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Open Science and Humanism: Decolonization of Knowledge and Fractality of Identities

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Abstract

The paper is dedicated to philosophical analysis of the value foundations of the Open Science concept and its link to the more general concept of humanism, as the means for building up the common knowledge of humanity while still not sacrificing the diversity of existing cultures and traditions. The philosophical methods used in the investigation include dialectics and post-non-classical approach as it is argued that solving the problem of the coexistence of humans and human cultures and enabling the openness of human knowledge requires understanding the dialectical relation of unity and plurality. It is argued that openness as a major feature of contemporary scientific knowledge corresponds to both the classical principles of ethos of science – first of all, to universalism – and to the new trends in research and education that emerged thanks to the development of information technologies. Openness is shown to be a characteristic of a community that does not put its own private or corporate goals and values above the common human values – Open Science is thus closely linked with the idea of humanism. It is shown that at the same time such universalism is not opposed by, but rather presupposes decolonization of knowledge, as the alternative, local, traditional forms of knowledge augment universal knowledge of science based on rational inquiry rather than replace it. Human knowledge, as well as human culture and human identities in general, are argued to be fractal phenomena: diversity of alternative forms of knowledge, cultures, languages, world views etc. is in no way something that opposes the unity of humanity and vice versa, and that is a necessary way to achieve mutual respect, mutual recognition and mutual understanding of the humans.

Keywords

open science, values of universalism, humanism, fractality of identities

1 Introduction

The current situation of global social and ecological crisis presents an enormous challenge for all the humanity that now needs to adapt its lifestyle, its thinking, and its knowledge to the demands of the 21st century in order to ensure its peaceful future and its very existence. The new social ontology and the new social epistemology are thus needed for the humans to build up that common future of them together – basing on coexistence and mutual recognition of different cultures and traditions, but also as a way to consider the development of common human culture, science and knowledge. Particularly with science and knowledge, the concept of Open Science that has emerged in the past few years designates an endeavor to make the results of academic research activity available to virtually everyone while asserting the required degree of integrity and validity. Open Science means not just open access and reproducibility of data and scientific information, but also socio-cultural and technological change – it is based on openness and connectivity, on how research is designed, performed, captured, and assessed (Vicente-Saez, Martinez-Fuentes, 2018).

That means that in order for the idea of Open Science to be realized in full that concept should be considered not as just a set of procedures, but as a system of social values as well – in other case, for example, practices of open access lead just to their opposite, to publications in academic journals becoming increasingly difficult for authors from developing countries because of the high APCs and to

academics competing between themselves in sheer numbers of their publications without any attempts to re-institutionalize academic activity as a public enterprise. The attempts to implement the idea of Open Science into actual research practices, particularly in HEIs all around the world, are often hindered by the same prejudices and obstacles that prevent humanity as a whole to embrace the values of openness and tolerance under the globalization. And as science today re-discovers its social roots, its social call and its social meaning, in the same way philosophy and humanities consider the grounds for the New Enlightenment and the new humanism. Particularly, the concept of decolonization of knowledge present itself a promising endeavor laying the grounds for social epistemology of the globalized world, which truly corresponds to the spirit of Open Science. This paper intends to analyze in a philosophical way the value foundations of Open Science and its link to the more general concept of humanism, as well as the methods and means for building up the common knowledge of humanity while still not sacrificing the diversity of cultures and traditions.

2 Methods

The investigation conducted in this paper uses a number of philosophical methods, including comparative studies, analysis, hermeneutics, and dialectics. It is worth noticing that the inadequacy of the existing approaches to solving the problem of the coexistence of humans and human cultures and achieving the openness of human knowledge is caused at least partly by the incorrect, metaphysical approach to understanding the dialectical relationship of unity and plurality. That is not only the ancient subject of consideration for the philosophical thought, but also a field of special interest for the latest scientific research programs. In particular, we are talking about the methodological concept of *post-non-classical science* (Stepin, 2005), which replaces the classical and non-classical paradigms that, figuratively speaking, represent an orientation towards the dominance of either unity or plurality. Thus, the main feature of the non-classical approach, which brings it closer to postmodernist attitudes in philosophy and the art, is the attitude towards “anti-fundamentalism” and pluralism – as opposed to classical monism and, in a certain sense, to classical linearity. Post-non-classical science, due to its dialectical nature and terminologically characteristic double negation, points not simply to pluralism or to monism – but to the possibility of overcoming the very dichotomy of monism and pluralism, overcoming the tradition of considering “unity” and “plurality” as mutually exclusive entities.

