opportunities, improves learning outcomes and facilitates networking and collaboration.

Key words: distance education (DE), technology, generation Z, driver, start-up.

Introduction

In today's dynamic world, the teaching and learning process is becoming more experiential, interactive, tech-based and personalized. The current trends in teaching and learning reflect recent advances in science and technology, best results of research studies and experimental practices in this field, as well as all the changes and implications, which ICTs (information and communication technologies) are bringing into our life. We have to admit in this context that ICTs have harmoniously become a regular and habitual fixture in many homes around the world, and their influence have permeated into all facets of our lives, including educational settings. Moreover, ICTs are known to serve as the main drivers of knowledge and information being the strategic tools and transforming resources of the ICT-mediated

society in which its residents live, work and learn. Generally speaking, ICTs represent a diverse set of technological tools and resources such as the hardware, software, networks, and media used to collect, store, process, transmit, share and present information in the form of voice, data, text, or images (Ainoutdinova, 2015). ICTs are often categorized into two broad types of product: the traditional computer-based technologies, including things you can typically do on a personal computer or using computers to learn, work or recreate; and the more recent fast-growing range of digital or Web-based technologies, which allow people to create, retrieve, store, disseminate, share and manage information for purposes of quality education, better and easier communication, "just-in-time" information awareness, etc. Both high tech and low tech needs are accompanied here with a variety of both synchronous and asynchronous ICT-based tools and resources including the broadband Internet and its applications, CD-ROMs, audio/ video technology, various computer attachments and software programs (Warschauer, 2007).

The analysis of the literature (Moore, 2012; Jansen & Van der Merwe, 2015; Harshbarger, 2016; Tregubova, 2016) 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 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). Given the growing momentum of these trends, the education community faces a question of what ICTs do mean for students, teachers and universities at large? The data driven analysis has shown that ICT can lead to improved student learning outcomes and better teaching methods in terms of their efficacy and efficiency. Prof. Kumiko Aoki from the Open University of Japan, Tokyo (OUJ) with reference to the widely recognized 2009 report made by the National Institute of Multimedia Education (NIME), proved that an increase in students' exposure to educational ICTs through a tech-based curriculum integration has a significant and positive impact on students' achievements, especially in terms of their "knowledge - comprehension", "practical" and "presentation" skills in such subject areas as mathematics, science, foreign languages and social studies (Aoki, 2010). In this context, we must pay special attention to the emerging demographic phenomenon of our gradually digitizing world, commonly known as a newly evolving Generation Z (aka Gen Z, iGen or Centennials). 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 Generation Z or Gen Z community (Villa & Dorsey, 2017). One key aspect of this generation is the widespread usage of computers and the Internet from a very young age. Members of Generation Z are typically thought of as being comfortable with various digital technologies, and interacting with friends, peers and family on social media websites for a significant portion of their socializing. 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. As Gen Z gets more digital freedom, they appear to prefer more peer-to-peer social media sites and really fast messaging apps, such as Snapchat, Vine, Instagram, etc. (Jones & Hosein, 2010). The reason here is that they tend to access, retrieve, share, exchange and store different types of information regularly but in a quite fast, affordable, more accessible and easier way. As a matter of fact, iGen's "digital" lifestyle and experience could hardly fail to influence their learning styles too.

Here comes a contradiction between an individual and group approaches in education. On the one hand, Gen Z students prefer intrapersonal, autonomous, and independent learning styles to group work. Being adepts of web-based research and activities, they often feel they could easily self-educate with online sources such as YouTube or Pinterest (Kennedy et al, 2009). Indeed, the storage, retrieval, manipulation, transmission or receipt of digital data could be conducted individually. On the other hand, it is not the case with data sharing and exchange. Any interaction, be it virtual or face-to-face, calls for communicative behavior which could only be realized in a group or team. Besides, when studying these students like to do their solo work alongside others in a social manner. They also like their learning to be practical and hands-on and want their professors, tutors or instructors, as well as their peers to help them

engage with and apply the content rather than simply share what they could otherwise find on their own online (Kennedy et al, 2009). Thus, university teachers face numerous challenges today while developing curriculum and instruction programs for Gen Z students. They should take into account all benefits and drawbacks of a digitizing world as well as the most defining characteristics of the Gen Z generation. Most of the commentators admit that Gen Z representatives are increasingly self-aware, self-reliant, pragmatic, innovative, and goal-oriented (Jones & Shao, 2011). Teachers should find a compromise to eliminate the existing contradiction between an individual and group approaches; and bridge the divide between the prevailing conventional teaching methods and techniques, and "digital" expectations and needs of Gen Z students. Most importantly, teachers should also seek such methods of training that may help their students to work together thus adjusting them to a team work, which is more the norm in any work environment, be it digital or not. Integration of distance education for university students seems to be the key answer to most of the emerging challenges.

