CCHE

Challenges of Contemporary Higher Education

CROWDSOURCING AND NETWORKING AS ESSENTIAL TOOLS FOR ACADEMIC COMMUNICATION IN THE DIGITAL AGE

Irina N. Ainoutdinova [1] *Karina A. Ainoutdinova* [2]

Abstract: The aim of this research work is to clarify the concepts "crowdsourcing" and "networking" (C&N), identify the best practices, strategies and methods related to C&N and determine their applicability in Russian universities. The research confirmed that C&N can effectively enrich the university environment with real-life and experiential learning tools and resources in support of diverse needs and learning styles of Russian students through such characteristics as mobility, connectivity, openness, interactivity, technology, mass appeal and communication. C&N, based on collective intelligence, creates online (network) communities aimed at building relationships and connections between peers to share ideas, links or educational material that would otherwise remain undiscovered.

Key words: university, students, education, crowdsourcing, networking, C&N, technology, interaction.

1. INTRODUCTION

Today, there is a debate in the Russian academic community about how technology can be used to add value to higher education. Diverse perspectives provide an in-depth understanding of the social and economic nature of technology, and "crowdsourcing" and "networking" (C&N) are seen as essential tools for ICT-based academic communication, serving as an important step in preparing students for their future lives and careers in the digital age. The invention of computers, growth in telecommunications, availability and mass character of the Internet have strengthened the notion of "information society" and enriched it with such new but closely related concepts as "digital society", "network society", "networks", "networking", "crowdsourcing", "digital Generation Z", etc. [1]. While society used to view education as a process of forming a unity of individual mind, memory and knowledge leading to acquisition and development of individual competencies, achievements and learning outcomes, today in the age of digital technologies and rapidly updated information, the learning and teaching process is completely different and aims at changing minds, expanding forms, methods and techniques, offering new opportunities and innovative solutions, supported by collective intelligence and networking [1].

The purpose of this paper was to clarify the concepts "crowdsourcing" and "networking" (C&N), analyze the best practices, strategies and methods related to C&N and determine their applicability in Russian universities. We examined these technologies in terms of their impact on educational process and learning outcomes within the academic communication cycle. We were interested in how C&N can renew the paradigm of teaching and learning, improve the quality of academic communication and university education in general. We also sought to analyze whether C&N could effectively enrich the university curriculum with real and experiential learning methods and resources and support the different needs and learning styles of Russian students. In addition, we attempted to assess the potential of C&N to change the university's learning environment, which may allow faculty members and students to form open online communities, create massive open online courses (MOOCs), and virtual world environments for sharing ideas, links, or educational materials that would otherwise remain undiscovered [2].

We proceeded from the fact that successful life and work in the modern multicultural world requires a qualified specialist to be able to transform acquired professional knowledge in accordance with the needs of the digital economy, communicate effectively, offer new creative ideas, demonstrate

[1] Dr. Sci. (Education), Full Professor of the Department of foreign languages, Higher school of foreign languages and translation, Institute of international relations, Kazan (Volga region) Federal University, Kazan, Russia, email: iainoutd@mail.ru

[2] Ph.D. (Candidate) of Juridical Sciences, Assistant Professor of the Department of criminal law and procedure, Law Faculty, University of Management "TISBI", Kazan, Russia, email: karina.arturovna14@mail.ru

openness to cooperation and teamwork, and apply updated
knowledge to practice [3]. These requirements correspond to the strategic goals of the "Priority 2030" leadership program, initiated in Russia in 2021, the main of which is the formation of a group of innovative modern universities that have all the capabilities to train specialists for the technological and socio-economic development of the country. [4].

2.   METHODOLOGICAL FRAMEWORK

In our study, we relied on a framework of social, integrative, contextual, competence-based and comparative approaches, covering all aspects of academic activities of teachers and students in the modern educational environment of university. Both qualitative and quantitative research methods were used to collect and process the relevant data. The comparative approach allowed us to study and analyze the experience of the world's leading universities in applying various teaching and learning technologies, methods and techniques, including teamwork (collaborative and cooperative), as well as crowdsourcing and networking (C&N). For deeper immersion into the topic, we studied the works of the founder of the concept of "information society" Daniel Bell [5]; the authors of the theory of the digital age or connectivism (denouncing boundaries of behaviorism, cognitivism, and constructivism) George Siemens [6] and Stephen Downes [7]; the creators of the notions "crowdsourcing" and "networking" (C&N) Jeff Howe [8] and James Surowiecki [9], other foreign and Russian sources.