The post-non-classical scientific methodology could thus be described as the orientation on understanding the world as “unity in plurality”. The movement of knowledge from the abstract to the concrete, its aim of considering its subject from all (or – as many as possible of) its sides, can also be presented as a reconstruction of the movement of scientific knowledge in its historical dynamics from the classical paradigm, in which the main interest of science were general laws, through the non-classical paradigm, which featured attention to the singularity of events, and to post-non-classical science, which considers both the singular and the universal with equal diligence and attention, thereby forming the particular as a concrete-universal. If classical science considered its object from the perspective of a minimal number of its characteristics – for example, as a certain "physical body", – then humanities began the formation of their specific methodology in the beginning of the 20th c. with the denial of this feature of classical natural science. The post-non-classical science deals with open, self-organizing and human-commensurable systems, which are unique and special by virtue of this very definition. The contemporary science cannot abstract from this feature of the objects of its consideration, disparaging the individual properties of the system for the sake of the ceteris paribus principle – on the contrary, it is precisely these individual features that determine the specifics of the development of the system. That’s why the post-non-classical science in its philosophical reflection provides adequate methodological grounds for analyzing both values of science itself and social epistemology in general.

3 Results

The concept of Open Science had first appeared in the public discourse in 2015 as a supposedly effective way to solve the ‘crisis of replication’, as the international academic community has been facing with the problem of reproducing certain experiments in psychology – it turned out that quite a lot of data in publications happened to be unproven (Dijk et al., 2021). The idea of *open access* dates back to 2002 when

it was first explicitly declared that the results of scientific investigation, especially those funded by state and public bodies, should be available for everyone and not be published in journals that require fees to be accessed. But Open Science in general manifests itself today as a very complex multilayer phenomenon, as an "umbrella term" used to denote different approaches and schools of thought (Fecher, Friesike, 2014). Considering the structure of Open Science, I propose to single out behavior, practices and procedures of free and open public access to data, methods, research results and publications on the 'lower' level of Open Science; the urge to create technological platforms, services and tools for scientists to enable their wide international and interdisciplinary cooperation on the 'middle' level; and finally a fundamental theory and specific values that could and would enable science to re-institutionalize itself in today's society as a public science, on the 'higher' level (Mielkov, 2021).

The last aspect seems to be especially important as it appears to be much more difficult to implement and even to acknowledge, on the one hand, while it lays the grounds for all other aspects by defining the goals and the motivation for research activity, on the other hand. According to the *Amsterdam Call for Action on Open Science* (2016), Open Science is seen as an agency that has the potential to increase the quality and benefits of science by making it faster, more responsive to societal challenges, more inclusive and more accessible to new users: Open Science emerges as a "citizen science" that brings research closer to society and society closer to research (Amsterdam Call... p.2, 2016). To achieve this goal, we need a radical change in the way science is evaluated, rewarded and stimulated by society – it is a kind of new institutionalization of science in society. However, I would argue that the values of Open Science are not something entirely new – they correspond to the classical idea of the ethos of science outlined by Robert Merton in 1940s (Merton, 1973). Particularly, it is such mertonian principles as *universalism* and *communism* that define the scientific enterprise: knowledge, as the result of scientific research, is universal in its nature – it has no borders or limits; there could be no ethnic science, national science, class science etc. In a similar way, knowledge belongs to the humankind as a whole – it could not and should not be a private property of any person or body.

The idea of openness as a major feature of scientific knowledge does not only corresponds to the noted classical principle of ethos – but to the new trends in research and education that emerged recently thanks to the information technologies. After all, it is because of those technologies that the issue of providing open access to the results of scientific research for a wide range of users has arisen in the first place, as electronic publications allow that much easily than traditional paper ones. Besides, the actualization of online technologies in the conduct of scientific research and in the realization of the educational process, especially in the field of higher education, in turn contributed and continues to contribute to the democratization of such activity and to its further development in the direction of openness – as more and more people become involved in distant learning, in MOOC courses etc.

