Asesorías y Tutorías para la Investigación Científica en la Educación Puig-Salabarría S.C.
José María Pino Suárez 400-2 esq a Lerdo de Tejada. Toluca, Estado de México. 7223898475
RFC: ATI120618V12

Revista Dilemas Contemporáneos: Educación, Política y Valores.
http://www.dilemascontemporaneoseducacionpoliticayvalores.com/
Año: VI Número:3 Artículo no.:98 Período: 1ro de mayo al 31 de agosto del 2019.

TÍTULO: La ciencia moderna en la dimensión moral.

AUTORES:

1. Dra. Svetlana N. Semenkova.
2. Dr. Vyacheslav I. Taburkin.
3. Dra. Marina V. Doronina.
4. Dra. Yana V. Kryucheva.
5. Dra. Nataliya P. Gavrilyuk.

RESUMEN: Este artículo científico intenta dar sentido sistemáticamente al estado y al desarrollo de los aspectos morales del conocimiento científico moderno. Con este fin, se aclara primero la naturaleza de la ética de la ciencia, su influencia en la formación del espíritu de la ciencia, luego se estudian las normas morales y su papel en la formación de la ética profesional, los aspectos de valor de la ciencia y la ética del científico. . Sobre esta base metodológica, la relación entre la ciencia y los científicos se explora utilizando sus descubrimientos en la vida práctica de las personas.

PALABRAS CLAVES: ética de la ciencia, ética de la ciencia, estándares morales de la ciencia, ética profesional, valores morales de la ciencia.

TITLE: Modern science in moral dimension.

AUTHORS:

1. Svetlana N. Semenkova.

2. Vyacheslav I. Taburkin.

3. Marina V. Doronina.

4. Yana V. Kryucheva.

5. Nataliya P. Gavrilyuk.

ABSTRACT: This scientific article attempts to systematically make sense of the state and development of the moral aspects of modern scientific knowledge. To this end, the nature of the ethics of science, its influence on the formation of the ethos of science is first clarified, then moral norms and their role in the formation of professional ethics, value aspects of science, and the scientist's ethics are studied. On this methodological basis, the relationship between science and scientists is explored using their discoveries in the practical life of people.

KEY WORDS: ethics of science, ethos of science, moral standards of science, professional ethics, moral values of science.

INTRODUCTION.

At present, scientific knowledge is presented to us not only as a specific categorical apparatus but also as a special form of a sociocultural phenomenon. Among the most important and complex issues of the sociocultural essence of science, a significant cognitive and methodological interest is the process of isolating and studying its moral aspects.

As it is known, the formation of moral aspects of scientific knowledge is organically linked with a system of ethical norms, requirements and rules that govern the relationships and actions of scientists and determine either resolving and encouraging the processes and results of their scientific research,

or prohibiting unacceptable and immoral actions of scientists in various situations of their scientific activity (Gumnitsky, 2016; Guseynov, 2013, p.11-16).

The moral norms of science are the embodiment of both universal and specific moral requirements and prohibitions related to specific features of scientific activity.

Professional morality in the field of scientific knowledge forms its own rules and requirements regarding the assessment of the role of science in the life of society and man, in the preservation and further development of science and culture; legal ethics demands the provision of social justice, equality and individual freedom from the representatives of the law (Artemov, 2017, p. 19-23); the basis of administrative morality contains the demands of respect for a person, for his rights and for his personal dignity (Alekseev, 2015; Kruzhanov, 2012, p.53-58); professional and moral aspects of engineering employees require their assistance in eliminating the negative consequences of engineering practice that is harmful and detrimental to man, society and nature (Agazzi, 1998); 11, p.448); moral and ethical aspects of medical activities serve to neutralize the possibility of abuse of the power that doctors have over the sick: their basic medical moral standard was expressed even in the aphorism of the great ancient Greek physician and thinker Hippocrates: “Abstain from doing harm!” (Gumnitsky, 2016); psychological morality requires of psychologists and psychotherapists a highly moral and sensitive attitude to people in the process of practical application of the content of psychological theories to them (Doronina and Taburkin, 2013, p.28-30; Zolotukhina, 2002, p.429-430); the truth and depth of meaning of environmental ethics are reflected in man’s and society’s advisable and humane treatment of the natural world (Doronina and Taburkin, 2013, p.113-115). In addition, it should also be noted that the moral standards of scientific knowledge are not only for stating but also for protecting specific values of science itself (Lacey, 2008).

