The European Proceedings of
Social & Behavioural Sciences
EpSBS

ISSN: 2357-1330

https://doi.org/10.15405/epsbs.2019.12.2

19th PCSF 2019
Professional Culture of the Specialist of the Future

CONVERGENCE OF SCIENCE AND HUMANITIES IN THE HIGHER EDUCATION OF THE FUTURE

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Abstract

The purpose of the article is to consider the relationship between scientists and humanitarians and to argue that only convergence of science and humanities is the way to the higher education of the future. The specialists of the future with understanding of a man as the main obstacle to the functioning of technical systems and to the total digitalization of socio-cultural space will inevitably turn to the agents for the affairs of high technology without man, but not in the creators of high technology for the developing and improving socio-cultural human existence. And humanitarians ignorant in scientific and technological problems will not be able to do anything. So a new view on the scientific and humanitarian basis of professional training is a necessary condition for changing the motivation of the study of humanities by non-humanitarians and scientific and technical disciplines by humanitarians. To determine a new approach to the scientific and humanitarian basis of professional training the author considers such questions as: What and why should scientists and humanitarians know about themselves and about each other, so that the solution of urgent scientific, technical and humanitarian problems does not deprive humanity of the future? Higher education of the future should satisfy the public need for specialists who have not only the highest qualification in a certain field of knowledge and practice, but also the understanding that the tasks facing him must be solved on the basis of the unity of scientific, technical and humanitarian aspects.

Keywords: Science, humanities, higher education, professional training.

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Selection and peer-review under responsibility of the Organizing Committee of the conference
eISSN: 2357-1330

1. Introduction

Ever since Snow (1971) gave his famous lecture on the two cultures, little has changed in the relationship between scientists and humanitarians. The idea of mutual alienation of scientists and humanitarians as based solely on individual tastes and preferences continues to be one of the main stereotypes of public consciousness in understanding the relationship between scientific and humanitarian knowledge. The logic of common sense is very simple: scientists and humanitarians cannot understand each other for the same reasons as lovers of dogs and cats. Just as cat lovers do not have dogs, and dog lovers do not keep cats in the house, those who like to do something with their hands go to scientists and engineers, and those who prefer to talk become humanitarians. Since certain preferences appear early enough, the division of students into future scientists who prefer experiments and formulas and future humanitarians who prefer talks about life and poetic images begins in high school and continues in universities.

Of course, scientists and humanitarians themselves express their understanding of the differences between them in the language of specialized forms of knowledge, but the ordinary essence of their ideas remains unchanged. Despite the fact that the need for humanitarian training of future scientists or IT-specialists is not disputed by anyone (Fomina, 2007; Kirsanova, 2017) the very content of this training is reduced to introductory courses in some humanitarian disciplines. For many representatives of higher education familiarity with classical and modern art is considered a necessary and sufficient sign of humanitarian education (YUdina, 2017; Zakarashvili, 2019).

As for the scientific, technical or economic training of humanitarians, even the formulation of this question does not arouse enthusiasm among representatives of both humanitarians and scientists. Humanitarians believe that scientific training is not related to the formation of the value content of the individual culture, whereas representatives of science and technology believe that humanitarians by nature are not capable of perceiving scientific and technical knowledge. Both parents and teachers consider the propensity for humanities as a sufficient reason to reduce the level of scientific and technical training from high school. At the same time, public opinion and the professional community are quite lenient to the lack of scientific and technical erudition among humanitarian-oriented students and are very intolerant of the humanitarian ignorance of all those who are keen on scientific disciplines or modern information technologies.

The result of such trends in education is the increasing ignorance of humanitarians in the matters related to the laws of nature, science and IT- technologies, on the one hand, and the firm intention of scientists and IT-specialists to eliminate humanitarian “conversations” from their professional activities – on the other.

