

RHIZOMATIC MODEL OF ONLINE UNIVERSITY EDUCATION IN THE CONTEXT OF THE COVID-19 PANDEMIC IN RUSSIA

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Abstract

The need to research and develop a rhizomatic model of online university education has been driven by several factors, the most acute being the COVID-19 pandemic and its unprecedented impact on education systems around the world. In order to keep the doors of learning open there were large-scale efforts on the part of the governments, authorities, international organizations, educational institutions, etc. to utilize technology in support of remote modes of teaching and learning. In the context of the necessary lockdown restrictions, Russian universities have also undertaken all possible measures to support the smooth continuity of educational process. Various forms of distance and online teaching and learning were mobilized to replace the traditional forms of training future specialists. At the same time, the task was also to preserve the traditions of fundamental education without reducing its quality. Thus, the unexpected transition to a distance learning format forced Russian universities to change curricula and programs almost on an emergency basis and search for adaptive methods and forms by employing various digital platforms like Microsoft Teams, Zoom, etc.

Although even before COVID-19 there was already a high increase in the interest of some educators and teachers in electronic and digital forms of teaching and learning, we can assume that COVID-19, oddly enough, gave impetus to the popularization and practical use of distance and online education in Russia. For the purposes of the study, we turned to the rhizomatic approach, the reliance on which, in our opinion, can help teachers, first, to correctly organize and clearly algorithmize the educational process within the framework of the Federal State Educational Standards of Higher Education; second, to successfully combine traditional university curricula with the use of information technology; third, to admit all the diverse requirements of the modern interdisciplinary and intermedial world order and the interests of today's students who can conditionally be attributed to the "digital generation Z".

The aim of this work is to analyze the best practices, strategies and models of rhizomatic education, and identify their applicability to Russian universities. We studied this approach in terms of its validity, usability and potential impact on the educational process as a whole and the learning outcomes in particular. We believe that the rhizomatic approach is purely innovative and timely because it rejects the somewhat outdated view of education as a centred and firmly entrenched structure. This approach allows for the variability of curricula and hybrid methods, the absence of strict conditions both for obtaining knowledge and for monitoring outcomes. In addition, this approach motivates autonomy, the ability to follow one's own educational path and disposition for knowledge and skills necessary for future profession and development. The main result of the study is the design of a rhizomatic model of online university education, which might help teachers and students to engage, interact and succeed.

Keywords: university, students, rhizomatic model, online education, hybrid format, networking, crowdsourcing, interaction, COVID-19 pandemic.

1 INTRODUCTION

Several factors have prompted the need to rethink the role, place and purpose of university education, the most recent and dramatic being the COVID-19 pandemic and its unprecedented impact on the lifestyles of billions of people around the world. The recent spread of the COVID-19 turned to be a strong stress test for education systems throughout the globe with an increasing number of countries closing their institutions of learning as a response to the pandemic. In order to keep the doors of learning open there were large-scale efforts on the part of the governments, authorities, international and local organizations, educational institutions, etc. to utilize technology in support of remote modes of teaching and learning [1]. Thus, various forms of distance and online teaching and learning were mobilized to replace the traditional forms of training future specialists. In the urgent circumstances of

the unexpected lockdown, most universities were forced to change not only the teaching and learning format but also their curricula and programs and look for adaptive methods and forms using various web-based resources and digital platforms such as Microsoft Teams, Zoom, etc. This happened both in synchronous mode (through online training with a mandatory Internet connection on the Teams and Zoom platforms), and through asynchronous network interaction via LMS Moodle, blogs, chats, forums, electronic resources hosted on internal and external educational sites. This made it possible to implement online learning into the educational process and make it an integral part. As a result, the emphasis on teaching and learning has shifted from the individual to the collective, massive, equitable and tech-enhanced [2], which has placed a heavy burden on educators and education systems [3].

Although even before COVID-19 there was already a high increase in the interest of some Russian educators and teachers in various electronic forms of teaching and learning, we can assume that it was COVID-19 that, oddly enough, has given impetus to popularization and practical use of distance and online education in Russia. Also, despite all the efforts, it became obvious that many universities were only partially ready to switch to online broadcasting of their programs. This was due to pedagogical, psychological, communicative and purely technical problems that arose many times in the process of transforming to the new teaching format. For example, there were interruptions in the broadcast of lectures and practical classes due to the poor Internet connection; the online platforms did not meet expectations of the users (it turned out that Skype cannot serve large groups, Zoom may turn off after 40 minutes, and Microsoft Teams is excessively energy-intensive and consumes too much of the computer's internal memory); the equipment involved was also either outdated or technically not up to the required parameters of a high-quality online connection. This is just a small part of the questions that daily accompanied the educational process during that period [3; 4].