Various methods and technologies can be combined in this respect to create both a blend of technologies and a blend of multiple learning modalities ("face-to-face", "distance", or "hybrid") all under the rubric of "distance education". ICT-based modes of education delivery, i.e. synchronous and asynchronous, are also applicable here. Different techniques can be used in distance education, namely, interactive audio instruction (IAI), online virtual worlds, digital games, webinars, webcasts, etc. Face-to-face instruction, complemented by online interaction, creates a hybrid model of university learning environment that many scholars support today (Reid, 2002; Anderson et al, 2012). Experimentation and innovation are proliferating. Some universities in Russia already demonstrate smooth transition to hybrid learning environments and hybrid classes. They actively employ online and offline instruction via learning/knowledge management systems (LMS, KMS) along with other online learning components and just occasional in-person meetings. This allows to enhance learning/teaching practices, and focus on each individual student path while maintaining engagement and interaction at a social level. Some universities channel their efforts into advanced teleconferencing and open distance education platforms with streaming video and asynchronous discussion boards to heighten engagement online (Anderson et al, 2012), enrich learning opportunities of their students and demonstrate the potential of teachers and tutors in terms of their technology and methodology proficiency. These approaches are certainly quite different from what was once known as "tuition by correspondence." Distance education in a new sense provides a sort of a combined or hybrid learning with integration of more off-site activities with immediate feedback. The process involves inter alia delivery of all training materials in electronic format; promotes access to remote resources while maintaining focus on individual achievements; provides unlimited interaction with teachers (tutors or peers) that helps to aggregate responses and perceptions from a large group of students in order to direct toward specific learning goals; enables to organize group or team work via telecommunications; allows to minimize or abandon in-person, on-campus attendance of seminars and lectures, thus saving time, money and efforts. There are still those who argue that the core concept and standardized knowledge-transmission model of university education should not radically change (Khuziakhmetov et al, 2016). They worry whether teachers may become redundant as a consequence of overall use of ICT in education and feel skeptical about any benefits they may bring. In fact, ICT-based methods do not curb the need for teachers but they call for a redefinition of their roles from that of instructors to that of constructors, facilitators, coaches, and creators of new content.

Methodological Framework

The methodological framework of this research work rests on the comparative approach that allowed to discover and accumulate best practices and experiences of distance education employment at universities for their further dissemination worldwide. A comprehensive analysis of the technical, pedagogical and managerial issues of distance education as of efficient mode and technology of teaching university students has also been provided as an integral part of the research. We examined and study the broad international experience on distance education as a source of innovation with the exact aim to improve the system of university education in Russia. Our study has been supported by deep analysis and synthesis of the best scientific findings on the topic presented by prominent western and asian scholars

(Aoki, Keegan, King, Ragan, Warschauer, Wedemeyer, etc.). We also examined and analyzed the latest trends in the field of teaching and learning of university students in the ICT-based learning environment (Hurst, 2001; Reid, 2002; Fleming & Hiple, 2004; Warschauer, 2007; Jones & Hosein, 2010; Snart, 2010; Anderson et al, 2012; Ainoutdinova, 2015; Bonk et al, 2015; Jansen & Van der Merwe, 2015; Harshbarger, 2016; Maloy, 2016; Tregubova, 2016; Hsu, 2017); thematically significant historical facts (Leedham et al, 2009; MacDonald Czarnota, 2009; Moore, 2012; Diehl, 2012; Black, 2013); singled out some unique characteristics, elements and principles of distance education applicable for university students in Russia (Keegan, 1996; King, 2001; Sampson, 2003; Aoki, 2012; Moore, 2012; Ragan, 2012); examined major tools, drivers and start-ups for efficient operation of relevant distance education platforms, massive open online courses (MOOCs) and virtual worlds to gather ideas and then publish and disseminate them for public opinion (Meyer. & Kezar, 2002; Reid, 2002; Sampson, 2003; O'Donoghue et al, 2004; Warschauer, 2007; Kennedy et al, 2009; Snart, 2010; Jones. & Shao, 2011; Anderson et al, 2012; Moore, 2012; Ragan, 2012; Bonk et al, 2015; Maloy, 2016; Hsu, 2017; Sharipova et al, 2017). We also made an attempt to clarify the conceptual apparatus since there was an evident lack of a precise vocabulary in the domain of distance learning and distance education, which only limited the ability of researchers and practitioners within that field of knowledge to communicate clearly and succinctly with each other (Keegan, 1990, 1996; King, 2001; Meyer & Kezar, 2002; Sampson, 2003; Fleming & Hiple, 2004; Hannay & Newvine, 2006; Snart, 2010; Moore, 2012; Ragan, 2012).