2. Problem Statement

It is obvious that the specialists of the future with consideration of a man as the main obstacle to the functioning of technical systems and to the total digitalization of socio-cultural space and with a strong desire to the maximum possible elimination of man from all spheres of public life will inevitably turn to the agents for the affairs of high technology without man, but not in the creators of high technology for the

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developing and improving socio-cultural human existence. And humanitarians ignorant in scientific and technological problems will not be able to do anything.

So a new approach to the scientific and humanitarian basis of professional training is a necessary condition for changing the motivation of the study of humanities by non-humanitarians and scientific and technical disciplines by humanitarians.

3. Research Questions

To determine a new approach to the scientific and humanitarian basis of professional training we ought to consider such questions as: What prevents scientists and humanitarians from understanding each other? How should the interaction of scientific and humanitarian aspects of higher education be carried out, so that the result of the interaction has an impact on the training of specialists? What makes a scientist really educated in humanities? What distinguishes well-reading and aesthetic taste from humanitarian education and what distinguishes a humanitarian from a highly talented, but deeply ignorant artist? What and why should scientists and humanitarians know about themselves and about each other, so that the solution of urgent scientific, technical and humanitarian problems does not deprive humanity of the future?

4. Purpose of the Study

The purpose of the study is to consider the relationship between scientists and humanitarians and to argue that only convergence of science and humanities is the way to the higher education of the future.

5. Research Methods

The research is based on the modern concept of science and humanities as different forms of knowledge. In the process of studying a new approach to the scientific and humanitarian basis of professional training for changing the motivation of the study of humanities by non-humanitarians and scientific and technical disciplines by humanitarians pedagogical experience and the methods of content and logical analysis, interpretation, comparison, generalization and theoretical deduction were used.

6. Findings

6.1. Humanitarian education of scientists

It should be recognized that one of the main obstacles to the formation of scientists and IT-specialists educated in humanities is the one-sidedness of the ideas about the essence of culture and the formation of a humanitarian-educated person widespread in the humanitarian knowledge itself.

The explicit or implicit identification of culture with art (Adorno, 1966) and humanitarian education with knowledge of history and modern trends in the development of art has led to the fact that representatives of all specialties not related to art began to consider humanitarian education (and even culture as a whole) as an optional, but desirable addition to their own professional activities. Since it is obvious that the knowledge or ignorance of classical or modern art does not affect the success of the professional activities of doctors, lawyers, scientists or IT-specialists, humanitarian education of students

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of scientific and technical specialties turns into a set of special courses, excursions to museums, visits to theaters and so on, expanding horizons, but not affecting understanding of the essence of humanitarian knowledge.

Meanwhile, the real purpose of humanitarization of education of specialists of the future should be the destruction of the professional worldview intention of scientists and engineers to reduce all ideal phenomena to a set of material (physical, chemical or biological) interactions. It means that the main task of humanitarian education of future scientists and engineers is not to acquaint students with the history and the latest works of art, but to explain the fundamental difference between man as a subject of socio-cultural activities from all the other living beings and all the possible technical systems (Cygulyova & Fyodorova, 2016; Trufanova, 2017; Mizuta, 2015).

There is a deep sense in the fact that defense of nature and the defense of culture coincide with each other forming a single truly global problem of human activity – the problem of the sense-based foundations of human existence. At the time when the practical achievement of goals leads to results that are incompatible with the preservation of the natural and social environment, mankind is forced to turn to the analysis of the ultimate objectives and meanings of their own life. Not the ignorance of disastrous consequences of the destruction of the habitat of mankind, but the lack of spiritual motivation leads to the destructive activity even when the catastrophic consequences of it for the very existence of the human race are not only understood, but have been already experienced in all regions of the world.

People are capable to experience changes in the surrounding world as a crisis, only when these changes invade the sphere of the meanings of their being and directly affect their spiritual world. Only in this world there are “rivers of childhood”, “favorite places” and “familiar paths”, and other precious memories and impressions that fill the human soul and turn impersonal phenomena of nature and society, such as energetically powerful and economically profitable objects, into the spiritualized world of human life.