At the same time, there was some panic noted among the older generation of professors, whose basic skills and knowledge of the Internet and web-based applications revealed their poor readiness for full-fledged work in the new conditions. Due to unexpected but inevitable transition to distance education, some members of academic community were taken aback and worried whether such mode of learning would remain in post-pandemic conditions and how such shift could affect the education market, educational services, educational opportunities and general concept of knowledge at large [1; 4; 5]. Particular emphasis was placed on the question of how to teach someone in the age of Google, when search engines provide answers even before you have finished typing the question, and what, in fact, is left to be learned? [2]. Various pedagogical issues related to the selection of methods, technologies and designs that could simultaneously meet the requirements of the day and serve the traditional goals and objectives of fundamental university education were also in focus. It turned out that many teachers experienced difficulties while moving from offline (face-to-face) to online work, as this forced them to radically change their approaches and attitudes to the process of knowledge transfer and its acquisition. Many have found it difficult to develop relevant and effective content that would not only encompass the curriculum, but could also engage students and motivate them to study with diligence for a multitude of axiologies (values) and ontologies (ways of being) [6]. Ensuring digital equity was crucial in that tough time too. Thus, teachers were to modify their teaching paradigm to meet students' needs and provide equitable digital learning opportunities by encouraging learners to create their own personal learning environment in a tech-enhanced and information-rich context albeit without direct instruction and teacher supervision [7]. Likewise, many disputes arose regarding the psychological and communicative readiness of both teachers and students for the upcoming changes, etc. [4].

In search of answers to these and other topical questions, the authors conducted a "post-quarantine" survey among students and teachers in one of the leading Russian universities - Kazan Federal University. Based on the results of the survey, certain conclusions were drawn about the attitudes of respondents to the digital transformation of higher education. The review does not claim to provide any deep scientific data. Rather, it was an attempt to collect primary information to confirm our hypothesis that the complexity of distance and online education causes to search for some multimodal approach to teaching and learning, which might be described as rhizomatic. The concepts of tech-enhanced, interest-driven, non-linear, interdisciplinary, multi-dimensional, equitable and self-directed – are all relevant to the topic [8] and may be used to describe learning styles of today's students who can be attributed to the "digital generation Z" [9]. For the purpose of studying and further explaining the ongoing changes and innovations in education during the COVID-19 pandemic, let us turn to a deeper analysis of this recognized approach, which is still not well known to a wide range of teachers.

2 METHODOLOGY

The methodological framework of this research work rests on a set of social, pedagogical, integrative, competence and comparative approaches covering all aspects of both teachers' and students' academic activities enhanced by the needs of the digital era and challenges caused by the COVID-19 pandemic. We have carefully studied and analyzed the new pedagogical theory of rhizomatic learning promoted by a blogger and teacher of the University of Prince Edward Island Dave Cormier [2; 10; 11; 12; 13]. We did that in the frame of fusion of rhizomatic philosophy by Gilles Deleuze, a French philosopher, and Felix Guattari, a French psychoanalyst and political activist [14; 15] and modern educational technologies [16]. In order to better understand the problem connected with the pandemic and its impacts on education we examined the relevant authentic documents and reports on higher education and COVID-19 prepared by the UN Secretary General [17]; UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC) [18], and other UN organizations, e.g., the United Nations Development Programme (UNDP), the United Nations Conference on Trade and Development (UNCTAD), etc.

The aim of this work was to analyze the best practices, strategies and models of rhizomatic education, and identify their applicability to Russian universities [19; 20]. We studied this approach in terms of its validity, usability and potential impact on the educational process as a whole and the learning outcomes of students in the context of the COVID-19 pandemic in particular. We believe that the rhizomatic approach is purely innovative and timely because it rejects the somewhat outdated view on education as a teacher-centred and firmly entrenched structure [21; 22]. This approach allows for the variability of curricula and provides a broad choice of methods and technologies due to the absence of strict requirements for both knowledge transfer and its acquisition. In addition, this approach motivates autonomy, the ability to create and follow one's own educational path, the disposition for knowledge acquisition and the development of multiple skills necessary for future profession and social life [23].

