

## **HPEPA 2019**

### **Humanistic Practice in Education in a Postmodern Age 2019**

# **FEATURES OF THE PROFESSIONAL LIFE OF THE MODERN SCIENTIFIC COMMUNITY**

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### *Abstract*

Each scientific community is characterized, first of all, by the presence of scientific schools. The main features and essential characteristics of the scientific school are:- the presence of a leader, founder of a scientific school that has been developing “teaching creativity” for many years and carrying out “reproducibility” of the scientific community;- the presence of the author's research program, which carries out scientific work, as well as the formation of the scientific community and the education of like-minded people;- intensive (formal and informal) communication between the plans of the scientific team, the formation on this basis of a special style of interpersonal relations, norms and standards of scientific research. This article is a review of the accumulated material (including the opinions of famous people in the world) about the professional life of scientists. It highlights current issues of cognition of the research method as an important aspect of the culture of thinking of the scientific community. The conditions for successful development of the relationship of the supervisor and the applicant's degree are analyzed. Considerable attention is paid to the problem of expectation and attention in the process of scientific research.

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**Keywords:** Culture, thinking, method, research, scientific school.



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## 1. Introduction

The presented material reveals two main points. The first concerns the consideration of the research method as an important aspect of the culture of thinking of the scientific community. Thus, in the course of studying this provision, an algorithm for determining two main questions in a scientific study is shown. They relate to the study of the problem field, which includes the relevance and degree of research.

The problem is a kind of signal about the presence of gaps (lack of knowledge) in the existing information databases. The problem field is defined by three so-called "reference points" that form the problem triangle (Bayanova, Nefedova, & Lutfullin, 2016). And the stronger the reference points are, the more significant the problem is, the more it attracts interest.

Another aspect that requires attention and scrutiny is the identification of problematic causes and the construction of hypotheses in scientific research. Also, in the first position the issues devoted to the style and method of scientific thinking are considered.

The second provision of this material presents the ethics of the relationship of the supervisor and the applicant degree from the standpoint of professional life. In particular, the categorical apparatus was studied according to the theory of this question. The practice of relationships in the field of science is considered. The ethical code of the scientist is proposed.

## 2. Problem Statement

Working for the benefit of society and the state, facilitating the formation of new scientific generations, scientists and researchers of various scientific groups on a competitive basis, provide the economic basis of their activities, including and through the mechanism of state and commercial procurement. This made it possible to accumulate the experience of joint scientific research that brought together several generations of scientists and various scientific schools. An example of such an activity is the center of scientific cooperation "The Light of Science", established and functioning since 2011 on the basis of the Human Resource Development and Youth Support Fund "Personnel Reserve" (Bayanova, Nefedova, & Lutfullin, 2016, p. 13).

The results of scientific research of this interregional scientific group (both from a geographical point of view, and on the subject of research, and numerically) made it possible to draw certain conclusions in the field of professional activity of the modern scientific community.

## 3. Research Questions

Global achievements in economic theory and practice are determined by the skills and abilities of the realization of positive experience accumulated by previous generations. Modern world and domestic experience demonstrate the inextricable link between the stable development of the economy and the ability to actively incorporate the results of research and development research into practical activity. At the same time, the question arises of a methodical and methodological support for the transfer of existing knowledge, and most importantly, the formation of scientific communities of a new formation that meet modern requirements.

#### 4. Purpose of the Study

In the course of the study it was planned to study the professional activity of the modern scientific community and identify its features. In this regard, it is required:

- first, to study the research method as the main aspect of the culture of thinking in the course of scientific research. Learn to identify major issues in scientific research; determine the causes and be able to build hypotheses. And also to consider issues on the style and method of scientific thinking.

- secondly, to study the ethics of the relationship of the supervisor and the applicant degree from the standpoint of professional life, including categorical apparatus on the theory of the issue. And also to consider the practice of relationships in the field of science and to identify the main aspects of the ethical code of the scientist.

#### 5. Research Methods

We used quantitative and qualitative research methods using historical, logical and monographic approaches, the FAST method and COPS analysis (Lutfullin, 2016, p. 9).

In the first part of this article we will consider the research method as the main aspect of the culture of thinking in the course of scientific research.

At one time, A. Kuprin wrote that there are “three proud vocations of man - science, art and free physical labor (the majority of other professions are based solely on distrust of human honesty and, thus, serve human vices)” (Popov, 2015, p. 21).