DEVELOPMENT.

The moral values of science are expressed primarily via the moral principles of scientific knowledge, via the moral characteristics of scientific schools, communities and other scientific institutions, as well as to form value ideas related to the moral consciousness of scientists, namely, to form and develop their moral standards, principles, ideals, the concepts of good and evil, justice, freedom, responsibility, etc., for example, plagiarism can be presented as a breaking of the commandment "do not steal", but deliberate garble (falsification) of the results of a scientific experiment – the commandment "do not lie".

The methodological analysis of the problem of the relationship between science and morality is largely associated with the content of scientific research methods, which are used in scientific knowledge as a test of certain theoretical hypotheses and their truth tests under constantly changing conditions. As an example, when considering this problem, we can dwell on the analysis of large-scale experimentation on nature (Vernadsky, 1988, p.386; Zolotukhina, 2002, p.428-430; Taburkin and Doronina, 2013, p.216-217).

The second half of the 20th century and the beginning of the 21st century became an epoch of colossal intensive impact on nature: the use of various technologies, the testing of atomic and hydrogen bombs, the formation of powerful nuclear test facilities, the prosecution of world and minor wars, poisoning of the soil covering of the Earth, air, and water with chemical waste, etc. This process continues along the line of destruction of natural environmental correlations. Such practices increasingly lead to ecological imbalance and threatens the life of man and mankind on our planet.

With such an interrelation with nature, the moral imperative is clearly revealed: if humanity does not take care of nature, it will destroy itself. With the emergence of this moral imperative, the ancient, long-forgotten notions of the earth as a living being, a huge living organism with a peculiar type of mind, are being revived. Consequently, the ill-conceived, gross interference with the natural

environment has a painful and destructive effect on our planet, and the continuation of tests and experimentation on it is undoubtedly attributed to the area of malicious acts (Doronina, et al. 2018; Su, & Reeve, 2011; Sulistyaningsih, et al. 2017; Wisneski, Ozogul & Bichelmeyer, 2015).

Another, rather acute moral question concerns the legitimacy of experiments on animals. Indeed, in biology and medicine so far, drugs and toxic substances have been initially experimented and tested on animals: rabbits, rats, laboratory rodents, etc. Of course, animal experimentation can be quite useful and moral, provided that we put aside the suffering of experimental animals. Moreover, scientists and specialists in the field of biology and medical sciences are forced to argue that without such experiments on animals it is impossible help man. However, such actions do not fit into the idea of good and morality. One of the future possible options for the development of science may be a transition to the study of the necessary processes in the framework of information modeling.

Even more, acute is the question of the legitimacy of human experimentation. In this case, the person is considered as an inert, passive principle that can be easily manipulated.

As are well known, such attitudes toward man are primarily included in the subject area of psychological research. Of course, the psychologist as a person does not wish to inflict pain, suffering (evil) on the participants of his experiments. However, putting them in the position of being manipulated, deceived, exposed, the research experimenter, willing it or not, relegates them to the level of laboratory animals. In addition, psychological experiments are never completely “pure”, since all the parties involved in the experiment – the experimenter and his “experimental” ones – constantly change. That is why especially strict criteria should be applied to experimenters in psychology, and the process of experimentation itself requires accuracy and subtlety of the construction and use of indirect, mediated forms and methods of gaining true knowledge (Gavrilyuk, et al. 2018).

Finally, the problem of the moral use of social experiment is even more complex and dangerous, due to its large-scale extent and development.

As is known, social experiments are more often carried out in the countries where qualitative changes in sociopolitical conditions and regimes have occurred or are occurring. At the same time, modern Russia is no exception (Semenkova, et al. 2009, p.1174).

The problem of the occurrence of dangerous negative consequences of introducing the principles of extreme market liberalism into life of our country is particularly acute. Sometimes these market innovations are immediately introduced across the country. However, this is a rather dangerous path, since in case of failure the damage can be enormous.

One of the ways out of this situation is to test various innovations on a smaller scale (for example, testing the main ideas of economic reform in a number of farms, regions, regions of the country, etc.). However, when conducting similar social experiments, the emergence of difficulties of a socio-psychological and moral nature is also possible; for example, local economic and organizational experiments, conducted seemingly without fundamental upheavals and occurring under the control of power, still bring considerable difficulties to those who live in the experimental areas.

As a result, people's daily lives begin to change, and sometimes their fate. That is why, when conducting any social experiments, the authorities should remember about the moral side of what is happening, and their responsibility to the population of the country.