Our study has been supported by deep analysis and synthesis of the best scientific findings concerning different forms of distance and online teaching and learning presented by the prominent Western and Asian scholars (K. Aoki, D. Keegan, F.B. King, L.C. Ragan, N. Sampson, M. Warschauer, etc.) [24; 25; 26; 27; 28; 29]. 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 online (or distance) learning environment supplemented by multimodal rhizomatic approach. The process involved more than 300 law students of Kazan Federal University who were temporarily placed into separate learning environments, i.e. conventional or traditional (face-to-face) and online (at a distance). We took into account the latest US national research statistics and findings on Generation Z published by the Center for Generational Kinetics based in Austin (Texas, USA) [9]. 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. We also conducted a "post-quarantine" survey among students and teachers of the same university in order to find out the respondents' attitude towards the digital transformation of higher education, as well as the level of their digital readiness (ICT competence) for online forms of teaching and learning.

3 RESULTS AND DISCUSSIONS

The main result of the study is the design of a model of an effective tech-based, interest-driven, non-linear, and equitable learning environment that includes rhizomatic approach implemented through distance and online educational programs, and, thus, increases the quality and prestige of university education [25]. In our vision, such an environment should also be a multi-dimensional, interdisciplinary and multilingual educational space based *inter alia* on the inclusion of native languages and one or more foreign languages studied by students (English, German, French, Spanish, etc.) [20]. This rhizomatic model should function in the interconnection and complementarities of all its components that traditionally exist in the educational process of university. Such a learning environment must also be organized in accordance with the changing needs and learning styles of today's "digital" students, their preferences and capabilities [9]. Teachers should encourage their students to engage in active learning, embrace the learning process, make their own learning paths and connections, and form their own senses of meaning and understandings in any discipline as a multitude of axiologies (values) and ontologies (ways of being) [2; 6; 10; 11; 31]. Teachers must support incorporation of a rhizomatic perspective into teaching and learning as a companion to courses thus giving learners and instructors a framework within which they can see their "community as the curriculum" of their courses [10; 11].

Two different approaches to teacher involvement and participation in the knowledge transfer and its acquisition can seem to contradict each other. In considering how to facilitate rhizomatic learning, these two approaches are often seen as mutually exclusive poles in education [2]. In fact, according to Dave Cormier, rhizomatic learning perspective is generally based on the premise that teachers cannot possibly know or cater to students' individual needs, interests, and contexts [10; 11]. Cormier explains his perception of rhizomatic learning through recognition of multiple modalities surrounding each learner, namely, that they come from different contexts, that they need different things (knowledge), and that teachers may only presume but not know what those things are. Otherwise, it is like believing in magic [10; 11]. This leading idea of rhizomatic learning may cause us to believe that teaching should be more than just the provision of a specific set of course materials in a predetermined order, and teachers should only strive to create a context in which an individual student can develop his/ her personal environment just as a garden provides a place for plants to take root and bloom [2; 8;10].

Cormier and his supporters believe that rhizomatic learning in terms of knowledge transfer and its acquisition is a multi-dimensional and chaotic process that has no defined beginning or end [30]. They regard learning as a complex process, in which each student independently chooses his or her own path and embraces the learning process within the boundaries necessary for his/her personal needs and goals [10]. Cormier states that if teachers want their students to ultimately develop all necessary skills and surpass them in knowledge, they should not restrict students to a predetermined set of materials [11]. This is in tune with the philosophical concept of the rhizome as a representation of the structure of knowledge, which was first proposed by Gilles Deleuze and Felix Guattari in their book "A Thousand Plateaus" (1980) [14]. The French philosophers attempted to explain knowledge by using the comparison of a rhizome and a tree. In botany, a rhizome is the term used for the stem of a plant, usually found underground, whose roots spread out in many directions. With this image in mind, the authors of "A Thousand Plateaus" described tree as a pattern of knowledge transfer and its acquisition ruled by hierarchy, linearity and a meaningful content [15]. Rhizome, on the contrary, is described as an unbounded, distributed, semiotic, though interconnected pattern of knowledge delivery [8; 10; 15].