Popov claimed that science is a field of research activity aimed at producing new knowledge about nature, society and thinking, and includes all the conditions and aspects of this production: “scientists with their knowledge and abilities, qualifications and experience, with the division and cooperation of scientific work; scientific institutions, energy and laboratory equipment; research methods; conceptual and categorical apparatus, as well as the entire amount of cash knowledge”(Popov, 2015, p. 22).

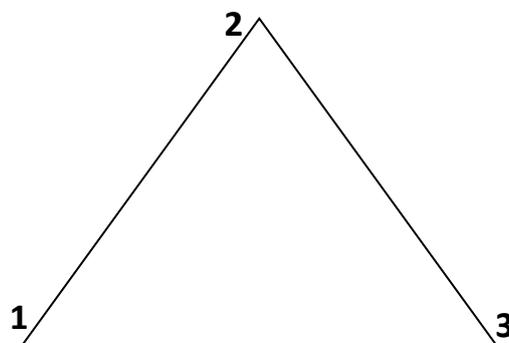
The science is learning new things. They say that the scientist plants an apple tree, but others tear the apples. Let us cite other statements about science and people who give themselves to it - “hydra”, which takes from a person, if not all, then much:

- The air of science is the facts.
- There is nothing more practical than a good theory.
- Science is organized knowledge, fertilized by original thought.
- Science is located where they learn from each other, and not where they lead.
- In order not to invent the bike, you need to be aware of all the events in the chosen field of scientific activity.
- Science is always wrong. She never answers a question without setting hundreds of new ones.
- It is necessary to know not much, but to know what is necessary.
- A theory is recognized only when it is needed.
- The most significant thing in the world is a new thought (information that allows us to improve the world).
- You need to love science in yourself, and yourself in science.
- The very way of researching truth must be true.

“The end of the 20th and the beginning of the 21st century is the frontier of the spiritual fall of humanity, followed by a catastrophe ... At all times, scientists (politicians only at the current time) have led humanity” (Plykin, 1997, pp. 17-22). From the standpoint of the noted, we consider the "method" of research as an important aspect of the culture of thinking of the scientific community.

In the course of any scientific research, two main questions should be identified. They relate to the study of the problem field, which includes the relevance and degree of research. These questions are: “What problem do you solve?” and “What do you protect?” The second question may have another sound related to the clarification of scientific novelty (Shulmin & Lutfullin, 2019, p. 13). Without answering these questions, a dissertation cannot be defended.

The problem is a kind of signal about the presence of gaps (lack of knowledge) in the existing information databases. The problem field is defined by three so-called "reference points" that form the problem triangle. (Figure 01).



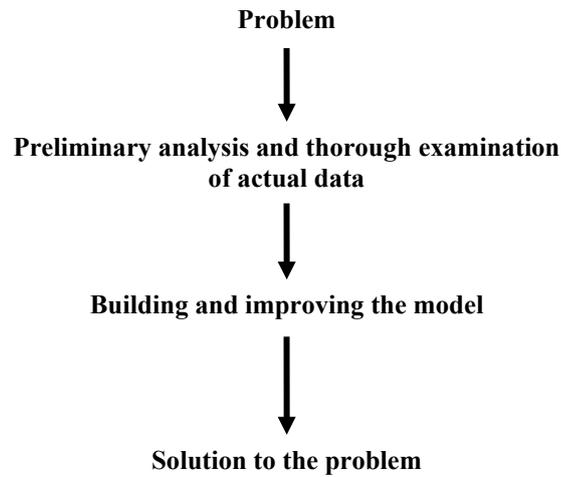
**Figure 01.**The concept of the problem

The scale of the problem is determined by the size of the triangle. Without the presence of point “3” it simply does not exist (there is only relevance - a task that can be solved by collecting the necessary information and making some efforts for this). Conversely, the more points 1, 2 and 3 are divorced, the more significant the problem under consideration.

The formulation of the problem is not a simple matter. Evlanov (1984) rightly writes about verifying the truth or falsity of the formulation of the problem (p. 31). He is talking about contrived problems or problems that are not related to the competence of the governing body. "Solving such problems distracts resources." It can also be about “determining the novelty of a problem situation” (p. 35).

