The ethos of modern science development

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Annotation. The issues of the scientist’s growing social responsibility for the results of scientific research are considered in this article. As far as science and technology development has a considerable effect on society and its members, scientific researches should not pose a threat to present and future generations. In this regard, ethic parameters of scientific studies have to be discussed.

Keywords: social responsibility of scientist, scientific ethos, scientific community, moral standards in science.

Ethos of the scientist, his behavior in the social space, has always been the object of very close research. This problem has been brought to the forefront in such a difficult and many aspects bifurcation period of the modern society development, because the usage of scientific potential in the modern world puts a question about the direction of the civilization’s development.

In this regard, as a result of the International Council of Scientific Unions (ICSU) meeting the Standing Committee on Responsibility and Ethics in science was organized. It emphasizes the need for these issues to be “fully appreciated and duly accepted by the community of scientists, whose area of responsibility enters and will include the decision to restore the faith in the integrity and responsibility of scientists” (Yudin, 2004, 12). According to the Declaration on Science and the Use of Scientific Knowledge, science does not only serve to a person. Science and technology approach to this person from the inside, so that the person has become the product of this work. Genetic researches, embryo researches, genetic engineering and cloning allow people to design and modify natural features, to develop their biological characteristics in any way. We could say that a third wave of pan-epistemism is coming: science knows everything, but now science
also can do everything. Pride, envy and other vices, combining with the power of modern cognitive abilities can lead to unpredictable consequences.

Nowadays a social status of a scientist has been changed. Although scientists are responsible for the results of their scientific activity, they are no longer the subject of creative process. Their role has changed from “the mastermind” to “the new proletarian” and perception of the scientist in society has changed as well. There is absolutely new “men of knowledge” – not a sage, a keeper of knowledge, just a successful user of modern technology. The term “mass science” has become popular as an analog of “mass culture”. “Mass science” is able to radically change an existent social structure and lead to the new social misbalance. Therefore, in the documents of the Standing Committee on Ethics and Responsibility of scientists is written the following: “The study should have such a direction so that its consequences do not make any difficulties for present and future generations. A scientist is especially responsible for the consequences of his own research and bringing results to the public” (Yudin, 2004, 14).

Another issue is that, whether society is prepared for this social responsibility and can sustain its pressure at the present stage of its development. In 1903 Pierre Curie in his Nobel speech said: “It could be imagined that in the wrong hands radium could be very dangerous, so that we could put a question: is the knowledge of the nature beneficial to mankind and is mankind matured enough to learn from it only benefits” (Selye, 1987, 101).

In the history of human race scientists were a closed caste, and esoteric knowledge as the secret language understood only by those who “deserves the truth” was a protection against leaking of information. It is directly written in the ancient Indian treatise “Surya Sidhata” that the secret of the gods should not be divulged to everybody. Strabo had the similar idea that Egyptian priests hid some knowledge from the Ellins. In Hinduism there is still a tradition of only oral interpretation of “Kabbalah”. The Gospel of Matthew says the following: “It is given only to you (the apostles) to know the mysteries of the kingdom of heaven, but to them it is not given” (Gosp. of Matthew, 13, 11). In the Old Testament book of “Elohim” it is written directly about the evil that is brought to the world when the secrets of the world are available to everyone. In fact, the book “The Age of Gutenberg” has made knowledge accessible to the majority of people.

As it was noted by A. Jensen, “it is possible that our civilization could only occur in case that the human race had an ability which we now call intelligence”. While the progress of civilization needed a small minority (maybe 1 or 2 %) of highly talented people, the vast majority of society was able to absorb its results (Jensen, 2002). Jensen’s followers believed that talented people or scientists in society allocated to a Gaussian curve, which represents 0.5 % of talented people, 2 % of endowed people and so on, while others just use their ideas more or less successfully.

Considering this J. Alexander drew attention to the socio-cultural determinism of scientific activity: an action is coded by cultural systems and motivated by personality. This postulate is essentially a specification of Weber’s doctrine of the belief in the value
of scientific truth as a product, determined by the level of a particular culture development. However, the question arises: does the scientist serve to scientific truth or moral values in science?

Galileo considered the basis of the scientific ethos as unconditionally serving to the truth, whereas Kant brought to this theory the ideological aspect based on the scientist’s responsibility. The German philosopher wrote: “If there is a science, it is the one I teach. It says what a person has to do to be a man and to take the right place in the world” (Kant, 1972, 206). To some extent, Kant repeats Hume thesis that there is no scientist who, at least, would not be an honest man.