Methodology.

The study was conducted on the basis of the State Agrarian University of the Northern Zauraliye, in which 300 students and faculty members took part. The age of respondents ranged from 18 to 60.

The following research methods were used: questioning, conversation; comparison and generalization of the content of concepts and categories; qualitative and quantitative analysis of the data obtained; methods of statistical data processing.

In order to determine the specifics of compliance with moral standards in the process of doing research, we conducted two surveys. For the first survey, we took the future "possible" scientists. This group includes the students pursuing a bachelor's degree (4 year) and doing the masters, as well as the students taking postgraduate courses. The participants of second survey were the teachers of higher education.

Results and Discussion.

The participants in the questionnaire were asked three questions. When answering the question about the presence of moral norms on the conduct of scientific research, the proportion of students who doubt is higher and equals 39%, of undergraduates is equal to 8%. Thus, 61% of students, 92% of undergraduates and 100% of graduate students believe that moral standards affect the conduct of scientific research and this influence must be taken into account because in the process of conducting research, we are constantly confronted with the need to respect the moral standards of society, the personality of both researchers and the ones under investigation, the search for a solution to the problem of preserving their personal identity, and the moral answer to the question of whether to sacrifice some for the sake of others. Although all participants in the survey acknowledge that strict adherence to moral standards leads to a reduction in the rate of searching for ways to save the lives of sick people.

In addition, we were interested in the question – the moral and ethical standards of which human sciences have an impact on the conduct of scientific research. At the same time, we proceeded from the fact that not only nuclear physicists who create super-powerful deadly bombs, and biologists who grow bacteriological weapons in scientific laboratories, but also the scholars: psychologists, historians, political scientists, sociologists, teachers and other scientists and specialists in the socio-humanitarian profile.

Among all the humanities (psychology, philosophy, history, cultural studies), the moral standards of which we need to comply – 90% of the study participants paid special attention to the observance of psychological moral laws associated with the manifestation of personal identity of both researchers and subjects. Perhaps, this choice has recently been due to the encouragement of the predominance of the personal in the society, the individual over the collective. The fact is that the practical application of psychological theories and methods, their use in scientific activity can strongly influence people and their consciousness.

In the case, when the subject (patient) becomes the object of application of these theories and methods, certain "psychological" rules or "conceptual guidelines" are immediately highlighted, which must be observed under all conditions. As a result, the patient's psyche can be easily injured, either by attributing non-existent flaws and defects to him, or, on the contrary, by conducting a violent "egoization" of his personal life with very trusting and inspired listeners. Therefore, a psychologist should have the ability to form such moral and psychological qualities as being imbued with a feeling, being accustomed and understanding. Only under these conditions, the Hippocratic principle of "First, do no harm" can be fulfilled. It should also be remembered that the theoretical concepts of scientists born in the quiet of cabinets must necessarily be combined with the subjective world of each person and the real human destinies.

In the opinion of the respondents, the representatives of historical science also bear moral responsibility by following psychologists (75%), since the task of historians includes, above all, the formation of the collective memory of people. It is very important for the historian to move from emotions, ambitions, fashion and political conjuncture to the search for obtaining scientific truth, reflecting the real laws and the laws of the historical process.

The subjective, inadequate reflection of history often creates chaos and disorganization in the mass consciousness of people; it can be conductive to inflating social, national and ethnic contradictions and conflicts in understanding the continuity of generations.

Almost all survey participants spoke in favor of observing moral standards in scientific research. However, we are well aware of the fact that scientists can "close their eyes" to their observance when they are on the verge of great discoveries. As a result, we asked the respondents to assume a situation where moral standards are not respected and suggest what positive and negative results can be obtained by scientists in the upshot.

So, the "future" researchers attributed to the positive consequences of non-observance of moral and ethical standards the following:

- Conducting the most comprehensive research (75%).
- Receiving large cash rewards (70%), which becomes especially important for the younger generation in the conditions of the formation of a consumer society.
- Human development (50%).
- Getting more extensive information about the world (40%).

They referred to the negative consequences the following:

- Causing psychological trauma to people participating in the study (85%).
- Taking other people's ideas and, as a result, appropriating someone else's glory (80%).
- Going beyond all bounds (75%).
- Dissociation of personality of the researcher (60%).
- Depreciating life, and as a result, destructing man or humanity (50%).
- Evading the main purpose of the study (45%).
- Destructing the world (40%).
- Putting the research results to evil ends (30%).