Openness here means both unrestricted access – and some kind of universalism of values. Such axiological openness is a feature of a community that does not put its own private or corporate goals and values above the common human values. On the contrary – science becomes "closed" science, thereby distorting the ethical principles of universality and common ownership, when it turns into an enterprise of a closed community. That is, when, on the one hand, at least some members of society are denied the access to the results of scientific activity, and on the other hand, the motives that drive a scientist to conduct research are aimed not at finding the truth and making it known and available to all the humans, but at, say, making some profit, pursuing career intentions and so on. It is not that an academic should not get paid or promoted: *disinterestedness* as the third mertonian principle of the ethos of science relates to prime motives of the activity and not to its consequences. That is, the search for the truth as the only 'true' motive has its goal in providing all the humankind with universal and commonly available knowledge.

The ethos of science in turn corresponds to the general humanist values. More than a hundred years ago, John Dewey (2016) was one of the first to point out the deep kinship of education, science and democracy, while at the same time opposing the idea of science as an esoteric occupation of the few "initiates" to its understanding as a fundamentally open public matter. It should be emphasized that the phenomenon of democracy fits well with the ideal of classical scientific rationality: here the idea of people's rule is inseparable from the idea of humanism, the idea of the general liberation of a person from the power of tradition and authority – it acts as a natural consequence of the philosophical appeal expressed in the famous words of Kant about the courage to use one's own mind. According to this logic of the Enlightenment, every human person without exception should be endowed with such courage by definition – as well as with the task of managing oneself and the life of one's own society on rational grounds without any attempts to alienate this natural ability of humans for the benefit of anyone else (Mielkov, Tolstoukhov, Parapan, 2016).

That means that Open Science with its axiological universalism is closely linked to the idea of humanism in general. According to the definition by the International Humanist and Ethical Union, "Humanism is a democratic and ethical life stance that affirms that human beings have the right and responsibility to give meaning and shape to their own lives" (IHEU Bylaws, 2009). In other words, humanism is the Weltanschauung that asserts the autonomy of a human being, the ability of each unique human person to act as a subject of one's own life and activities. However, the problem here is that *humanity* could appear to be too abstract an identity – in the globalized world, being a human per se calls into question the existing multitudes of local cultures and traditions.

In fact, *the universal* could even appear as something exactly opposite to *open*, as a kind of a new imposed colonization of everything local and particular. In November 2020, the UNESCO Chair in Community-Based Research and Social Responsibility in Higher Education has organized the World Virtual Indigenous Circle on Open Science and the Decolonization of Knowledge (2020), thus uniting for the first time the topics of Open Science and *decolonization of knowledge*. The event featured nearly 20 Indigenous speakers, mostly American natives from Canada, but also representatives of indigenous population of Africa, Australia etc. Openness of science appeared in this context as the urge to recognize the traditional knowledge, the knowledge that indigenous people accumulated for thousands of years before the emergence of Western-kind technogenic civilization as not only valuable, but necessary for the future existence of humans on Earth. Decolonization of knowledge in that sense means dismantling "the hegemonic attitudes and practices of the Global North with regard to production and dissemination of scientific research" (World Virtual Indigenous Circle..., p.24, 2020) – that is, to overcome the hegemony of Western Science and homogenized scientific knowledge in favor of "alternative voices" of non-Western traditions and people.

4 Discussion

It could well be argued that the very notion of decolonization of knowledge calls into question the universalism of science. Is not the universal knowledge too shallow an entity, is not it deprived of all the particularities that make it useful and appealing? Will that abstract general knowledge be valid everywhere and for everyone? If openness is linked to decolonization, does not that mean that universal science should be condemned as a part of undesirable standardization and Westernization as opposed to proliferation of different, alternative kinds of knowledge, different cultures and different traditions?

In my opinion, such arguments are not entirely correct. That approach is featured by post-modern methodology that puts plurality in opposition to unity; such an approach is too simplistic to give justice to the complex dialectical relation between unity and plurality, the global and the local, the universal and the particular. The distaste for undesirable Westernization is not identical to dismantling of the universalism of scientific knowledge – the latter could be augmented and enriched by local traditions, but not replaced by them. The fourth and final mertonian principle (after universalism, communism, and disinterestedness) is *organized skepticism* – a feature that manifests the advantages of open and free rational discourse as opposed to closed local traditions among else. I call them "closed" in the sense of them being prone to the threat of elitarism: anyone could exercise free rational inquiry, while traditions often disallow their sacred knowledge to be accessed by outsiders.