Based on the empirical approach testing, evaluation and control of usability, accessibility, availability and safety of some major ICT-based distance education methods, techniques, tools and resources have been performed (Moore, 1993; Sampson, 2003; Fleming & Hiple, 2004; O'Donoghue et al, 2004; Hannay & Newvine, 2006; Warschauer, 2007; Kennedy et al, 2009; Snart, 2010; Jones et al, 2010, 2011; Harshbarger, 2016; Maloy, 2016; Hsu, 2017). An experimental study has also been conducted in order to obtain and compare certain relevant data concerning the learning outcomes of university students in a traditional versus ICT-mediated learning environment. The process involved 35 teachers and more than 370 students who were temporarily placed into separate learning environments, i.e. conventional or traditional (face-to-face) and ICT-based (at a distance). We took into account the latest US national research statistics and findings on Generation Z published recently by the Center for Generational Kinetics based in Austin (Texas, USA) (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.

To sum up the research we identified and enumerated most of advantages and disadvantages of distance education operating within an ICT-based university environment from the point of view of both teachers and students. The provided analysis and study allowed us to systematize the theory and practice of the process of employment of distance education at universities. We revealed the common nature of any distance education initiatives in education 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 electronic online resources and materials.

Results

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 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 (usu. English, German, French, or Spanish). Such a space functions in the interconnection and complementarity 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 (Warschauer, 2007). 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. The ICT-mediated 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 and distance learning offering inter alia access to massive open online courses (MOOCs), information-sharing crowdsourcing communities and 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 integrate 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: distance education initiatives give universities better chances to hear from students, faculties and community members about their current advances and drawbacks. Distance education ideas help universities remain competitive, build their reputation, and enroll more new students. As a matter of fact, being receptive to ideas and change makes universities much more attractive to prospective students (Sampson, 2003).

To clarify the conceptual apparatus and eliminate the evident lack of a precise vocabulary in the field, we analyzed various viewpoints and came to conclusion that the terms "distance learning" and "distance education" are completely concurrent and may be used interchangeably. Thus, distance education is a mode of teaching and learning characterized by separation of teacher and learner in time and/or place for most part of training, mediated by ICT for delivery of learning content and further knowledge acquisition with possibility of two-way face-to-face interaction (learner-teacher/learner-learner) as a basis of meaningful communication for better learning outcomes.

The data driven analysis proved that most of the students showed better learning outcomes in the ICT-mediated environment strengthened by various distance learning initiatives (58% against 42%). Students can benefit greatly from distance or online education in different ways. Based on research provided by Chris Evans and Jing Ping Fan (Evans & Fan, 2002), we admit that there are at least 3 major advantages of distance or online learning, namely, learner-determined location for learning – whereby students are able to choose their own place of study; learner-determined time of learning – students are able to organize their own individual learning schedule, rather than having to study on a specific day at a specific time; and finally, learner-determined pace of study – students are able to set their own individual pace of study without being held up by slower students or vice-versa (Evans & Fan, 2002). Moreover, distance education sends an important and very deep social message: it affords educational opportunities to individuals unable to attend conventional classroom settings no matter what the reason is. Not only those students with disabilities will benefit from distance education but also those who are shy, inhibited or reserved. In a conventional classroom environment the latter rarely ask questions or voice their opinions. However, the communication methods of the online environment (e.g., student chat-rooms or forums) can provide these students with increased confidence and wider opportunities to be heard. The well-organized ICT-based distance education offers a greater variety of opportunities to proceed in knowledge acquisition for many people, and perhaps also grants a chance of performance improvement to some individuals.

Discussions

The history of distance education

The history of distance learning may date back to the early 18th century when the earliest distance education courses were publicly announced in the Boston Gazette advertisement in 1728 for "Caleb Phillips, Teacher of the new method of Short Hand," who sought students "who wanted to learn through weekly mailed lessons" (Leedham et al., 2009). The pioneers of distance education used the best technology of their day, the postal system, to open educational opportunities to people who wanted to learn but were not able to attend conventional schools. People who most benefited from such correspondence education included those with physical disabilities, women who were not allowed to

enroll in educational institutions open only to men, people who had jobs during normal school hours, and those who lived in remote regions where schools did not exist. An Englishman, Isaac Pitman, is credited as a person who was the first to provide distance education course in the modern sense. In the 1840s Sir Isaac Pitman taught a system of shorthand by correspondence in Bath, England. Students were instructed to copy short passages of the Bible, transcribed into shorthand on postcards, and return them for correction and grading (the element of modern student feedback – a crucial innovation of Pitman's system) via the new penny post system. This early beginning proved extremely successful, and the Phonographic Correspondence Society was founded three years later to establish these courses on a more formal basis. The society paved the way for the later formation of Sir Isaac Pitman Colleges across the country (Leedham et al, 2009).