The solution of purely technical issues of rational nature management and the simultaneous preservation of the inviolability of the living connection between man and the natural world requires the formation of a worldview in which the death of nature is recognized as the deepest crisis of the spiritual development of mankind (Koval'chuk, & Narajkin, 2016; Smirnova, & Balycheva, 2016).

From the point view of the objective flow of existence the death of not only any species of animals and plants, but even of the Earth itself and of humanity living on it cannot be considered as a crisis or a catastrophe. On the contrary, this death is inevitable, and human activity can only accelerate it, which does not contradict the objective laws of cosmogenesis.

But the destruction of nature contradicts the life of human spirit.

Spiritual life is incompatible with the destruction of nature and culture not because of the human spirit is able to realize the protection of cultural monuments or animal species as a goal comparable to itself in scale and significance. Spiritual activity is anthropocentric and cannot be any other in principle, since humanity has the highest importance only for itself, and only realizing its own importance mankind is able to realize the importance of the world around it. But having included nature in the sphere of its vital meanings, the thinking human spirit is no longer able to justify the possibility of its destruction by any reasonable arguments.

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Anthropocentrism is impossible to deny and impossible to get rid of. Awareness of not only the uniqueness, but also the insignificance of human existence in the Universe forces humanity to be anthropocentric. The unconsciousness of the principal anthropocentricity of spiritual activity inevitably leads to the loss of the inner connection between natural and spiritual processes, to the solution of environmental problems by meaningless means and, ultimately, to the loss of even the instinct of self-preservation (Fishman, 2011).

The very fact of destruction of the natural and socio-cultural environment is irrefutable evidence of spiritual degradation or rudimentary development of the spiritual world, and the solution, even in the near future, of the problem of biological survival of mankind does not guarantee us the preservation of the spiritual space of our life (Gorlinskij, 2015; Manojlo, 2016).

Humanitarian education helps a person to understand that the reasons for the barbaric destruction of the environment as habitat of mankind are rooted neither in backward or imperfect technology nor in the peculiarities of certain economic structures, but in the deep layers of the spiritual life of mankind; that global problems, technological threats and crises are connected, first of all, with the crisis of sense-making activity and the lack of the value basis of socio-cultural life.

6.2. Scientific and technical knowledge in humanitarian education

Those teachers who point to the inadmissibility and futility of forced schooling for those pupils who have neither the ability nor the desire to study scientific or humanitarian disciplines are right. Early identification of abilities and substantial differentiation of education, even primary, are necessary. The question is, however, whether it is possible at the earliest stages of education to determine the necessary and sufficient conditions and factors for all subsequent development of the child?

In any case, scientific and technical education should be considered as necessary component of higher professional training of humanitarians as humanitarian education – of higher professional training of scientists and IT-specialists (Gorohov, 2018). Answering the question: What exactly do humanitarians acquire by studying modern concepts of natural sciences or philosophical problems of technology? – One can point to the following connections of scientific and humanitarian knowledge.

Humanitarians consider a person as a subject of socio-cultural activity, a carrier of consciousness and will, as a creator of the “second nature”. But the highly developed consciousness of humanitarians themselves cannot be combined with pre-scientific ideas about nature and society. Continuity as the essence of cultural tradition is manifested in the fact that each subsequent generation has the opportunity to take advantage of the fruits of material and spiritual activities of previous generations and, having mastered the knowledge already achieved, to continue the process of cognition of the world and the mankind.

Science, along with mythology, philosophy and religion, contributes to the creation of a picture of the Universe in which the species *Homo sapiens* lives. But unlike mythology, philosophy and religion, science distinguishes in the picture of the world the contour of practically cognizable and really cognized phenomena, thanks to which a person realizes not only his true place in the Universe, but also the real scale of his socio-cultural existence.