By “problem” a lack, the need to improve something is understood. Its resolution is associated with the construction of the model (Figure 02). A model is understood as a formalized representation of a processor of some object, linking, on the one hand, the initial state of the object and the external influence on it, on the other hand, its reaction - changing its state.

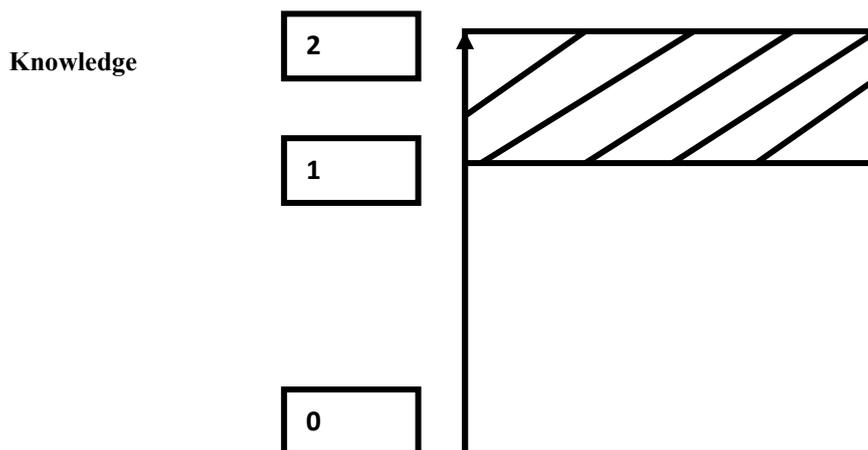
Verification of problem solving is carried out in the process of experimental work. The economic experiment aims to test the hypothesis and proposed recommendations in the field of socio-economic systems management, as well as the theory of the process under study (Popov, 2015, p. 23).



**Figure 02.** Solving a problem by building a model

Scientific novelty is the second (after the formulation of the problem) important question of any scientific research, the final goal of which is to defend a thesis (Figure 03). Novelty is that what is unknown or, otherwise, incremental knowledge. And in this regard, it has no geographical boundaries (it is not a republic, a region; novelty is a universal concept).

In a work clear answers on the merits of novelty are important (the location of the points "1" and "2" on the scale of knowledge). In the second chapter, following the first (problem), we are talking about the first point, and in the third chapter – the second point.



**Figure 03.** Concept of scientific novelty: 1 - well-known knowledge, 1 - 2 - knowledge gain

It should be pointed out that in any study there is a lot of transference that is usually excluded from the final result when it comes to the way the results are presented. Then we will talk about the "transversal" (and above all - identifying the causes of the problem and building hypotheses of the study).

The next aspect that requires attention and close study is the identification of problematic causes and the construction of hypotheses in scientific research (Lutfullin, 2018a).

The algorithm of any research is as follows: having a problem - finding out its causes - developing a hypothesis - finding ways to solve the problem. The latter means the appearance of scientific novelty (defended positions in the thesis).

Causes - this is the same diagnosis that the doctor puts in during a patient's examination. It is very bad if the diagnosis is not correct. Treatment, in accordance with it, only worsens the condition of a sick person.

In science, really it is not about the version, but about the hypothesis. The term is understood as a preliminary assumption about the problem under study (and a concept is a more reasonable assumption, which can then become a theory).

There may be several hypotheses. We emphasize again: the hypothesis is not yet a theory. Niels Bohr at one time offered to apply it to the "insane" assumptions. Speech, for example, can go about a hypothesis of a poltergeist origin, connected with souls of the dead. Once it was written: "It is assumed that at the time of death some energy substance leaves the physical body of a person and begins an independent existence in near-Earth space" (Lutfullin, 2018b, p. 34).

Next, consider the influence of style and method of scientific thinking in the study. As Khadzharov rightly notes, the scientific picture of nature, the philosophical principles and the type of scientific reality form the three fundamental components of scientific knowledge. In unity, they form the structure and content of the style of scientific thinking (as cited in Popov 2015, p. 23). "The style of scientific thinking, being a culture of thinking of the scientific community, captures the specific features of the historical era and, taking into account these features, organizes the cognitive activity of scientists within a specific historical period. The style of thinking serves as a prerequisite and basis for scientific knowledge and, as such, provides continuity between theories of different generations" (Popov, 2015, p. 24).