The University of London was the first university in Europe to offer distance learning degrees, establishing its "External Programme" in 1858. The background to this innovation lay in the fact that the institution (later known as University College London, UCL <https://www.ucl.ac.uk/>) was non-denominational and, given the intense religious rivalries at the time, there was an outcry against the "godless" university. American university level distance education began in 1874 at Illinois Wesleyan University (<https://www.iwu.edu/>) where bachelor and graduate degrees could be obtained in absentia. The Chautauqua movement originated in America in the late 1800s and gave the popular push to correspondence education in about 1882. The teaching of academic and vocational courses by correspondence became quite popular by 1900 and problems of quality and ethical practice came with the popularity. The Distance Education and Training Council (DETC) was established in 1926 as the National Home Study Council (NHSC) in part to address these issues (MacDonald Czarnota, 2009). Today the DETC (<http://www.deac.org/>) is a non-profit educational accrediting agency located in Washington, D.C. that specializes in distance education accreditation. It also promotes high educational standards and ethical practices for correspondence schools all over in the United States. The invention of educational radio in the 1920s and the advent of television in the 1940s created important new forms of communication for use in distance education. Educators used these new technologies to broadcast educational programs to millions of learners, thus extending learning opportunities beyond the walls of conventional teaching institutions (Aoki, 2012). In 1969 the Open University, OU (<http://www.open.ac.uk/>) – a distance learning and research university – was founded by Royal Charter in the United Kingdom. The University revolutionized the scope of the correspondence programs and helped to create a respectable learning alternative to the traditional form of education. It has been at the forefront of developing new technologies to improve the distance learning service and is still the largest such institution in the world. Its success helped to hasten the establishment of similar institutions elsewhere, including the United States and Japan (Aoki, 2012).

The development of reliable long-distance telephone systems in the early 1900s also increased the capacity of distance educators to reach new student populations. But telephone systems never played a prominent role in education until the introduction of new teleconferencing technologies in the 1980s and 1990s. Teleconferencing systems made it possible for teachers to talk, hear, and see their students in real time with no delays in the transmissions even if they were located across the country or around the world. Distance education increasingly uses combinations of different communications technologies to enhance the abilities of teachers and students to communicate with each other. With the spread of computer-network communications in the 1980s and 1990s, large numbers of people gained access to computers linked to telephone lines, allowing teachers and students to communicate in conferences via computers. Distance education also makes use of computer conferencing on the World Wide Web, where teachers and students present texts, pictures, audio, and video. File sharing and communications tools like email, chats and audio and video conferencing are integral to the Internet model of education (Khuziakhmetov et al, 2017).

Conceptual apparatus: distance education or distance learning?

Most academic and scientific fields should operate within a common yet distinct vocabulary. Such precise vocabulary makes it possible for researchers and practitioners within that domain to communicate clearly

and succinctly with each other. For many years there was an evident lack of such a precise vocabulary in the domain of distance learning and distance education (King et al, 2001). As a result, multiple notions such as "distance education", "distance learning", "dlearning", or "D-Learning" have 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 "distance education" – are generally used to describe a mode of delivering education and providing instruction, often 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.

Distance education has been defined differently at different points in its history. Traditional or conservative definitions of distance education refer only to a separation between teacher and learner and their use of some means of communication. Such broadly based definitions are of limited utility in the Information Age since they could apply equally to a correspondence course conducted by post in the 1920s or to a workshop conducted via synchronous Web-based videoconferencing in 2002 (Fleming & Hiple, 2004). As communications technology has evolved from paper and pencil through radio, television, and the Internet, the definition of distance education has changed accordingly, so that newer definitions have come to include additional criteria and more finely drawn distinctions. Differences between the second and third editions of an authoritative text on distance education, *Foundations of Distance Education* by Desmond Keegan, show an important shift in the definition and scope of distance education (Keegan, 1990, 1996).