Due to these methodological promises research interest shifted from the actual logical and methodological analysis of science to its social and cultural grounds. The problem of the foundations of science has been formulated anew. According to V. S. Stepin, “these foundations are, on the one hand, a component of the internal structure of science, and, on the other hand, its infrastructure, which mediates the dependence of scientific knowledge on the socio-cultural factors and its inclusion in the culture of the respective historical epoch” (Stepin, 1992, 11).

Consequently, not only inherent problems of science are to be analyzed theoretically, but also the philosophical and existential questions related to rethinking the dynamics and transformations of modern science. This implies a theoretical (sociological) reflection on the change of science role in society, building its nonlinear relationship with the economy, culture, morality, power and other social spheres; determine the social determinants of the science development.

The thesis of Pierre Bourdieu should be noted here: “Sociology of science is based on the premise that the truth of the product especially when it comes to such a specific product as scientific truth, lies in a special kind of social conditions of production, specifically in a certain condition of the structure and functioning of scientific field” (Bourdieu, 2005, 473).

In modern science other (scientist) attitudes of a new era where “human is too human” are forming to fit the technological values such as:

1) total spread of scientific and technological paradigm, panepistemizm as a single uncontested cognitive algorithm;

2) establishing of science not only directly generating force in society, but also the ordinary, everyday life (Bourdieu);

3) pragmatization of the knowledge, predominance of the orientation on innovation and utilization of scientific knowledge (Kolpakov, 2008).

In modern literature an issue on the levels of cognitive infrastructure of postmodern society becomes more and more actual. This postmodern society is experiencing a cultural break, and is called “strange society” (Karpov, 2007). The phenomenon of cognitive inflation in the sphere of knowledge production, framing cognitive pluralism and a technological “blindness” knowledge economy stands out as a global problem. This issue dominates in
socio-cultural environment of modern science. A tough corporate hierarchy with the dominant status of the owner of intellectual capital who dominates in economic and political spheres at the same time is really being built. Actually, the lower level belongs to scientists, producers of knowledge, the “new proletariat”. External factors gain cognitive status deforming “Kantian” value sphere and cultural foundations of knowledge production.

Status of the new science is acquired primarily in the consumer field, where knowledge is seen mainly as a product, a service or resource. Marketization of creative activity threatens the creative status of knowledge. It contributes to the erosion of axiological, primarily ethical, borders. Such terms as the academic freedom, the political economy of leisure, fundamental research out of application context and creativity are eliminated. Transformation of science into a product, service or resource of the society, in fact, negates the ethical dimension of science. An unprecedented phenomenon named “mediatization of scientific knowledge” also appears.

Knowledge is spread in the media, especially in the Internet, in a simplified, compressed and often distorted version. A new feature of the scientific community has been added. That is transformation of knowledge into especial, convenient for the majority, mass product expressed in a symbolic form. Thus, the development of science, its involvement in social field (Bourdieu) puts a question of the ethical foundations of creative work of the scientist, his perception of himself as a researcher, the objectivity of his reflection, his responsibility for the “creative product”. A problematic social reality (Schutz) constitutes rather than a crisis of science (Husserl).

When in 1944 Michael Polanyi introduced the term “scientific community” a lot of various and as always absolutely true definitions appeared. T. Kuhn has identified scientific community as intellectuals who share a common paradigm. A paradigm, in turn, is the basis of science shared by the scientific community. Since 1960-s the term “scientific community” became a basic research unit of the sociology of science. Generalizing the most common definitions, we can conclude that this is a social community, functioning on the basis of the professionalization of scientific activity, or simply as a subject of scientific research. The scientific community has a number of immanent basic functions such as the generating and establishing the ideals, values and norms of scientific activity. This function changes with the dynamic of social field.

The revision of the theoretical bases of the image of science in the information society is required in the conditions of systematic and unpredictable changes. For example, Giddens posits that current knowledge does not give full confidence in anything, that nothing can be known for a long time and for sure as social fragility and unreliability of previous cognitive basis became apparent. According to Giddens, we live in a new social reality. A long era of rationality has gone, and the prospects of social development have become extremely vague, uncontrollable and unpredictable on a global scale (Gidens, 1987).