Thinking is mastered on the basis of systemic education (for this, strictly speaking, post-graduate or doctoral studies are needed). Under this, thinking should be understood as strictly deterministic, operational, algorithmized, formalized operations with ideas.

Thinking - in connection with the above - can be considered a factor in social progress.

Thinking is divided into private-scientific and universal (dialectical).

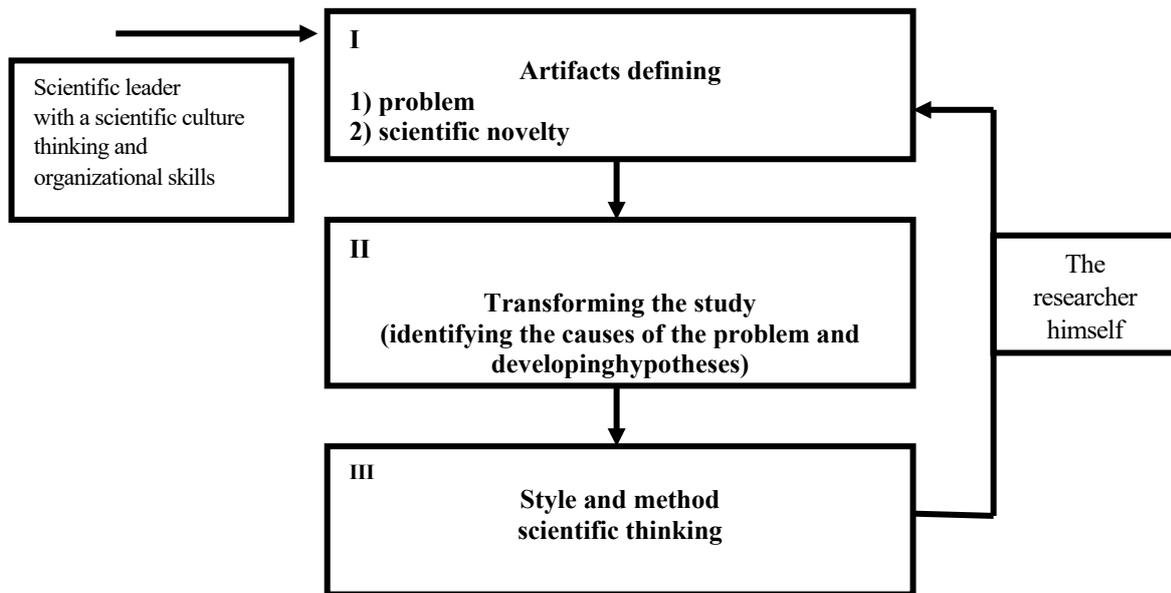
In this connection, we refer to the opinion of Descartes. The central problem of science, in his opinion, is the problem of method. And the first rule in its solution is to keep order in thinking, moving from things less complex to more difficult, from proven to unproven. It is also necessary to review the field of research, not forgetting about the algorithm and style of your thinking.

The culture of thinking is determined using the FAST method, developed once in the USA. Its essence lies in the construction of the diagram, in appearance resembling a network graph. It begins with a problem that needs to be solved. Then - when answering the question - how? (check - why?) - and the construction of this schedule.

In Figure 04 we have shown the above mentioned levels of culture of scientific thinking. Their interrelation in the process of dissertation research is also shown (taking into account the presence of a supervisor).

As you know, the word "method" in translation from Greek means a certain path, a study (in theory, in teaching) (Popov, 2015). This is a peculiar way to achieve any goal, a specific task. The same method is considered as a set of techniques or operations of practical or theoretical development (cognition) of reality.

In other words, the research method is an important aspect of the culture of scientific thinking. Firstly, this is the actual research method (in accordance with the algorithm described earlier) and, secondly, the method of presenting the research results (style). The latter is necessary when a scientist faces the task of bringing them to the attention of other scientists. In this case, the presentation begins with the completion of the study, that is, in reverse order.



**Figure 04.** Culture levels of scientific thinking (I, II, III) and their interrelation in the process of dissertation research

And in this regard, the language of the scientist is abstract. Thinking can be abstract. But this, according to Ilyenkov (1984), is not dignity. Science is not only a system of terms, but also a reflection of real facts understood in their connection. "Science grows out of facts and through facts it makes sense, meaning, content ..." (p. 13).