In the second edition, Keegan (Keegan, 1990) argues that distance education has the following characteristics: separation of a teacher and learner throughout the learning process; separation of the learner or learners from other learners or learning groups; provision of means for two-way communication so that the learner(s) can benefit from or initiate dialogue; and utilization of electrical means of communication to carry the content of the course. In this definition Keegan has articulated two important features that have come to distinguish distance education in the Information Age: first, in addition to the separation between teacher and learner, communication must be electronically based; and second, communication must be bidirectional (Fleming & Hiple, 2004). Not only do students receive communication from the teacher, but they also direct communication to the teacher and to other students. In his third edition, Keegan further distinguishes between distance education and virtual education (Keegan, 1996). He argues that virtual education, that is, education in which the interaction of face-to-face education has been recreated electronically (Keegan, 1996), such as interactive television classrooms linked by satellite or other transmission technologies, is really an extension of conventional education. Distance education, in contrast, is characterized by the separation of teacher and learner and of the learner from the learning group, with the interpersonal face-to-face communication of conventional education being replaced by an apersonal mode of communication mediated by technology (Keegan, 1996). Keegan's implication is that some forms of what is usually called distance education are more "distant" than others. By his definition, for instance, a language course carried over a two-way full-motion video network would qualify as virtual education since this mode of communication recreates the visual and aural presence of the participants to one another. In contrast, a television-based class in which one-way television transmission to students was supplemented by telephone communication and email would be distance education, as would a class conducted in a Web-based course environment where students and teacher exchanged information in online postings (Fleming & Hiple, 2004). In Keegan's view, the modes of two-way communication in these two examples are "impersonal" since neither telephone nor online posting recreates both the visual and aural presence of other participants (Keegan, 1996).

In his 1996 doctoral dissertation Keegan established the foundations of distance education as a distinct and separate area of practice and study from the main stream education. He stated: "Distance education is coherent and distinct field of educational endeavor: it embraces programmes at a distance at primary and secondary, technical and further, college and university levels in both public and private sectors. It has

existed for a hundred years and is to be found today in most countries" (Keegan, 1996). In addition, Keegan posed some of the foundational issues that are still outstanding and are subject of research, discuss, and controversy, and will remain so as long as distance education is an area of professional practice. These included: (1) The role of "time synchronous technology" in virtual education as compared to time asynchronous technologies. At the time he posed this issue, distance education was primarily practiced as correspondence education, and therefore, it was an asynchronous endeavor. However, Keegan realized the emergence of electronic communication and the issues in research and practice that real time communication may bring to fore in the field. (2) Access, equity and social impact of distance education as envisioned by another leading theorist of the field, Charles Wedemeyer, who conceptualized distance education as learning "any time, any where" (Diehl, 2012; Black, 2013). Wedemeyer championed the cause of the independent learner and established several theoretical constructs that have constituted the core of the contemporary theory of distance education. Among these constructs are autonomy or the learner's need for independence to participate in deciding his/her learning objectives, select the strategy and the means to achieve such objectives, and demonstrate his/her mastery of the chosen objectives (Diehl, 2012; Black, 2013). In subsequent theoretical work, Dr. Michael G. Moore, incorporated the idea of learner autonomy in the theory of transactional distance. In Moore's theory, distance in education is determined by learner's autonomy as manifested in the control he/she requires in the process of learning, and structure as manifested by instructor control of the teaching process. Moore postulated that more instructor control (structure) leads to increased distance, and more autonomy leads to decreased distance between the instructor and the learner (Moore, 2012). (3) Didactics or the skills learners and teachers required to use electronic technology for teaching and learning (Keegan, 1996). (4) Market request or the willingness of students to partake in "electronic classrooms" or use videoconferencing to engage in distance learning (Keegan, 1996). These issues led Keegan to believe that "distance education is a form of education fraught with problems for administrators, teachers, and students. It is characterized by the fragility of the non-traditional in education. These difficulties concern the quality, quantity and status of education at a distance. Good practice in distance education seeks to provide solutions for these inherent difficulties" (Keegan, 1996).

Conceptual apparatus: modern approach

More than two decades have passed since Keegan posited his foundational issues in distance education. Research in the field has grown tremendously since then, and scholars have found tentative answers to some of his questions. However, as Keegan thought, more studies are needed to explore the phenomenon of distance education in support of the practitioners in the field and their students. The authors of California Distance Learning Project, CDLP (<http://www.cdlponline.org/>) support Keegan's vision of distance education in general. They do not draw distinction between the terms "distance education" and "distance learning" and give the following definition to this mode of learning: "Distance Learning (DL) – is an instructional delivery system that connects learners with educational resources; provides educational access to learners not enrolled in educational institutions and can augment the learning opportunities of current students. The implementation of DL is a process that uses available resources and will evolve to incorporate emerging technologies." They also highlight several key features characteristic of distance learning, namely: separation of teacher and learner during at least a major part of each instructional process; separation of teacher and learner in space and/or time; provision of two-way communication between teacher, tutor, or educational agency and learner; use of educational media to unite teacher and learner and carry course content; process of control of the learning pace by the student rather than by the distance instructor (Ainoutdinova, 2017). These features may apply equally to both high tech and low tech approaches to distance education. In any case, we could not eliminate the importance of the teacher – learner communication as well as the so called technology responsibly. Learners will not achieve the desired level of communicative competence by just using a computer, thus many variables should be taken into account, such as: students' interests, their individual styles and strategies of learning, students' needs and wants, as well as the major aims and goals of teaching and learning, the applicable safe content, tools and resources (Hsu, 2017). Likewise, the roles of both teachers