The well-known Canadian scientist H. Selye noted: “In these tough conditions scientists have a good reason to worry about their ethics, their attitude to people and
society as a whole: the great enthusiasm and desire to achieve excellence in any field so overpoweringly that person risks to become a highly specialized and directed by a single goal robot”. That is why from time to time a scientist asks himself whether his behavior is checked with a goal and, more importantly, is a purpose worthy of ongoing efforts” (Selye, 1987: 99).

All these factors put a question about the moral status of science, moral criteria of its development and its main social function. This idea was continued and applied to the realities of the twentieth century in the famous “Russell-Einstein Manifesto”, where special attention was paid to the new (nuclear) imperatives of scientists’ ethos. Naturally, in the sociology this problem is viewed from different positions, for example, M. Scheler, R. Darendorf, T. Parsons, N. Storer, H. Zuckerman, S. Barks, E. Babosov and others. In the most systematic way this problem was solved by Robert Merton, who considered science as the “emanation” of the Protestant ethic (primarily, rationalism) on contemporary social field. According to R. Merton, ethos of science is an affective complex of rules, values and norms that are considered to be required for the man of science” (Merton, 2006, 69), which corresponds to normative paradigm of sociology.

It is significant that Robert Merton clearly defines the “frames” of moral standards in science – this is a set of norms and values that are actualized in the permissions, preferences, regulations, in other words system of non-legal norms aimed at the development of science as a social institution. In general, institutional norms include universalism, communism (collectivism), disinterestedness and organized skepticism. The first rule, universalism, provides non-personal nature of the development of the scientific knowledge, its distance from particularity, personal, non-recurring and other irrelevant characteristics. The second rule derived by Robert Merton – communism – strictly regulates the ownership of the product throughout the scientific community. Production, generation and use of scientific products are based on the team-work of an infinite number of scientists, so every researcher has to transfer their results to the scientific community in order to contribute to the universal science as a segment of the general culture. Here we can draw some parallels with the ideas of Ortega-y-Gasset about the knowledge growth as a measure of human culture. Consequently, it follows from the third component of the scientific ethos disinterestedness warning against the use of a pseudo-scientific knowledge or its use for other non-scientific purposes (think about Robert Gallins’ case). This principle clarifies many of Kant’s aesthetic judgments, where one of the rules is similar to the principle of disinterestedness. Organized skepticism that Merton understood as an institutional norm and the universal methodological principle completes the gallery of the social norms. This point, in fact, dates back to the Baconian principle, and even earlier, to call everything in question, do not take the various “idols” on trust.

B. Barber has added two more rules: rationalism (which corresponds to the Merton general methodological attitudes), and emotional neutrality in the scientific research. The following criticism based on the fact that Merton’s principles are sketchy and they
cannot be applied to specific circumstances (and we partially agree with them) led to introduction of additional nine pairs of sociologically ambivalent principles, such as:

1) to transfer results of study as faster as possible, but take the time to publish them;
2) to be sensitive, but to resist to the “scientific fashion”;
3) to acquire knowledge in the relevant scientific community, but not to rely on its assessment;
4) to protect the new ideas, but not to be hasty doing this;
5) to extend your knowledge, but to keep in mind that sometimes it prevents creative thinking;
6) to be precise in formulating, but not to be pedantic;
7) knowledge is universal, but it honors scientist as a representative of the nation;
8) to transfer knowledge, but not in the prejudice of scientific creativity;
9) to learn from the great scientist, but not to be like him.

This sociological ambivalence of the scientist’s behavior is not only a projection of its potential behavior, but it also stimulates the scientific behavior. Despite the fact that these theoretical studies are schematic to some extent, they have quite a sociological basis and could be supplemented and updated.

It should be noted that the awareness of “anxiety of development” increases in modern science. Some researchers (P. Berg) put the question of a moratorium on genetic research, cloning, etc. for fear of the destructive tendencies of development. In this regard, in the academic world it was realized that there is the need to institutionalize ethical scientist, expressed in a kind of “scientist Code”, at least at the university level. This code should be dynamic and flexible bearing in mind specific of the development and define the core values of scientific activity at the same time.

References


Modernaus mokslo vystymosi etosas

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Santrauka


Esminiai žodžiai: mokslininko socialinė atsakomybė, mokslininko etika, mokslo bendruomenė, mokslo moraliniai standartai.

Įteikta / Received 2015-09-15
Priimta / Accepted 2015-09-28