The social responsibility of scientists

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Abstract. *This article outlines the particularities of scientists' responsibility. Their responsibility is to obtain useful knowledge in such a manner that will not cause any distress, harm or detriment to those involved with the experimentation that acquires the knowledge. The responsibilities of scientists can be divided into inner responsibilities – related to their conduct towards their discipline, their profession and colleagues, and external responsibilities – related to the impact of their research on the society as a whole.*

Keywords: *scientific research, ethics, moral responsibility, intellectual freedom, personal values.*

Scientific research puts a series of responsibilities on the researcher, from several perspectives: scientific, moral, social, political etc. For a long time, it was considered that the purity of the experiment, the conscientiousness and professionalism of the scientific researcher would ensure his works' compliance with the ethics of science. Indeed, conscientiousness and neutrality are valuable and necessary in the context of scientific research, but the development of science requires an emphasis on the *social responsibility* of the scholar. The significance of this type of responsibility has grown with the increasing role of the technological sphere. This is because the modern technological discoveries have the ability to strongly influence the environment, sometimes producing disastrous results. Thus, an important parameter – the *social responsibility* of the scholar, based on such values as the scholar's conscientiousness and neutrality, is added to the traditional ethics of science [1].

The subject of researcher's social responsibility has a close connection to the correlation between science and society's values. Modern science has declared itself neutral in terms of values. Karl Popper and Max Weber supported the idea of value neutrality of science. Weber, specifically, considered that science must be free from passions, beliefs, trends, values. However, each researcher must obey certain rules and comply with certain principles of behaviour within the scientific community. These principles are determined by a set of moral and ethical values inherent to the scientific activity. Their essence was formed over the course of historical development, being constantly improved by the scientific community in line with the new ethical issues related to social development.

The ethics of scientific research implies a set of rules of conduct – moral rules established and recognised in the sphere of science by a certain scientific community. These ethics imply the notion of a researcher's individual responsibility. S/he is responsible for the accuracy of the information obtained as a result of his/her research, for the fair use of the results of his/her colleagues and for the consistency of the findings. All these constitute the basic responsibility of a researcher, his personal ethics. In this context, some of the transgressions of the moral norms in the sphere of scientific research are the falsification of results, plagiarism, use of new ideas and information from unpublished manuscripts or information that has been obtained from confidential discussions as well as breaking the rules and norms of the academic bodies and research organisations.

Ethical issues related to the moral choice of the scholars anticipate their moral responsibility both in their own eyes and in the eyes of the scientific community and of the entire society. On the 20th of November 1974, the 18th General Conference of United Nations

Educational, Scientific and Cultural Organization (UNESCO), held in Paris, adopted *the Recommendation concerning the status of scientific researchers*, which was ratified by the governments of most countries and had a significant contribution to the formation of the body of moral principles in science. This Recommendation states that scientific discoveries and related technological developments and applications open vast prospects for progress made possible by the optimum utilisation of science and scientific methods for the benefit of mankind. However, they might also be dangerous, to a certain extent, especially in cases where the results of scientific research are used against the vital interests of humanity, serving such interests as those of preparing wars involving population destruction on a massive scale or those related to the exploitation of one nation by another. In such cases, the products of research can contribute to the rise of complex ethical and legal problems. The fundamental rights and responsibilities of scientists (from the civic and ethical perspectives of research) listed in this document assume that scientific researchers, with the eventual support of the public authorities, have both the responsibility and the right to:

- work in a spirit of intellectual freedom to pursue, expound and defend the scientific truth as they see it;
- contribute to the definition of the aims and objectives of the programmes in which they are engaged and to the determination of the methods to be used, which should be sustainable from the human, social and ecological points of view;
- express themselves freely in regard the human, social or ecological value of certain projects and in the last resort withdraw from those projects if their conscience dictates so;
- contribute positively and constructively to the fabric of science, culture and education in their own countries, as well as to the achievement of national goals, the enhancement of their fellow citizens' well-being, and the support of the international ideals and objectives of the United Nations. [2]

In the documents adopted by UNESCO, one can also find statements regarding various specific fields of scientific research, such as the Universal Declaration on the Human Genome and Human Rights from November 11, 1997. This declaration specifies that no research or research applications concerning the human genome, in the fields of biology, genetics and medicine, should prevail over the respect for the human rights, fundamental freedoms and human dignity of individuals or, where applicable, of groups of people. The document states that research on the human genome and the resulting applications open vast prospects for progress in improving the health of individuals and of humankind as a whole, provided that such research fully respects human dignity, freedom and human rights, without allowing any form of discrimination based on genetic characteristics to occur. The implementation of research, including applications in biology, genetics and medicine, concerning the human genome, shall seek to offer relief from suffering and improve the health of individuals and of the humankind as a whole. [3]