To determine the level of adaptability and efficiency of C&N implementation in Russian universities as a form of students' preparation for their future life and profession, we conducted a comprehensive analysis of the potential of C&N in terms of their technical, psychological, pedagogical and institutional features. The research allowed us to clarify the conceptual apparatus, identify the most acceptable forms of C&N for Russia, and prepare methodological recommendations for their inclusion in the educational environment of Russian universities for effective use in academic communication and students' preparation for professional activities. The experimental part of the study led us to obtain and compare important data on students' attitudes, priorities and learning outcomes in the traditional versus C&N-based environment. The main outcome of the study is the development of a C&N-based teaching and learning model that enhances the quality of university education, helps faculty connect course content to real world situations, and motivates students to engage, interact, and succeed.

3.   RESULTS AND DISCUSSIONS

3. 1. Clarification of the conceptual apparatus

In the course of the study, we identified and explored various common practices in the educational process of leading universities, namely, collaborative and cooperative teaching and learning, crowdsourcing and networking (C&N), which promote teamwork and involve the use of technology. The collaborative method is typically used when students come together to explore some important scientific problem or create a meaningful group project over the Internet [10]. Cooperative learning is an instructional strategy that simultaneously addresses academic and social skills of students who work together in small groups on some structured activity in various modes (student-student, student-students, student-teacher, teacher-students, etc.) and in different environments (face-to-face, online, synchronous, asynchronous, computer-assisted or web-based, etc.) [11]. Crowdsourcing and networking are rather technologies than just methods of academic communication that involve getting different information about best practices from different people to improve the way higher education is delivered [8], [9].

Although the terms "crowdsourcing" and "networking" (C&N) are widely used in Western culture in many spheres, including education, these concepts were little known to teachers and students in Russia until recently. However, they are gradually gaining popularity. Literally, "crowdsourcing" can be translated into Russian with two words: "crowd" (a large group of people) and "sourcing" (a search for resources). This approach allows us to interpret the meaning of the word "crowdsourcing" as "the process of gathering resources by large masses of people". "Networking", in its turn, can be defined

through the phrase "establishment and development of
horizontal ties", which essentially means "association and interaction as equals" [12]. These concepts are closely related and, according to Jeff Howe, literally mean "mobilizing people's resources through information technology in order to establish interaction to solve problems facing business, government, and society as a whole" [8]. In education, C&N mainly refers to the creation of online communities, usually temporary, for sharing ideas, links or educational materials or solving specific problems by a broad, loosely defined group of people through an open call on the Internet [9]. This form of communication usually encourages the most skilled and creative participants to join the project and fill gaps that cannot be addressed in other ways [11].

3. 2. Origins and applications of C&N

The concepts "crowdsourcing" and "networking" originate from and are based on the fundamental principles of connectivism theory [6], the main idea of which is the following: teaching and learning in the modern digital age will be successful if people learn to build necessary relationships and connections mediated by common goals and interests aimed at acquiring new knowledge. These goals are achievable through interaction, communication and collaborative activities enhanced by electronic networking and the connection of specialized nodes or information sources [7]. A group of peers connected by common thematic and professional interests creates networks, and the formation of networks leads to development of each individual participant and the network community as a whole. Success is achieved through group interaction and cooperation in problem solving, constant exchange of information, quick access to data updates and personal responsibility of each participant for creating and posting materials on the Internet [6]. Moreover, according to James Surowiecki, author of the book "The Wisdom of Crowds" and founder of the term "crowdsourcing" [9], any project that is shaped by the brainpower of a large group of people is bound to lead to better solutions and results than would be achieved by the efforts of just one member of the group [9]. A good example of a group project is the creation of the electronic encyclopedia Wikipedia, the articles for which are mainly prepared by volunteers from all over the world. These can be teachers and students who want to share their knowledge with more people [8].

Western scholars usually categorize crowdsourcing into two groups: by the sphere of life (social, economic, political, spiritual, etc.) and by the type of tasks to be solved (e.g., creating or testing new products or content by "crowd wisdom"; collecting information or opinions to find the best solution by "crowd voting"; raising funds by "crowd funding"; providing financial support to projects by "crowd investing", etc. [7], [8]. To satisfy their interests or solve urgent problems, people voluntarily unite in network communities of like-minded people, without necessarily knowing each other personally, living in the same city or country, working or studying together, etc. In addition, they can be people of different gender, age, background, social and marital status, religion, level of education, etc. [8]. The spread of access to broadband Internet and telecommunications allows educational institutions to expand the forms and methods of training students by means of introduction of crowdsourcing and networking (C&N) in their educational process [8]. Educational goals are achieved through the presentation of general didactic materials, including entire courses on individual disciplines, or selected modules, lectures, training exercises, tests, etc., deployed on electronic educational platforms and websites with open access and open source software. The open source code of such programs is available for viewing, studying and modifying, which allows any participant to take part in improving the open content, correcting errors in it and using the open codes to create author's (copyrighted) digital programs or develop new projects [12].