On the other hand, it is obvious that it is hardly possible to properly organize and algorithmize the educational process especially in the context of COVID-19 pandemic without taking into account both social, economic, political and individual contexts, as well as personal "digital" needs, interests and goals of teachers and their students. Teachers who support rhizomatic teaching and learning must strive to strike a happy medium between the fundamental principle of rhizomatic learning known as "community as curriculum" [2; 8; 30], and a highly structured organization and tech support of educational process at university [27]. This condition is especially important in online education. If "community as curriculum" encompasses a wide range of methods, topics and resources as well as teaching, learning formats, and methodologies chosen spontaneously, then a properly organized educational process will inevitably eliminate the scarcity or reduce the risks of gaps in knowledge transfer or acquisition [4]. To cope with the challenge of effectively integrating the two models in the context of rhizomatic learning, teachers need first to acknowledge the experiences their students have gathered to learn together. Teachers have also to assess their own "digital" potential; and finally provide a framework for the selection of technologies with which students can construct their own personal learning paths in a tech-enhanced and information-rich context. The resulting space of interest will guide students' learning in an interdisciplinary, multi-dimensional, self-directed way [8].

4 CONCLUSION AND RECOMMENDATIONS

Most university educators and practitioners recognize the potential of distance and online education, especially during the COVID-19 pandemic. Distance learning helps overcome obstacles related to distance, time, human and material resources that can limit access to learning opportunities in emergencies. However, if the goal of a distance program is still learning (rather than entertainment), then that program should provide an instruction design that fosters creative interaction between students and their teachers. In short, when universities choose distance learning programs for any of many reasons, they must be very careful in selection of didactic materials, teaching aids, resources, methods and technologies designed to achieve the goals of quality university education. Teaching aids and resources are quite important in this respect. For example, Dave Cormier divides them into four types, from the most stupid (e.g., anonymous sources like Wikipedia) to the most useful (e.g., the unique content created by students or teachers) [10; 11]. Cormier regards anonymous sources useless, since in the absence of a particular author's responsibility for the quality of the information, it is difficult to discuss the content. Most of all he praises individual research project or textbooks created by individual or collective students or teachers allowing discussion of multiple topics of interest [8; 10].

The best students' outcomes are achieved according to the results of our empirical research in a tech-based, interest-driven, non-linear, and equitable rhizomatic learning environment of university. Such an environment should also be a multi-dimensional, interdisciplinary and multilingual educational space of interest for those who gathered with the aim of learning together [27]. In practice, organizing education according to the rhizome principles means, first of all, placing greater responsibility on the students, since they themselves must choose technologies they may use or topics for collective tasks. They may equally independently develop their own learning paths, provide control, and test their own knowledge acquisition. This may sound unusual, but it can hardly be considered useless. To clarify our position, it is important to distinguish between responsibility and obligation. Choice usually carries a responsibility, and if the choice is made voluntarily, the responsibility rests with the student [21]. This is the core of a student-centered approach. The duty, on the contrary, always comes from the teacher, who thus establishes a certain hierarchy. Only the teacher has the right to oblige to do something in a traditional teacher-centered class and he / she alone controls the fulfillment of the obligation [21]. The rhizomatic learning model offers a broad space for student's autonomy during the learning process. The inner sense of responsibility for learning outcomes helps students to better achieve their goals [2].

The outcomes of our research may contribute to better understanding of the current trends in higher education with emphasis on distance and online teaching and learning at university especially in the times of COVID-19 pandemic. One may feel that rhizomatic learning is something unattainable. But, as practice shows, Dave Cormier managed to conduct a successful massive open online course (MOOC) #rhizo14 (<https://davecormier.com/edblog/category/rhizo14/>) based on the principles of rhizomatic learning [10]. It became possible because each student used three technologies in the learning process: personal blogs – to reflect on the process of knowledge acquisition, Twitter – as a tool of connectivity for discussions, and Google Docs – as a means to organize collective experience (crowdsourcing, crowd voting, etc.) and knowledge transfer [11; 31]. The applied knowledge instruction and delivery methods proved their efficiency. Another example of successful practice of parallel integration of rhizomatic and online learning strategies into the educational process is alternative schools in the United States [19]. The limited format of the article does not allow revealing all aspects of the topic under consideration though we plan to further study the application of rhizomatic learning strategies at Russian universities.