There are features of the mental activity and research practice, which are not belonging to science exclusively, but which find in scientific studies their most distinct embodiment. It could be said about such

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features as the observance of the laws of logic, the sequence in analyzing studied objects, systematizing obtained data, arguing in defense of certain ideas, and presentation of the results, etc. Without the acquisition of universal skills of mental activity it is impossible to carry out not only scientific or humanitarian researches, but everyday life as well.

Humanitarians need to study the foundations of modern scientific picture of the world and the history of the development of scientific ideas not only to prevent their being on the primitive level of scientific knowledge, but to overcome some cultural stereotypes and professional misconceptions in their own ideas about the nature of creativity, the essence of science, truth, theoretical knowledge, etc.

The desire of science to justify its exceptional role in the development of knowledge and absolute independence from the socio-cultural context led to the fact that science really began to be perceived by humanitarians as some technology of producing knowledge. A common place of reasoning about science is the assertion that no cultural and historical context can affect the true content of the results of scientific knowledge, that any law of nature can be formulated by anyone, in any language, in any culture, while remaining one and the same law.

Whereas scientists themselves consider the independence of the content of scientific results from socio-cultural determination as an argument in defense of the special objectivity of scientific knowledge, humanitarians emphasizes that any products of spiritual culture, except scientific, have the quality of uniqueness and that only in scientific knowledge the activities of creators of new ideas and theories can be considered as a factor purely random in relation to the objective logic of the development of scientific knowledge, which is formed regardless of who exactly carried out this or that logical step.

Despite the generally accepted criticism of the neo-positivism in the philosophy and methodology of science of the 20th century, humanitarians continue to prove their "scientific status" on the base of just the neo-positivistic ideas that only scientific knowledge is knowledge in the strict sense of the word and that only scientific knowledge can be assigned the status of rational. As a result, humanitarian students are taught to think that any phenomena of socio-cultural life should be investigated by scientific methods of observation and experiment (Chernyakova, 2016).

The study of the prospects for the development of culture in digital reality and the impact of it on the socio-cultural qualities of a person (SHestakova, 2015; Bylieva, Lobatyuk, & Rubtsova, 2018) requires humanitarians to understand both the fundamental features of the development of humanities (Chernyakova, 2013) and modern scientific and technical knowledge. Meanwhile, as studies show even the faculty of managements′ students have very little idea about the essence of science as the form of knowledge and the social institution, although they are going to manage its development (Karateev, 2017). It is obvious that the result of management based on ignorance of the essence of scientific knowledge will be a deepening discrepancy between the institutional forms of organization of science and the real development of scientific and humanitarian research.

The solution of the most urgent problems of society development in digital reality requires joint efforts of many specialists (Roco & Bainbridge, 2004; Koval'chuk, 2011; Kolomeyzev, & Shipunova, 2017) and special skills, the development of which is possible only on the basis of unity of scientific and humanitarian training of specialists of the future.[

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7. Conclusion

Higher education of the future should satisfy the public need for specialists who have not only the highest qualification in a certain field of knowledge and practice, but also the understanding that the tasks facing them must be solved on the basis of the unity of scientific, technical and humanitarian aspects.

The task of the future is to create such high technologies, the use of which would encourage human development. This super-complex task can be solved only by those specialists who realize their belonging not to biological robots of special modification, but to the species *Homo sapiens*, whose socio-cultural qualities fundamentally distinguish its representatives from all other and all possible biological and technical systems.

Specialists of the future will have to recognize the irreducibility of ideal cultural phenomena to material interactions and get rid of erroneous self-identification of scientists as the only carriers of rational knowledge and humanitarians – as scientists.

Studying of humanities in the field of scientific and technical education as well as studying scientific and technical knowledge in the field of humanitarian education should be considered not as unnecessary additional education of students, but as development of those professional competencies of future humanitarians, scientists or IT-specialists, the acquisition of which requires reference to different branches of knowledge.

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