However, another thing is also important: science reveals a being, stable features, abstracting from the concrete. If the form of manifestation and the essence of phenomena coincided, then any science would be superfluous. It is from these positions that the work of scientists and their role in the development of society (civilization) should be evaluated.

It should be noted that economic theories, widely used both by academic science and the business community, are a definite description system made from a certain position and based on certain facts of economic reality. These descriptions take their basis in economic practice, in which economic entities operating there from their point of view also reflect on economic reality and look for practical ways to interact with it. Ways of comprehension of this reality by them should correspond to their practice, including the position with which reality is considered, should correspond to the position taken by the economic subject in his real practice, so that the type

and logic of mental activity coincide with the type and logic of economic management. Descriptions of practical activities in the categories of economic practice most accurately reflect this practice and have a high degree of reliability within this practice. Separate isolated descriptions of divided practices do not allow a unified description of the system of economic interactions as a whole. The economic system is not the subject of activity of any of the economic entities, and therefore cannot be rationally described by them. But for the organization of normal interaction with each other, as well as for understanding this interaction, economic actors should have a space of “language” in which and with the help of which they could consistently interact with each other and have the possibility of understanding this joint practice (Lutfullin & Ganieva, 2016).

The space of this economic “language” is formed as a subspace of human culture in it, using the space of culture for broadcasting and fixing the concepts developed. These concepts and rules of social “thinking” are also practically significant by virtue of their reliability, since they correspond to the rules of communication between economic entities in the real economic space. And in these objective mental forms, presented as forms of culture, each economic subject reflects its own life, comparing its own practice and the system of descriptions developed on its basis with a wider class of social practice with which the economic subject interacts to one degree or another.

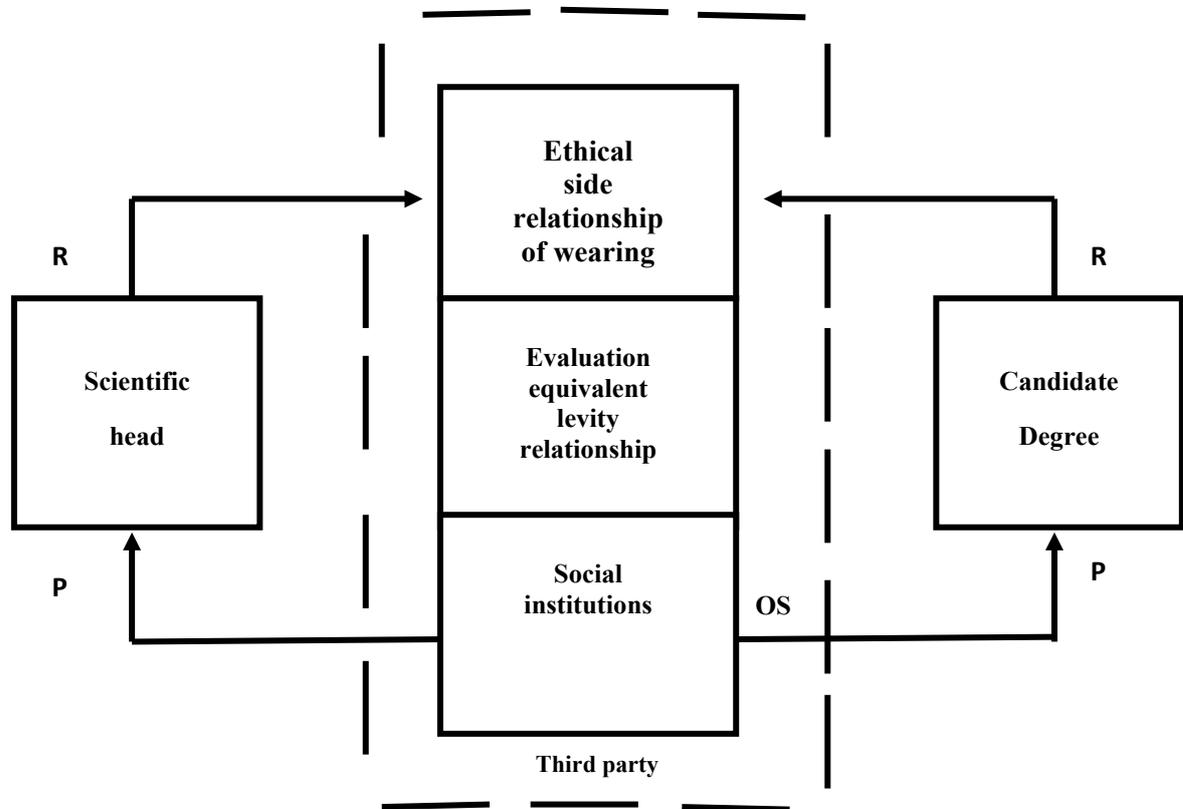
Economic science acts, like linguistics, as the sphere of human activity that explores the practice and rules of this particular language and “teaches” the knowledge gained to economic subjects. But science is also created by people who have their own point of view on the reality under consideration. Some researchers consider economic reality as objective, independent of the will of people and determined by the objective laws that are formed, for example, by the level of development of the means of production. And this is true, since such a relationship, of course, exists. Other researchers consider economic reality as a system shaped by the will and desire of people. By adopting a similar position, they describe it in terms of human desires. And this is also true, since there is a similar connection between the desires of people and the facts of the economy. Third, in an effort to reconcile these two extreme positions, they regard man as the active beginning of the economy, but like other, “objective” factors of production, a feature of which is a special type of activity, the latter also include desires, thereby receiving the status of objective factors. Such a description also reflects the facts of economic reality.