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REFERENCES

- [1] I.N. Ainoutdinova, et al. "Distance and online learning solutions in the context of modern legal educational policy" // "Soluciones de aprendizaje a distancia y en línea en el contexto de la política educativa jurídica moderna" / Irina N. Ainoutdinova; Raviya F. Stepanenko; & Natalya V. Krotkova. CUESTIONES POLITICAS, 38 (67 Especial, 2da parte 2020), pp. 239–250, 2020.
- [2] J. C. Cronje. "Twenty-first-Century Learning, Rhizome Theory, and Integrating Opposing Paradigms in the Design of Personal Learning Systems"/ Johannes C. Cronje. In: Spector M., Lockee B., Childress M. (eds) Learning, Design, and Technology. Springer, Cham pp. 1–22, 2016. Retrieved from URL: https://link.springer.com/referenceworkentry/10.1007/978-3-319-17727-4_49-1 (03.12.2020).
- [3] C. Li, & F. Lalani. "The COVID-19 pandemic has changed education forever. This is how" / Cathy Li; Farah Lalani [Electronic resource], 2020. Retrieved from URL: <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/> (01.12.2020).
- [4] S. Dhawan. "Online Learning: A Panacea in the Time of COVID-19 Crisis" / Shivangi Dhawan. Journal of Educational Technology Systems, 49(1), pp. 5–22, 2020.
- [5] T.D. Oyedotun. "Sudden change of pedagogy in education driven by COVID-19: Perspectives and evaluation from a developing country" / Temitayo Deborah Oyedotun. Research in Globalization, Volume 2, Article 100029 (Open Access), 2020.
- [6] S. Affouneh, et al. "Designing quality e-learning environments for emergency remote teaching in coronavirus crisis" / Saida Affouneh; Soheil Salha; Zuheir N. Khlaif. Interdisciplinary Journal of Virtual Learning in Medical Sciences, 11(2), pp.135–137, 2020.