However, in the process of putting survey questions on the moral dimension in modern science, we were interested in the opinions of people who were directly involved in scientific research, namely, university professors. As a result, they were asked the following questions:

1. Is it possible to continue research in those areas of the real world the knowledge of the laws of which is directly or indirectly related to harm to health and even loss of life of man and humanity on the whole? 2. To what extent are scientists able to take responsibility for applying the results of their own scientific discoveries?

It should be noted that some scientists (25%) positively solve the first problem and support the idea of continuing these studies. The fact is that the human mind does not have limitations in cognition; it strives to overcome all the hindrances and obstacles on a path leading to the achievement of scientific truth. However, it should be noted that there are the scientists, and most of them (50%), oppose the conduct of certain types of scientific research.

These scientists believe that humanity is currently not yet ready to perceive and comprehend information about the underlying laws and does not yet have the ability to control the complex processes of the unconscious. The fact is that such studies of scientists are fraught with the danger of their use for mercenary purposes: the mass manipulation of people, the use of malicious terrorist groups, belligerent states and tyrannical rulers. Therefore, the next step in finding the moral way out of the current situation of scientists conducting research is the question of the ability to take responsibility for applying the results of scientific discoveries.

There is also no consensus among scientists in resolving this issue. Some practitioners (85%) have indicated that they are ready to take responsibility for their research and discoveries, but another part (15%) are ready to take responsibility with some reservations. The fact is that they do not know the possible goals of the subsequent use of the results of their scientific achievements (discoveries), since there are the cases when the main decision on the application of their discovery in practice is made

by completely different people who directly work on a special order and cannot guarantee only the positive use of research results. As an example, there are heated discussions on the topic of animal and human cloning. So, on the one hand, cloning is good and beneficial for people, because it is associated with the special cultivation of those structures and parts of the physical body that are missing or do not function in the human body due to injuries or severe damage to the disease. However, on the other hand, cloning can turn into "evil", provided that its results are used to cultivate, for example, "second-class" people, human robots, human slaves, etc. In this case, cloning would be a moral drama and tragedy for humanity of the planet.

CONCLUSIONS.

Thus, after studying the relationship between science and morality, we can conclude the following:

1) Morality penetrates into scientific knowledge only when there are two or more subjects of knowledge and when a situation arises that satisfies their needs or prevents threats against them.
2) Moral dimension of scientific knowledge suggests that science does not exist in some pure, abstract, spiritual "images", it functions as a very concrete, human phenomenon and concerns the interests and needs of all mankind of our planet. One's own scientific knowledge does not bear the moral load directly and directly, does not immediately go through the prism of the moral categories of good and evil. However, in the process of its implementation and practical application, scientific knowledge can turn into super-powerful nuclear weapons, a nuclear submarine, a supercomputer, a laser installation, special finest and invisible mechanisms for total impact on the psyche of people or to influence the genetic apparatus of the human body.

In addition, our system-methodological analysis of the moral dimension of modern science suggests that science, which is organically connected with humanistic morality, is a great blessing for all people living on our planet, while science is indifferent to the consequences of its actions, undoubtedly, it turns into destruction, death, suffering, a break for humanity.

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DATA OF THE AUTHORS.

1. **Svetlana N. Semenkova.** Federal State Budgetary Educational Institution of Higher Education «Northern Trans-Ural State Agricultural University», 7, Respubliki St., Tyumen, 625003. Email: semenkova.svet@yandex.ru

2. **Vyacheslav I. Taburkin.** Doctor in Philosophy. Federal State Budgetary Educational Institution of Higher Education «Northern Trans-Ural State Agricultural University», 7, Respubliki St., Tyumen, 625003. Email: bio-farm24@yandex.ru
3. **Marina V. Doronina,** Federal State Budgetary Educational Institution of Higher Education «Northern Trans-Ural State Agricultural University», 7, Respubliki St., Tyumen, 625003.
4. **Yana V. Kryucheva,** Federal State Budgetary Educational Institution of Higher Education «Industrial University of Tyumen», 38, Volodarskogo St., Tyumen, 625000. Email: yanakryucheva@mail.ru
5. **Nataliya P. Gavrilyuk,** Federal State Budgetary Educational Institution of Higher Education «Industrial University of Tyumen», 38, Volodarskogo St., Tyumen, 625000. Email: gnatalia0405@gmail.com

RECIBIDO: 23 de marzo del 2019. **APROBADO:** 9 de abril del 2019.