In accordance with the formulation of the problem in the second part of the article, we consider the ethics of the relationship of the supervisor and the applicant of a scientific degree from the standpoint of professional life. It is worth noting immediately that these relationships can be very different. They generally may not be (not all scientists have undergraduates, graduate students and doctoral students). However, this situation is most likely an exception to the rule, since real scientists have their own schools, whose livelihoods are determined by both the number of applicants and their qualitative composition.

We emphasize that science is a certain way of life of those who deal with it. And here it is not only the problem that is being developed that is important, but also various ethical issues, including in the sphere of relations between the supervisor and the applicant of a scientific degree. Focusing this question, you can point out that in the process of defending a thesis, the supervisor reads a review of the results of his student’s work, in which we are talking about his characterization from the standpoint of personal qualities.

In the course of the presentation of the question of ethics of the relationship of the supervisor and the applicant's degree, we consider the categorical apparatus on the theory of this issue. Note that ethics is a science, the object of study of which is morality and ethics. In principle, these are different things.

Underlining this, some experts note: the higher the moral, the lower the moral. The latter is the norm of human behavior, and the first is a form of social consciousness.



**Figure 05.** Equivalence of relationships: P - reflection, P - law, OS - feedback

Accordingly, two forms of ethics should be distinguished. One - normative ethics - determines how a person should act in certain situations. The other, positive ethics, defines the ideal model of people's relations, studies the origin of morality, etc.

Ethics defines the threefold nature of relationships. In other words, in the relationship between two people there is a certain "third person" hidden from the first two. As economists emphasize, such an approach to the issue at hand explains many paradoxes in life.

We will explain. The third side is generated by consciousness. And above all - reflection (reflection). Any person, as experts rightly point out, is with himself in the relationship of reflection, which closes on the ethical side of the relationship (Figure 05). This, above all, is about the acquired ability of a person to concentrate on himself and master himself as an object in order to assess the equivalence of relations with another person.

Due to reflection, a "third person" is formed, which is either the personification of customs and mores (this is ethics) and legal norms. In the latter case, it is legitimate to talk about social institutions, an example of which is the postgraduate or doctoral high school (NII). It is legitimate to speak also of the so-called "transaction costs", accompanied by any exchange (evaluation of its equivalence). They also determine the costs of maintaining these - social - institutions.

Next, consider the practice of relationships in the field of science. This question is examined by us from the point of view of the above with regard to the ethics of the “third person”, which determines the equivalent exchange. To this end, we highlighted the following three points.

The first: The most terrible struggle is the struggle of ideas. In accordance with this, we clarify the position of the “third person” on the essence of science:

- Who wants to understand the scientist, must enter into his area of life;
- In order to achieve something a student needs to be in the field of the teacher’s ideas.

Second: Talents need help, mediocrity will break through themselves. In other words:

- If a young scientist starts his activity by complaining about his colleagues, then this means that he is already tired and not suitable for business;
- He who does not think in his own way does not think at all;

A scientist means that they have learned a lot, but this does not mean that they have taught something.