The noted post-modernist position of plurality being opposed to unity and to any kind of standardization has its own points, of course, but it still depends on the classical values. Even when supporters of indigenous knowledge blame "Western science" for being "linked to money" and proclaim that Open Science "transgresses boundaries based on race, gender, religion, culture and treats all persons as equal stakeholders for contributing to scientific innovations" (World Virtual Indigenous Circle..., p.25, 2020) and that knowledge belongs to everyone – they in fact follow the main principles of the classical mertonian ethos, universalism in the first place, rather than deny them! Social epistemology is still *epistemology* after all albeit being *social*: it cannot abandon its search for the true knowledge.

That means that it is not universalism of science that the decolonization of knowledge is opposed to. Different cultures and traditions do not negate universal knowledge, but in order to comprehend their relation another methodology is required, besides the classical or the post-modernistic dualism. I propose such an approach to understanding the mode of coexistence between different cultures and identities in today world as *fractality.* The very term is that of modern natural science, where fractals are such formations that completely reproduce their structure while the scale of their consideration is being changed (Mandelbrot, 1967). If we turn to the history of philosophical thought, this idea in many ways

resembles *monadology* of Leibniz: a monad is a garden full of plants or a pond full of fish – but every leaf in this garden and every drop of water in this pond are actually the same garden and the same pond.

It seems to me that human culture is just such a monadic, fractal entity, and acknowledging this feature of it is extremely necessary for an adequate understanding of the problems of social ontology and social epistemology in today's world. In other words, "unity and plurality" is not an opposition nor a dichotomy – they are not mutually exclusive, as an identity cannot be viewed metaphysically as a permanent and unchanging quality of a human person. The problem, in fact, lies not in unity or plurality, but in the attempt to use any one of many possible identities out of the context of its relevance, where it becomes an empty abstraction. Any contemporary human person has a multitude of identities – but in reality (and in the scientific theory of non-linear processes of social dynamics) these various identities do not exclude, but complement each other, actualizing themselves in turn in different contexts or at different life stages and in different life situation. They coexist together both, so to say, on the "horizontal" plane (as a person could be simultaneously a wife and a daughter or a son and a husband, a representative of a specific ethnic group and a Christian or a Muslim, a doctor and a student and so on and so forth) and on the "vertical" plane, as a certain hierarchy of personal identities.

So, if we, say, look at the Earth from somewhere in Space, we will see a single universal human culture: this is what would be relevant to the context of consideration of the future of human civilization and the unity of universal scientific knowledge. However, if we take a closer look, this single culture will disintegrate before our eyes into European, American, African, Asian, Austronesian particularities. When examining, for example, the European meta-culture from an even more closer distance, we will be able to distinguish the Anglo-Saxon, the Roman, the Slavic, the Scandinavian and other cultures; in the Slavic culture, we would then see the East Slavic, the West Slavic and the South Slavic cultures; then again, in the East Slavic culture, there would be Russian, Ukrainian, and Belarusian cultures – and so on. Down to the point where in each human person we can probably find features of many cultures: both local and global, Western European and native, and often even elements of such cultures that no longer exist in the global political plan, like the ancient Greek or Jewish or the medieval Byzantine.

Thus, unity does not exclude plurality, just as universality does not negate singularity – on the contrary, the universal can only manifest itself in real life as a singular and within a singular. The diversity, which already became a recognized value in biological science (the phenomenon of biodiversity as a value in itself in ecology), now reasserts itself as a value in social sciences and humanities as well, emphasizing not only plurality, but also integrity and systematicity of every existing human culture. Among the elements of a culture, one cannot single out "valuable" and "non-valuable" ones and try to change or "improve" the culture in an artificial, linear way. However, the acknowledgment of the value of plurality does not exclude, but presupposes the acknowledgment of the value of unity – when such unity is understood not in a quasi-classical, fundamentalist way as a dominant uniformity, standardization or a kind of replacement of the values of specific cultures with abstract "universal values", but – in accordance with the non-linear fractal approach – as a vision of diversity as *complementary*, as an effort to reach the level of mutual respect, mutual recognition and mutual understanding of the plurality of cultures in the perspective of ensuring the existence and the development of humanity in the 21st century.