and students will change into "teaching how to learn" (coach) and "learning how to learn" (autonomous learners) (Maloy, 2016). Thus, we may assume that three elements are of paramount importance to any successful distance education program: high quality instructional design, safe and applicable technology, and constant well-structured support (Tregubova, 2016).

In 2001 Frederick B. King and his colleagues from the University of Connecticut, Neag School of Education, made an attempt to draw distinction between the terms "distance learning" and "distance education" for the purposes of common, yet distinct and precise vocabulary essential for communication within specific domains for instructors, students and, particularly, researchers (King et al, 2001). The authors planned to start the movement toward a common vocabulary by offering precise definitions of distance learning and distance education, and their interrelationship. This step had been accomplished by first proposing a single definition of learning and then breaking down the concept of learning into three subcategories: instruction, exploration and serendipity. Each of these, in turn, were defined and the concepts of distance learning and distance education were derived and categorized. Prof. King and his team began their examination of the term "distance learning" with the second word, "learning" and crafted the following definition: "Learning - is a set of improved capabilities in knowledge and/or behavior as a result of mediated experiences that are constrained by interactions with the situation" (King et al, 2001). The provided study brought the following broadened definition of the term "distance learning": "Distance learning - is a set of improved capabilities in knowledge and/or behaviors as a result of mediated experiences that are constrained by time and/or distance such that the learner does not share the same situation with what is being learned" (King et al, 2001). From this definition of "distance learning" flows definition of "distance education" as of "a formalized instructional learning where the time/geographic situation constrains learning by not affording in-person contact between student and instructor, while the "in person education" - is a formalized instructional learning where the time/geographic situation constrains learning by requiring synchronous person-to-person interaction" (King et al, 2001).

Prof. King and his colleagues in order to further clarify the issue provided a thorough research of the concept of learning. Recognizing that learning is a constant process that takes place wherever and whenever the individual is receptive, there must be accommodation made for the different purposes for learning or different learning intentions. According to Mariana Sanderson from SafetyNet Integrated Project: "Learning is any reasonably permanent change in behavior as a result of past experience where behavior may also be affected by maturation, physical damage and even disease" (Hsu, 2017). But with these definitions of "learning" the scholars were only half-way to their goal of defining "distance learning". Prof. King and his colleagues considered that there were more than one purpose for learning and tried to distinguish the separate stages of learning. They showed that learning of cognitive, manual and complex skills can be developed in three, broad phases, namely: the "knowledge" stage - in which the learner is inducted in, absorbs and understands the basic facts, principles and practices of a particular domain so that these become unconscious and automatic, that is, the learner acquires declarative knowledge; the "rule" stage - in which the learner develops the ability to apply, mainly consciously, the acquired declarative knowledge to a wide range of different situations, that is, the learner develops a set of operational rules and procedures or personal heuristics; and the "skill" stage - in which the objective is to have the trainees achieve fluid and automatic performance. Trainees learn to accomplish the "know-how" gained during the former levels, so as to achieve skills, practical and realistic "hands on" experience or practice through simulator training. Besides, the authors singled out formal learning in a separate category as being normally achieved through training and education. According to this approach, training is often considered as bringing the performance of a group of people up to a specific level appropriate to achieve a desired performance on a work task. That is, training has a specific objective and aims to minimize the differences between learners' behavior or performance. Education, on the other hand, has traditionally been seen to have broader objectives which maximize the differences between learners. Its aim is to instruct and encourage learners to maximize their individual potential and cognitive skills for future life. After all, the scholars came to conclusion that learning situations may be formal

(contrived) or self-directed in everyday settings (naturalistic). Learning thus may occur by design, or by chance. Therefore, with these possibilities in mind, the authors proposed three major subcategories of learning: instruction: objectives-driven learning; exploration: without objectives; and serendipity: unintended learning (King et al, 2001). Despite all the constraints present in each type of learning, it is obvious that traditional learning and distance learning become co-equal, each having its benefits and each having its drawbacks though.

