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**THE PARADIGM OF OPEN SCIENCE AND DEMOCRATIZATION OF  
THE RESEARCH ACTIVITY OF UNIVERSITIES**

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*The article is dedicated to the paradigm of open science and to such a direction of its implementation as democratization of the research activity of HEIs. It is argued that open science in its value aspect manifests itself primarily as a democratic academic culture of free, autonomous and critical thinking based on rational inquiry. The article tries to formulate recommendations for implementing the open science guidelines into the practices of HEIs by democratizing educational, organizational, and publishing aspects of the research activity.*

**Key words:** *open science, democratization, academic freedom, values of science, higher education.*

**Introduction.**

The paradigm of “open science” is one of the most promising new trends in the development of scientific research in today’s world. According to the Amsterdam Call for Action on Open Science, that paradigm is not limited to the already known ideas of open access, but is aimed, amongst else, at addressing the societal challenges of our times and at establishing a kind of “citizen science” [2, p.2]. It could be argued that openness as a key characteristic of modern science and of society as a whole contributes to the

general democratization of that society: the values of open science are that of democratic culture of rational inquiry, and making science more accessible and more close to the society coincides with the democratization of the research activity [7].

The analysis of the latest publications on the subject shows that the close connection between open science and the ideals of democracy is noticed today by many authors. Gustavo Adolfo González from Colombia simply states that “open science is synonymous with democratization” [3]. A similar idea can be visible in the text of the UNESCO Recommendation on Open Science, which emphasizes that science in general is to benefit people and the planet, particularly by allowing new social actors to be engaged in scientific processes, contributing to the development of citizen and participatory science and to democratization of knowledge [12, p.4]. On the other hand, more skeptical opinions can be heard as well: for example, Samuel A. Moore believes that the connection between openness and democratization is absent or at least not that obvious, because open science is concerned with the availability of research results, not their social consequences [9]. However, such a position comes out of a rather narrow understanding of the idea of open science, reducing its structure to just open access; as J. Britt Holbrook notes, the availability of publications is also a kind of democratization, but it does not exhaust the true democratization of knowledge, defined by the very ideal of open science [6, p.26–28].

In other words, a thorough study of the connection between open science and democratization should be based on the more broad philosophical and axiological consideration of the corresponding phenomenon, and even more so on practical attempts to outline the ways for the democratization of the research activity. Thus, *the aim of this article* is to consider the possible strategies to carry out the process of democratization of the research activity as a way of practical implementation of the guidelines

of open science into practices of HEIs – first of all, of universities in Ukraine – as a means for increasing their research capacity.

### **Results and Discussion.**

Democratization as a practical implementation of the paradigm of open science refers not only to the procedures of open access, but to values as well, and thus it cannot be forced in way “from above”, by approving and signing different official declarations and ethical codices. On the contrary, it can be argued that the direction of “grassroots” democratization is an actual way to solve a whole range of issues related to organizational, axiological, and philosophical aspects of increasing the research capacity of Ukrainian universities in general and the implementation of open science guidelines in the conditions of war and post-war reconstruction in particular. At the same time, it is appropriate to rely on the experience not only of the European countries, but that of other regions of the world as well: due to the peculiarities of the historical development of Ukraine, its HEIs do not feature such strong traditions of democratic culture as universities in Europe. Thus, the agenda is rather a radical democratization of the way of life of a Ukrainian university, similar to how it is being carried out with some success in China, where the higher education system in recent years has been trying to move away from the former excessive centralization through the so-called “centralized decentralization”: HEIs get more freedom, but also more responsibility and accountability [8, p.116].

The democratization of the research activity in this regard can be considered in two perspective – so to say, “internal” and “external”. The latter refers to the perspective of the reinstitutionalization of science in society in order to establish a kind of “citizen science” – by popularizing academic values and activities among the general public, encouraging citizens to get involved into conducting their own research and gradually increasing the social status of an academic. However, the activity of HEIs in this direction is

not limited to popularizing science events while carrying out their ‘third mission’, which is aimed at direct social action and solving social problems. After all, “internal” democratization is also directly related to this mission – first of all, thanks to the education of *academic culture* in students. This task is understood as the formation of critical and independent thinking by learning, first of all, the foundations of philosophy and methodology of scientific knowledge. Instead of forcing all applicants to write reports on a pre-set topic – for which many of them have neither inclination nor vocation, and therefore any mandatory term papers, tests, essays, etc. would lead rather to violation of academic integrity, regardless of the number of declarations signed by the management of the institution about its observance – instead of that, students should acquire an understanding of what knowledge is and how it is formed; how scientific research and rational argumentation is carried out; and how to distinguish between a reliable and justified statement – and an unreliable and unsubstantiated one. In short, that academic culture refers to the understanding of science as an open industry of search for truth, and not as a ‘closed’ profession or a way of making money with grants from profit-oriented commercial corporations.