3. 3. The educational potential of C&N technologies

The analysis of the literature on the topic allowed us to assume that most of the common trends of the 21st century teaching and learning are all ICT-based. E-Learning, web-based and mobile learning and other forms of online education are considered by major universities as clue solutions for continued educational success in a digital era [12]. The other trend is concerned with employment of

real world applications, which allow students to apply theories to reality and see them in action [11]. Gamification is also ICT-based with nearly half of the teachers admitting that they have at times incorporated online games into their classroom work [13]. Open source textbooks, massive open online courses (MOOCs), information-sharing platforms are all based on networking, cooperation and collaboration over the Internet [14]. Blended learning, the foremost trend in education, combines online digital media with traditional classroom methods [15]. The other ICT-based trends emerging across the global higher education sector and deserving our attention include mobility, connectivity, openness, virtual worlds, collective intelligence, crowdsourcing and networking platforms [11], [13].

The educational potential of C&N technologies can simultaneously serve various purposes and needs of higher education. Competent and correct use of C&N-technologies allows to adjust the content of various educational programs and, as a result, to improve the quality of the educational process as a whole. Similarly, C&N-technologies may help to solve socially significant problems through introduction, development and realization of project work on the basis of C&N channels, etc.

3. 4. The use of C&N technologies at Kazan University

Given the widespread use of the open learning management system (LMS MOODLE) in educational institutions and the constant updating of its software, we concluded that there are prerequisites for using this system as the basis for creating crowdsourcing and networking platforms in any, even regional, Russian university. The experience of Kazan Federal University (KFU, Russia) is indicative in this regard. For many years, KFU has been using wide capabilities of LMS MOODLE and motivating teachers to design and create open access authors' electronic programs and courses. The content is open for alteration, improvement and adaptation in accordance with the "generation Z" students' needs and demands [6]. It has been found that the speed of accessing and sharing information electronically significantly improves the learning outcomes of university students, and immersion in familiar networking expands opportunities to develop competencies so sought after in their future profession [15]. C&N technologies allow students to enhance their creativity and become co-authors or even developers of educational content, while teachers/ instructors must remain in place but change their role to that of a guide, observing from the sidelines and managing students' work in teams [11].

Teachers of Kazan University also apply crowdsourcing and networking in classroom training in the form of offline preparation of a small group for further online work. The starting point is a detailed briefing of the students on the aims and objectives. For example, when studying a particular discipline, the following steps are very important: an initial introduction to the program, syllabus, and key requirements of the discipline. Next, the teacher invites students to create their own overview of the outline and content of the proposed course. This approach allows teachers to save time and not to spend it on facts and data already known to students. It also allows to identify the most interesting topics and subjects of study, and then focus together on tackling difficult questions and finding answers. This approach helps to develop students' critical and analytical thinking skills, fosters their research abilities, predisposes them to collaborative and creative teamwork, and encourages presentation of learning outcomes. While teachers initially reserve the role of strategists with a clear plan of action, they then intentionally hand over the tactics of learning to the students themselves as a tool to achieve their goals.

It is no coincidence that the next step will help students develop criterion-based tools for assessing their performance. Involving students in the development of assessment tools for their work allows teachers to find out what students really want to achieve as a result of mastering a course (module, topic) and how, in their opinion, the results should be assessed. To solve a problem and stimulate student creativity, teachers can resort to brainstorming tactics [9]. Here, all participants can speak freely and offer an unlimited number of proposals, the most successful of which will be selected based on voting practice by "crowd voting" [9]. Often, "crowd wisdom" can work wonders, and teachers, when starting a survey or brainstorming session, do not even expect that in the end they will not only receive wide support from students, but also learn a lot about evaluation or assessment tools [6].