At the same time we have to admit that the concept of "distance education" or "distance learning" is slowly losing its ground since it no longer adequately describes the range of educational options and delivery methods offered today. The evident change in the conceptual apparatus is mostly determined by the advances in science and technology, which in their turn influence the way people can learn and communicate with others in different countries in real-time or synchronously using technologies such as instant messaging, voice over IP (VoIP) or video-conferencing. People can also learn and communicate globally via asynchronous electronically mediated communication meaning that the participants do not communicate concurrently. Examples include email, chats, forums and bulletin board systems, where participants send or post messages at different times. Social networking websites, like Facebook, Twitter, Skype, etc. allow users from all over the world to remain in contact and communicate on a regular basis. Modern information and communication technologies have even created a "global village," in which people can communicate with others across the world as if they were living next door (Warschauer, 2007). In the era when ICTs have provided the world population with a vast array of new communication capabilities we more often use other terms such as "distributed", "hybrid", "blended", "online" education, etc. to describe distance courses that meet the requirements and needs of our rapidly digitizing world. Today, operation of most universities seems to some experts as susceptible to tech disruption as other information-centric industries such as the news media, magazines and journals, encyclopedias, music, motion pictures, or television. The technical affordances of cloud-based computing, digital textbooks, mobile connectivity, high-quality streaming video, and "just-in-time" information gathering have pushed vast amounts of knowledge to the "placeless" Web. This has sparked a robust re-examination of the modern university's mission and its role within a networked society. The transmission of knowledge need no longer be tethered to a college campus only (Anderson et al, 2012). According to Hurst, distance education is shifting from a peripheral activity on college campuses, to the center of many higher education institutions (Hurst, 2001). One major driver of the debate about the future of university centers on the increasing role of higher education in society in general and the diploma's ultimate value as an employment credential in particular. Besides, students and parents, stretched by rising tuition costs, are increasingly challenging the affordability of a college degree as well. Experts likewise expect more-efficient collaborative environments and new grading schemes to appear; they predict though that various ICT-based start-ups and initiatives such as massive open online courses (MOOCs), other forms of open educational resources (OERs), hybrid and distance learning spaces, virtual learning and crowdsourcing platforms, cyber schools and even virtual universities will shift students away from on-campus life (Evans & Fan, 2002).

Conclusion and Recommendations

Most educators and practitioners do recognize though the potential of distance education. It helps to overcome obstacles of distance, time, human and material resources that limit access to learning opportunities. However, if the purpose of a distance program is to teach, then the program must provide instruction that fosters creative interaction both among and between students and with their professional tutors. Briefly, when universities or teachers choose distance learning programs for any of many valid reasons, they should be very attentive in selection of didactic materials, teaching tools, resources, methods and technologies designed to meet the goals of quality education in the ICT-based university leaning environment. To help online instructors establish best distance practices and achieve performance expectations of Generation Z students, the core principles of effective online teaching have been developed at Penn State's World Campus, contained later in the Special Report (<http://www.worldcampus.psu.edu/>) presented by Faculty Focus (Ragan, 2012). This document is based

on the concurrence of concepts of "distance education" and "online education". In the online classroom, an entirely new set of variables enters the equation. Variables that, if not managed properly, can lead to frustration and an overall bad experience for teacher and learner. The principles of effective online teaching for instructors include: (1) Show Up and Teach! – serves as a reminder not to believe that the online class "teaches itself" and just navigates the learning system due to the fact that most courses are already authored and designed for online delivery. (2) Practice Proactive Course Management Strategies! – advises to actively participate in course management strategies. (3) Establish Patterns of Course Activities! – recommends always to establish and communicate a course pace and pattern. (4) Plan for the Unplanned! – gives advice to inform students of any occasional or unexpected changes in course agenda. (5) Response Requested and Expected! – expects to timely respond to student inquiries (feedback). (6) Think Before You Write! – recommends to be exact and clear in messages to students to avoid misunderstanding. (7) Help Maintain Forward Progress! – advises to maintain positive forward progress in students' studies. (8) Safe and Secure! – expects the university learning management system to provide adequate degree of security and confidentiality. (9) Quality Counts! – reminds of the need to establish strategies for addressing the quality of the online learning experience, including content resources, instructional design strategies, and systems performance. (10) (Double) Click a Mile on My Connection! – expects the technological infrastructure of the online classroom to meet the needs and expectations of both Generation Z students and instructors (Meyer & Kezar, 2002; Ragan, 2012).