Of course, in the process of learning the academic culture, many (but probably not all) students can and should form a desire for independent research – it is clear that such a desire should be nurtured basing on individual interests of an applicant (in contrast to the one formal list of topics or to following interests of a teacher or a supervisor). But the main point is that even if students would not become engaged in academic activity professionally, the gained skills of conducting independent research would nevertheless help them in their future life, both professional and personal. It is the understanding of scientific discourse, the ability to distinguish facts from fiction and to carry out rational inquiry that could be argued to allow specialists of the 21<sup>st</sup> c. not only to act as conscious members of their

society, recognizing “fake” mass media news and distortions of propaganda (which is especially relevant during the war and post-war reconstruction), but also to practice education throughout their life, to create their own knowledge. Such a situation also contributes to the *education of tolerance*: a rational academic discourse teaches to treat one’s opponents with respect, not to transfer a disagreement with opinions of another person to the attitude towards that person, to appreciate the diversity of existing positions and views as a valuable asset of human culture, even under conditions when many such positions and views do not coincide with one’s own position. In other words, academic culture could serve as the foundation for the New Enlightenment, which combines classical ideals of science with the current conditions of their realization.

At the same time, the democratization of the practices of educational and research activities of universities, as well as the realization of the stated goal of helping students to learn the academic culture, can be based only on the implementation (and not only the declaration) of the principle of *academic freedom*. Democracy appears under this perspective, just like science in the aspect of academic culture, as primarily a culture of behavior. Every student should realize and implement in practice the right to have the courage to use one’s own mind (*Sapere aude!*), that is, to act as a full-fledged subject of educational and research processes. In fact, we are talking about the principle of autonomy – not only that of a HEI (in the form of its ability to manage its own activities without the necessity to be subjugated to a government or other external body), but also of an individual researcher, both a student or a teacher (in the form of his or her ability to manage one’s own activities without the necessity to be subjugated to the HEI administration). Only under such a condition can the recipient be expected to show initiative and focus on independent research. For example, in the Australian higher education system, it is the student who decides whether to

attend lectures or not – but it is still the student who bears full responsibility for the content and deadlines for submitting own work and passing exams [11]. Of course, achieving academic freedom is not an easy task even in the countries with profound traditions of Anglo-Saxon individualism – as Carolyn Evans and Adrienne Stone acknowledge, openness, freedom and tolerance still remain a goal to be achieved by Australian universities, with its values facing potential threats by government, grant-makers or institution management, and even by teachers and students themselves [4, p.11]. The last threat is primarily related to the misunderstanding the very idea of academic freedom, which is correctly defined as a “belief in free, critical and rational inquiry” [4, p.3] – and acts as a necessary condition for the creation and dissemination of knowledge, as well as a *democratic value*. By the way, it can be argued that the mentioned “third mission” of HEIs is based on this very value, defining the role of universities in the democratization of society as a whole – as not just as agents of social changes (which can eventually take place in many opposite directions), but as carriers of the classical ideas of Enlightenment. That is, a classical university as a closed environment possessing the unique experience of academic freedom and open rational search for truth, which has its roots in the *République des Lettres*, could be capable of transferring its culture to society as a whole, to help not only professional academics, but all the educated people to get involved into this “democracy of knowledge creation”.

On the other hand, the paradigm of academic freedom should also have a purely organizational dimension. In the context of the democratization of academic activity, it is appropriate to recommend that *the main organizational center* of the educational and research process in the university should be each separate department, and not the faculty or the management of the institution: this is how the requirements for fellows should be established, since only at the department is it possible to carry out

a truly personalistic, human-scale approach to organizing research activities, basing on the characteristics of each individual employee. Neither a ministry nor a HEI management is capable of such organization. Each department, depending on the number of its fellows, can receive a certain set of tasks from the HEI regarding both pedagogical and research work – but the distribution of the tasks should depend on the inclinations and motivations of the employees themselves. Of course, combining the carrying out of both research and pedagogical functions is an ideal case, but the exact correlation of their volumes depends on individuals: if one of the fellows does not have a special inclination to research or to pedagogical activities, he or she has the right to focus only on one of them. Actually, this strategy could be compared to the paradigm of “research university” [1], where professors have rather modest pedagogical duties due to the necessity to have considerable amounts of time for conducting their research.