Further, if students' choice of subject matter, content,
structure, objectives and means of assessment in a particular course (discipline) is consistent with the general requirements and standards, as well as the curriculum, students are encouraged to participate in the planning and development of the course curriculum for the entire semester through brainstorming. This process includes mandatory stages: problem formulation, generation of ideas and, finally, grouping, evaluation and selection of presented ideas. Students' proposals are then collected and posted on a shared electronic resource, and through discussion, crowd voting with the support of the teacher the most valuable ideas are selected,

4.   CONCLUSION AND RECOMMENDATIONS

The study of the problem allows us to conclude that crowdsourcing and networking in education are not only effective drivers of teaching and learning, but also the most important tools of academic communication that ensure cooperation, collaboration, teamwork and interaction. In the context of global digitalization and transition from traditional societies to networked communities, C&N act as a building block for students' socialization and adaptation. The success of C&N in education is also explained by their mass, open, technological and interactive nature. The lack of pragmatism on the part of participants, their desire for cooperation and interaction, their propensity for self-realization and creativity actualize their involvement in the development and creation of new ideas and content that meet the requirements and learning needs of both the creators and the entire network of community participants, connected by common goals, interests, ideology, traditions, etc. predominantly on the Internet [6], [7]. Another important advantage of C&N is their support for the transition from individual to group competencies both in the educational environment and in the workplace. The ability of individuals to work in teams is now highly valued, and this emphasis on team building qualities should be an integral part of any university learning environment [14]. To effectively apply this paradigm in educational settings, C&N-based methods and resources for collaboration and cooperation must be created, developed, implemented, and utilized.

However, C&N also have some disadvantages, including the "facelessness of the crowd", the possibility of copyright infringement, data leakage, not always fair methods of reward, etc. [7]. However, our research has shown the unlimited educational potential of C&B for academic communication and student learning at university. In addition, there are prospects for further study of this phenomenon by scholars and educators, as the C&N technologies are fully in line with the current socio-cultural and economic situation in Russia, which gives hope for a revival of interest in the values of higher education.

5.   REFERENCES

[1] Castells, M.: *The Rise of the Network Society. The Information Age: Economy, Society and Culture.* Malden: Wiley-Blackwell Publishing, 2nd ed., 2009, Vol.1, 656 p.

[2] Ainoutdinova, I.N.; Blagoveshchenskaya, A.A.; Nurutdinova, A.R.; Dmitrieva, E.V. The effects of the integration of crowdsourcing and networking in the curricula of Russian universities, in *INTED2020 Proceedings*, Valencia, Spain, 2020, pp. 9044–9052.

[3] Talapina, E.V.: *Law and digitalization: new challenges and perspectives.* Journal of Russian Law, 2018, 2 (254), pp. 5–17.

[4] Serebriakov, A.A.: *Overview of the Priority 2030 Strategic Academic Leadership Program.* Science Management Theory and Practice, 2021, 3 (3), pp. 236–241 (in Russ.).

[5] Bell, D.: The Social Framework of the Information Society, in *Dertoozos, M.L., Moses, J. (eds.). The Computer Age: A 20 Year View*, MIT Press, Cambridge, 1979, pp. 500–549.

[6] Cormier, D.; Siemens, G.: *Through the open door: Open courses as research, learning, and ! engagement.* Educause, 2010, 45 (4), pp. 30–39.

[7] Downes, S.: *Learning Networks and Connective Knowledge.* Collective Intelligence and E-learning, 2006, 20, pp. 1–26.

[8] Howe, J.: *Crowdsourcing: Why the Power of the Crowd Is Driving the Future of Business* / Jeff Howe. Crown Business, 2009, 336 p.

[9] Surowiecki, J.M.: *The wisdom of crowds: why the many are smarter than the few and how collective wisdom shapes business, economies, societies, and nations* / James Michael Surowiecki, Doubleday, New York, 2004, 336 p.

[10] Jones, C.; Shao, B.: *The Net Generation and Digital Natives. Implications for Higher Education.* A literature review commissioned by the Higher Education Academy. The Open University, Walton Hall, Milton Keynes, UK, 2011, 53 p.

[11] Porcello, D.; His, S.: *Crowdsourcing and curating online education resources.* Science, 2013, 341 (6143), pp. 240–241.

[12] Jansen, C.; Van der Merwe, P.: *Teaching Practice in the 21st Century: Emerging Trends, Challenges and Opportunities.* Horizon Research Publishing, Universal Journal of Educational Research, 2015, 3 (3), pp. 190–199.

[13] Maloy, R.: *Commentary: Building Web Research Strategies for Teachers and Students.* Contemporary Issues in Technology and Teacher Education, 2016, 16 (2), pp. 172–183.

[14] Simperl, E.: *How to Use Crowdsourcing Effectively: Guidelines and Examples.* LIBER Quarterly, 2015, 25 (1), pp.18–39.

[15] Ainoutdinova, I.N.; Ainoutdinova, K.A.: Implementation of blended learning models in the context of digitalization of university ecosystem, in *Proceeding of XV International conference "Foreign languages in the modern world"*, Kazan University Publishing, 2022, pp. 99–105.