The value neutrality is concerned with the adequate interpretation of the nature of the processes researched and not with the application of the research results. It is namely this last phase – the application of the results that has always been known to have a specific load value. This is because an application of the results of scientific research that does not consider society's moral values might represent a risk for people's wellbeing. Nowadays, the ethical-axiological relevance of the science has become an important condition for the very existence and development of the humankind, to preserve life on Earth [4]. It seems that the declaration of value neutrality of science would lead to some imminently dangerous trends in the development of human society. In the age when it became obvious that the development of science and technology is wreaking environmental pollution, creating weapons of

mass destruction etc., calls are made to scientists urging them to enhance accountability for the use of the results of their research [5].

Nowadays, scientists are required to have a greater awareness of the possible risks that their discoveries can introduce and to consider the intentions of the organisations that fund their research activities. Does this mean that the researcher's freedom is constrained? One of the problems that arise concerning the process of producing scientific knowledge is the issue of a scholar's freedom of scientific research. Thus, there is a need to study the relationship between a scientist's freedom and his responsibility in the process of acquiring scientific knowledge. Like in all the spheres of his life, a man is free to act but does also have certain responsibilities for the results of his action. The same idea applies to the world of scientific research.

Sometimes, a scholar might be able to anticipate the character and extent of the possible dangers of using the results of his scientific knowledge. However, this is not always possible. Alfred Nobel could not have known that the dynamite he had discovered would serve for military purposes. It seems quite difficult to anticipate such consequences in the areas of fundamental research. A scholar might not be able to predict the precise way in which the results of his effort will be used in the future, mainly because the social values are changing: something that is considered to be a positive accumulation of knowledge during the research could become something worrying and risk-imposing at the stage of applying this knowledge in the context of the real world.

The freedom of scientific research is an important cultural value. However, in the realities of today's world, the freedom of science is restricted by the requirement to respect the human rights as well as by the requirements regarding the protection of animals and the protection of the environment. On the other hand, without freedom, the science cannot accomplish its main goal and cannot fully manifest its essence. Therefore, freedom of scientific research is usually supported by the free access to sources of information; the free exchange of ideas; non-interference of the politics in the activities of research and development and innovation; un-censoring of the scientific products. The physicist Enrico Fermi points out the importance of freedom in scientific research in the following quote: "*Experience shows that, somehow, the random personal activity in science, caused by the fact that each scholar freely elects his own research object, represents a guarantee that none of the major lines of research will be omitted*" [6]. Restrictions of certain directions of research may not be beneficial to science. Still, one cannot always accurately predict the effects of applying the results of his/her scientific research.

Conclusions

The social responsibility of the scholar comprises two types of responsibility: inner responsibility, which is expressed by his attitude towards science as a discipline exploring the world around, the attitude towards his profession and his colleagues, and – another type of responsibility – the external accountability, which also refers to the impact of the knowledge gained through research on the society.

Regarding economic research, we believe that academic economists should also be responsible for the social consequences of their research. The results of their work have an impact on the economic and political systems, either by action or by omission. If economists provide the wrong recommendations, this can generate big social costs due to the resulting misguided policies. If economists are not concerned with the political implications of their work and if they are not prepared to engage in the field of policy making, then the representatives of various lobby groups will do it to the detriment of the entire society. Therefore, academic economists should be aware that there is a public need for their scientific research and political expertise. However, asking scientists to be socially responsible is not an easy affair. Some researchers even consider this attempt dangerous. L. Wolpert suggests "*There is, in fact, a grave danger in asking scientists to be more socially responsible - the history of eugenics alone illustrates at least some of the dangers. Asking*

scientists to be socially responsible, other than by being cautious in areas where there are social implications, would implicitly be to give power to a group who are neither trained nor competent to exert it.". [7]

Nevertheless, we do need to implement ethics into the scientific realm and to require that scientists follow ethical principles and are socially responsible. This must be done for the development of science, for a better world, where science and technology are used in socially responsible ways in order to support humanity's efforts to survive.

Frank Sherwood Rowland – the Nobel Laureate in Chemistry who warned of the depletion of the Earth's ozone layer, made the following declaration during a White House climate change roundtable in 1997: *"Is it enough for a scientist simply to publish a paper? Isn't it a responsibility of scientists, if you believe that you have found something that can affect the environment, isn't it your responsibility to actually do something about it, enough so that action actually takes place? (...) If not us, who? If not now, when?"* [8].

References

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