Of course, academic research activity itself also obviously needs democratization – primarily in the direction of revising the *criteria for the effectiveness of such an activity*. The existing requirements and criteria, which are reduced in Ukraine mostly to the number of articles published in journals indexed in such ‘closed’ databases as Scopus and Web of Science, rather inhibit the development of the research capacity of Ukrainian universities and the implementation of open science guidelines. Such abstract criteria for the effectiveness of the research activity are inappropriate under the conditions of both open science and martial law, which makes it difficult for many Ukrainian academics to access valuable publications. And if we turn to foreign experience, we can cite a vivid example: in early 2020, the Ministry of Education and the Ministry of Science and Technology of China announced a new approach to evaluating the activities of HEIs and their fellows: it is approved to abandon the number of publications and the citation index as an indicator of the quality or

effectiveness of the research activity, and universities themselves are prohibited from setting such requirements for their employees [5]. Of course, it is much easier for the HEI management to evaluate the quantity of publications rather than their quality: the latter requires considerable knowledge in the relevant field of study. However, this problem can be solved precisely by transferring the task of determining the effectiveness of the research activity from the management of the HEI or the ministry (whose staff, of course, has neither time nor competence to assess the quality of research results in various fields of knowledge and therefore naturally prefers more formal indicators) to a department (its employees working in the same field of knowledge and thus being able to perform the said assessment). For example, it could be set that each publication of a fellow must be presented, reviewed and evaluated at the department – or rather at an inter-departmental seminar (to avoid the threat of corruption).

The current emphasis on the scientometric databases Scopus and Web of Science does not so much contribute to the advancement of Ukrainian scientists (and those from the developing countries) to the world and European level, as the leading European and American HEIs do not reduce their publishing activities to serving the commercial interests of Elsevier and other similar corporations. Even in such larger countries as Brazil, China or India, as demonstrated by Sandersan Onie from Indonesia, the incentives to publish that arises due to government policies aimed at increasing the publication quantity in order to “catch up” with the more developed countries, in fact encourage poor research practices. Amongst else, academics resort to publish their works in predatory journals and/or to falsify peer reviews, and all of that consequently leads to the research from these regions being viewed as untrustworthy by many people [10, p.35], – achieving exactly the opposite of what the said government policies were aimed at!



I think that an alternative strategy could be the development of the publication practices in two directions at once – both international (taking into account publications in foreign journals that are indexed in any database, not only in Scopus and Web of Science) and national (by developing national journals and even national scientometric databases). That's not exactly an easy task – however, it is impossible to avoid the need to pay attention to this issue because one of the proclaimed aims of open science is actually to “further facilitate and explore the use of so-called alternative metrics” [2, p.7].

At the same time, according to the very idea of democratization, the choice of a journal and a way to publish the results of the research should be the decision made by the author, and not by a government body, nor should it be an externally imposed and costly action made necessary in order to comply with regulations that acknowledge publications only in certain journals. In particular, one potential way to realize such an idea is to promote the creation and usage of institutional repositories of publications in each HEIs and the democratization of the publishing activity of academic journals by transforming them into purely electronic publications with no APC and conditional periodicity (articles could be published on the official website of the journal as soon they are received and processed by the editors, without binding to certain issues of paper periodicals). Of course, publications and access to them must be completely open, that is, free. And the idea of a national scientometric database can also be linked to the proposition for the creation of a national database (a pool) of reviewers from each field of knowledge: such reviewers can be chosen on the basis of randomness to avoid the threat of corruption. In that way such practices would comply with both the trend of democratization – and with establishing the paradigm of open science in the academic culture of universities.

### **Conclusions.**

Let us now try to summarize the ideas and recommendations expressed in this paper. Open science in its value aspect is primarily a democratic culture of free, autonomous, critical thinking. Today, under the conditions of a world that is rapidly changing and characterized by such features as nonlinearity and unpredictability, such a culture is necessary not only and not so much as a set of certain skills of professional scientists who are engaged in research within the limits of their highly specialized subject, but as a methodology of constant recreation of own personal knowledge, inherent in every contemporary educated person.

Science teaches people the ability to think independently, the ability to conduct rational inquiry and to create new knowledge on their own, particularly by assimilating interpreting huge amounts of information available today thanks to the latest technologies. At the same time, science produces not only knowledge, but also values, and not only epistemic values: it serves to confirm in society the ideas and practices of openness, democracy, and tolerance, which today form the foundation of the cultural existence of Europe and of all the humanity. In order to overcome the systemic crisis of science and to implement the guidelines of open science in HEI practices, democratization of academic activity is a must: by providing such democratization, universities carry out their “third mission”, addressing the societal challenges and contributing to the creation of a “citizen’s science”. Such democratic practices could lead to the involvement of many new members of society in academic culture, the approval of the principles and values of academic freedom as the basis of openness, and the strengthening of the motivation of students and fellows to conduct their own research, which could constitute the topic of further research on the subject.

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