- [7] W. Zhang, et al. "Suspending classes without stopping learning: China's education emergency management policy in the COVID-19 outbreak" / W. Zhang; Y. Wang; L. Yang; & C. Wang. *Journal of Risk and Financial Management*, 13 (55), pp. 2–6, 2020.
- [8] M. Reardon, et al. "Towards a Rhizomatic Method for Knowledge Management" / Michael Reardon; Louis Sanzogni; & Arthur Poropat. *International Journal of Knowledge, Culture and Change Management*, 5 (5), pp. 159–168, 2006.
- [9] D. Villa, & J. Dorsey. "The State of Gen Z 2017: Meet the Throwback Generation": White Paper. Research by: The Center for Generational Kinetics, Austin, Texas, USA, 30 p. 2017.
- [10] D. Cormier. "Rhizomatic education: Community as curriculum"/ Dave Cormier. *Innovate: Journal of Online Education*, 4 (5), pp. 1-6, 2008. Retrieved from URL: <https://www.learntechlib.org/p/104239/> (14.12.2020).
- [11] D. Cormier. "Making the community the curriculum: A rhizomatic learning companion"/ Dave Cormier (davecormier and dave cormier). Powered by Pressbooks EDU: Montreal, Quebec, Canada. Retrieved from URL: <http://davecormier.com/edblog> (07.12.2020).
- [12] J. Mackness, et al. "The rhizome: A problematic metaphor for teaching and learning in a MOOC" / Jenny Mackness; Frances Bell; & Mariana Funes. Publisher: Australasian Society for Computers in Learning in Tertiary Education. *Australasian Journal of Educational Technology*, 32 (1), 2016. Retrieved from URL: <https://www.learntechlib.org/p/188135/> (03.12.2020).
- [13] D. Cormier, & G. Siemens. "Through the open door: Open Courses as Research, Learning, and Engagement" / Dave Cormier; George Siemens. *EDUCAUSE review*, 45 (4), pp. 30–39, 2010.
- [14] G. Deleuze, & F. Guattari. "A Thousand Plateaus: Capitalism and Schizophrenia" / Gilles Deleuze Felix Guattari; Brian Massumi (Translator). Publisher: University of Minnesota Press; 2nd ed., 632 p., 1987.
- [15] S. B. Crofts Wiley, & J. M. Wise. "Guattari, Deleuze and Cultural Studies" / Stephen B. Crofts Wiley & J. Macgregor Wise. Routledge: Taylor & Francis Online, *Cultural Studies*, 33 (1), pp. 75–97, 2019.
- [16] M. Castells. "The Rise of the Network Society. The Information Age: Economy, Society and Culture" / Manuel Castells. Vol.1, Malden: Wiley-Blackwell Publishing, 2nd Edition with a new preface, 656 p., 2009.
- [17] UNITED NATIONS. "UN Secretary General's Policy Brief: Education during COVID-19 and beyond", 26 p., 2020. Retrieved from URL: https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf (13.12.2020).
- [18] UNESCO IESALC. "COVID-19 and higher education: Today and tomorrow". Impact analysis, policy responses and recommendations, 54 p., 2020. Retrieved from URL: http://www.guninetwork.org/files/covid-19_en_090420.pdf (03.12.2020).
- [19] T.N. Bokova. "Rhizomatic principles of teaching in alternative schools in the USA" / Bokova Tatiana Nikolaevna. *Values and Meanings*, 1 (41), pp. 85-91, 2016.
- [20] I.N. Ainoutdinova. "Advantages and disadvantages of distance education for university students in Russia" / Irina N. Ainoutdinova; Anvar N. Khuziakhmetov; & Tatyana M. Tregubova. *Modern Journal of Language Teaching Methods*, 7 (9/2), pp. 72–86, 2017.
- [21] I.M. Kinchin. "Visualising the pedagogic frailty model as a frame for the scholarship of teaching and learning"/Ilan M. Kinchin. Publisher: Emerald Publishing Ltd, *PSU Research Review*, Vol. 1 No. 3, pp. 184–193, 2017.
- [22] K. Wilson, & J. Fowler. "Assessing the impact of learning environments on students' approaches to learning: Comparing conventional and action learning designs". *Assessment & Evaluation in Higher Education*, 30, pp. 87–101, 2005.
- [23] M. Dillon. "Learning Happens: Incorporating a Rhizomatic Perspective into Teaching and Learning" / Michael Dillon. Conference Proceedings: Adult Education Research Conference (Charlotte, NC). New Prairie Press, Kansas State University Libraries, pp. 89–95, 2016.

- [24] K. Aoki. "The Use of ICT and e-Learning in Higher Education in Japan." *World Academy of Science, Engineering and Technology: International Scholarly and Scientific Research & Innovation. International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 4 (6), pp. 986–990, 2010.
- [25] D. Keegan. "Foundations of distance education" (3rd ed.). Series: *Routledge Studies in Distance Education*. London, New York, NY: Routledge, 240 p., 1996.
- [26] F.B. King, et al. "Defining Distance Learning and Distance Education" / F.B. King; M.F Young; K. Drivere-Richmond; & P.G. Schrader. Norfolk, VA: Association for the Advancement of Computing in Education (AACE). *AACE Journal*, 9 (1), pp. 1–14, 2001.
- [27] L.C. Ragan. "Principles of Effective Online Teaching: Best Practices in Distance Education". *Higher Ed. Special Report / Christopher Hill (Ed.)*. A Magna publication: Faculty Focus. Madison, Wisconsin, USA, 26 p., 2012.
- [28] N. Sampson. "Meeting the Needs of Distance Learners". *Language Learning & Technology*, 7 (3), pp. 103–118, 2003.
- [29] M. Warschauer. "The Paradoxical Future of Digital Learning". *Learning Inquiry*, 1 (1), pp. 41–49, 2007.
- [30] L.L.L. Le Grange. "Sustainability and higher education: From arborescent to rhizomatic thinking" / Lesley Lionel Leonard Le Grange. *Educational philosophy and theory*, 43 (7), pp. 742–754, 2011.
- [31] A.A. Blagoveshchenskaya. "Interdisciplinary approach to language studies in training masters at universities in Russia" / A.A. Blagoveshchenskaya; I.N. Ainoutdinova; A.R. Nurutdinova; E.V. Dmitrieva. *INTED2020 Proceedings: The 14th annual International Technology, Education and Development Conference (2-4. March, 2020)*, Valencia, Spain: pp. 9028–9033, 2020.