We assume that distance education is a modality today. It is a broad, mixed category of methods to deliver quality learning. The development of materials and components for distance learning and selection of delivery methods go hand in hand and must meet the following requirements: (1) the identifiable end-user's needs and wants; (2) perceptible content and purpose of learning requirements; (3) reasonable technical and technological constraints; (4) availability and accessibility of delivery components; (5) need for changes as a result of evaluation, modification of content, alteration of user requirements or future technological developments. In distance education, communication occurs through various types of interaction, which can affect the design as well as the selection of delivery method and technology. Interaction may occur between: (1) the learner and content – this is often called one-way communication; it may be enhanced by different multi-media, e.g. print, sound, graphics, or video; (2) the learner and provider who may be either a teacher, instructor, tutor, visiting professor or specialist, panel of experts, on-site demonstrator, learner support staff, or an administrative staff; (3) the learner and another learner – this eliminates risks of isolation and gives opportunity to develop, discuss and share ideas, knowledge and skills; (4) the learner and course group – enables work on group projects and development of group skills; (5) the group of learners and provider – allows group instruction, communication, etc. (Spart, 2010).

Numerous studies have found distance learning courses as effective comparing to traditional classroom training or even better. Most of academic leaders and educators admit that online education outcomes are superior to those in traditional learning environments. However, there are challenges for anyone who opts to learn through distance learning. Although distance education offers more people an opportunity to attain higher education, it is not all advantages and benefits. Distance education has costs, requires compromises and self-motivation is essential for success. Like any kind of educational program, distance education comes with a host of its pros and cons.

The supporters of distance education emphasize that this mode of learning provides a lot of flexibility to learners (at any place, time, or pace); better accessibility for those separated from mainstream education due to some relevant reasons (distance, time, disabilities, etc.); numerous choices and opportunities for selection of schools, subjects or programs not available in the near-by area; more choices of learning styles and self-paced scheduling; individualized instruction (the teacher is able to tailor the curriculum to each student's instructional needs and preferences); appropriate feedback to all actions of students on equal basis; ICT-based networking opportunities (enable students who enroll in classes with online education to make connections and communicate with a diverse range of people), etc. (O'Donoghue et al, 2004; Hannay & Newvine, 2006).

The opponents of distance education on the contrary oppose this format of learning stating inter alia that in the absence of teachers "standing behind" learners might need too much of self-motivation. Lack of social interaction or participation, in their view, may cause a feeling of isolation, while absence of social atmosphere may minimize motivation and interaction and worsen discipline. Limited direct access to the instructor on demand to ask questions may cause to miss some important information, while absence of immediate feedback on performance may cause to miss some necessary and critical advice. Technical requirement may be difficult to meet for those students who do not have a constant, reliable access to technology or who is still not completely computer literate (O'Donoghue et al, 2004; Hannay & Newvine, 2006). Some teachers, who use ICT to interact on a global basis, expand resources, enhance local content, or customize material, think that problems include the need for extra training, information overload, pace of technological change, student plagiarism, business involvement, teachers' time, etc. (O'Donoghue et al, 2004).

Taking both sides into account, we think though that based on its long history and current trends, distance education should continue to remain an important and viable educational option for university students. The current trends in teaching and learning are taking on an absolutely new shape as university teachers leverage modern ICT-based technologies and strategies to creatively deliver content in various ways to their students. Ongoing developments related to both technology and pedagogy have pushed governments and universities to grapple with issues of accreditation, credentialing, quality standards, innovative assessment, and learner motivation and attrition, among other areas of concern. If we look at the map of notions applicable to distance education we will get an impressive list of terms and trace the evolution of terminology (again thanks to ICTs) from its early stages till now. The 1st and 2nd generation distance education was often referred to as: correspondence courses, extension courses or extended studies; home study, continuing education or external studies; self-paced studies, independent studies or distance learning. Ironically, terms used to describe 3rd and 4th generation distance education include ICT-based terms: cyber education, online education, virtual education; technology-supported education, hybrid education, distributed learning; e-learning, and web-based education. Along with that, university learning environment is constantly evolving and changing thus creating among other things new etiquette of learning and teaching, shifting the locus of control from the teacher to the learner and, according to International Society for Technology in Education (ISTE), bringing the world to the classroom (Moore, 1993). No doubt, using ICTs and other technologies to digitize education across Russia will lead to further innovation, high quality of knowledge, social inclusion, job creation and national competitiveness.

The outcomes of our research may contribute to better understanding of the current trends in higher education sector with emphasis on teaching and learning at university; enhance the existing instruction and delivery methods in ICT-based learning environments so as the students feel more relaxed and independent, truly engaged and motivated. Our general recommendations could be of interest for those who tend to build distance education platforms, open online communities, create MOOCs, virtual networking platforms and all other digital forms of formal and informal learning. We believe, that distance education techniques will bridge learners and teachers, universities and communities, set ideas of "collective intelligence" based on knowledge and wisdom of Generation Z.

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