Third: To respect a person, you need a good reason. And above all, these words are dedicated to those who are engaged in science:

And at the end of the issue of ethical relationships of the supervisor and the applicant of a scientific degree, we present the ethical code of the scientist. This is a kind of relationship rules in the "three-fold" coordinate system.

The first rule is associated with “freedom” defined by a “third party”:

- Freedom is the creativity of the new, in the world that hitherto did not exist;
  - Creativity is liberation from slavery;
- Freedom means responsibility. That is why many are afraid of it;
- What is freedom? Clear conscience;
  - To be free, you need to be able to be fair.

The second rule is debt (we associate it with the reflection of the supervisor):

- There is no other greatness than the greatness of the fulfilled duty;
  - A life not covered by a sense of duty would have, in essence, no value;
- Our duty is the right that others have on us;
- Try to fulfill your debts and immediately find out that you are standing.

The third rule of the “ethical code of the scientist” is gratitude (reflection of the applicant of a scientific degree):

- Gratitude is a debt that must be paid, but which no one has the right to expect;
- Stronger than the law - a sense of gratitude;
- A person who is waiting for gratitude is worse than a creditor: he makes a gift first, brags them, and then sends the bill;
- It is not worth thanks for what you paid.

It should be noted that if we consider a single subject (applicant) from the point of view of moral forms of human existence, then in this case the subject in the fullness of his definitions must compare himself with himself, but different. Such a duality of the economic subject is its distinction in time.

Therefore, the “moral” problem of man is a problem of relating his current existence to his future existence. This problem appears in the economy as a problem of comparing goods and resources over time.

Conscious activity aimed at transforming the system of resources, based on the equally conscious determination of the future existence, highlights the person. The fact that he created the means of labor is an external and substantive manifestation of this circumstance.

Economic decisions therefore always represent decisions about the transformation of the resource system. In this sense, even decisions on the production of consumer goods are decisions on the transformation of the resources of individual human life, on the creation of consumer goods (resources of human existence) that are not found in nature.

If you define strategic decisions as decisions to change the system of resources, then strategic decisions are decisions made by economic actors all the time. This fact often goes unnoticed, because reflection does not always occur, because resources are a system concept and it is not always that an economic entity realizes that the production of consumer goods by it changes the system of society’s resources, changes the living conditions of people and that the cessation of the production of consumer goods means the termination of many people thereby deprived of their livelihood (resources).

## **6. Findings**

Based on the above, we can conclude that the important factors of the professional activity of the modern scientific community are: firstly, the research method as the main aspect of the culture of thinking in the course of scientific research; secondly, the ethics of the relationship of the supervisor and the applicant degree. It is these factors that influence the formation of scientific communities of a new formation that meet modern requirements.

## **7. Conclusion**

As you know, science cannot move forward without fundamental assumptions. It is thanks to it that it can be stated that reality is cognizable and rationally ordered. The basis of scientific activity are thought processes, the nutrient medium of which is the sapiential feeling of the individual (in other words, a rational being).

Continuing to think about the features of professional activity of the modern scientific community and modern mechanisms for the formation of scientific communities, we touch upon the logical question: “Where can we get these educated energetic people interested in developing themselves and society through the implementation of various projects and programs?” Something like this was asked in Kazakhstan in 2013 at the International Scientific and Practical Conference "Modern Science: Problems and Key Landmarks". It seems that the answer is trivially simple: “Grow yourself. To attract the interest of students and undergraduates to participate in projects and grants, conferences and forums, to embody the results of their scientific research in the defense of Ph.D. and doctoral theses, starting from the school bench to all sorts of Olympiads and competitions. In short, to accustom to the global way of thinking and cognition (Lutfullin, 2016).

A huge role in the implementation of this problem has a scientific school, in which the creative activity is carried out. Especially when it comes to applying for a degree. In this case, the scientist goes to another level of behavior in the field of scientific work.

In conclusion, we note that a scientific school is a way and a form of organizing creative activity that implements the process of cognition, the transfer of accumulated knowledge and the formation of a culture of a goal-rational personality.

Professional life activity of the modern scientific community is seen not only in the representation of a wide range of views for the sake of diversity as such, but also in the concepts of truth that have always been obvious to most people. This is a kind of bridge between modern thought and the desire to translate it into reality. It is thanks to the school that sapient feelings develop in the creative personality, contributing to greater efficiency of scientific work.

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