And I would argue that that's just what *openness* is. We no longer have a rigid alternative in front of us: "either – or", unity – or plurality, universal scientific knowledge – or decolonized knowledge based on indigenous traditions and cultures. Universal culture is, according to the expression of the prominent Ukrainian philosopher Serhiy Borysovych Krymskyi, the "upper floor" in relation to national cultures (Krymskiy, p.138, 2001], or a meta-culture that does not deprive plurality or national identity of their value and of their right to exist – it simply specifies the context of their applicability. Belonging of a culture and of an identity to the "upper" or to the "lower" levels of the hierarchy does not indicate their greater or lesser significance – it only manifests the extent of their relevance. And this means that "human" identity and knowledge does not negate identities of "German", "Jewish", "Ukrainian" or "Indonesian" etc. – on the contrary, the former can be created and could exist only on the basis of the latter, just like ethnic, linguistic or even tribal identities do not oppose a national or a regional identity.

All that does not mean that there are no problems in realizing the proposed approach in today's world. The fractality of identities as a way to visualize openness of knowledge and the becoming of human science faces many obstacles. After all, it is much easier to proclaim one's own identity as the only accepted one instead of trying to work on constructing the common human identity and mutual knowledge alongside with representatives of other identities and other knowledge! There are threats to humanism from both the Global North and the Global South – or from those metaphysical positions in all parts of the world that would state they already possess the truth and that there is no need to seek it. After all, a "close" community, including scientific and academic community, is not only the one that does

not allow outsiders to its circle and to its knowledge, but, as it was already argued, the one that places its own particular values above the common values of the humankind.

Archaic identities of tribalism and nationalism – or rather, positions of understanding ethnic and national identities as primary ones that exceeds any other identities (like in the case of "Deutschland über alles"; we can also refer to the features of what Umberto Eco (1995) used to call *ur-fascism*) – favor battling over differences above the work on building up the grounds for common knowledge and common future. Such archaic identities are often found to be the source of conflict and wars in today's world. As an example, I can cite the testimony of the Croatian writer Slavenka Drakulic that was expressed in the 1990s: earlier, before the era of independence of the countries of Yugoslavia, a person could identify himself or herself according to various criteria – but now national identity has suppressed all other possible grounds for self-characterization:

> Being Croat has become my destiny… I am defined by my nationality, and by it alone... That is what the war is doing to us, reducing us to one dimension: the Nation. The trouble with this nationhood, however, is that whereas before, I was defined by my education, my job, my ideas, my character – and, yes, my nationality too – now I feel stripped of all that. I am nobody because I am not a person any more. I am not in a position to choose any longer… So right now, in the new state of Croatia, no one is allowed not to be a Croat (Drakulić, pp. 50–52, 1993).

Unfortunately, in 2020s such an approach still remains a threat, and the current (2022) war in Ukraine is no exception. Such a situation is all the more paradoxical as it is accompanied by the rapid development of the technological sphere – as the latter not only provides for the openness of knowledge and information, but for its potential closeness as well. Contemporary researcher Christian Fuchs even connects the "digitalization of war" with the crisis or the disappearance of the public sphere of human social existence in the age of information technologies: this sphere is being fragmented and polarized, uniting people and forcing them to perceive others in a dualistic spectrum "friends - enemies" (Fuchs, p. 2, 2022).

5 Conclusions

But let us not end our review on such a pessimistic note. After all, any technology and any knowledge could be used in both ways – to harm humans, their lives and their culture, or to help their development. That's why the problem of goals and values that define how the means could and would be used are of the utmost importance today. To summarize what has already been said, Open Science is in fact based on the classical mertonian principles of scientific ethos, and particularly on the values of *universalism and communism* that define the scientific enterprise as being a property of all the humankind without any borders or limits. Such ideals of openness well correspond to the ideals of humanism and the ideal of democracy – the problem is to find the ways to realize those ideals in today's world, as social reality still contradicts them, and as decolonization of knowledge is far from being actually achieved.

In my opinion, the problems of the said realization result out of some wrong ontology, namely of the outdated metaphysical approach to understanding the dialectical relationship of unity and plurality, where humanism appears to be an empty abstract entity or even a justification for the threat of another wave of Westernization and colonization of knowledge threatening the cultural plurality. The human culture and human identity could be in fact described today as possessing the feature of fractality, and the diversity of knowledge, cultures, languages, world views etc. etc. is in no way something that opposes the unity of humanity and vice versa. According to such social ontology, the universal can only manifest itself in real life as the singular, and under actual humanism and openness of knowledge every personality and every identity enrich the whole humanity. I think that such an effort to achieve mutual respect, mutual recognition and mutual understanding of the plurality of identities, cultures and knowledge is the necessary requirement for ensuring the existence and the development of humanity in the 21st century.

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