

## Educational and scientific potential: humanitarian challenges of the XX

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Potencial educativo e científico: desafios humanitários do  
século XX

Potencial educativo y científico: desafíos humanitarios del  
siglo XX


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**Abstract:** The article reflects the key problems of humanitarian-scientific discourse characteristic of the modern educational environment. Sociocultural realities dictate new rules and conditions for the development of all spheres of social activity. The educational and scientific sphere is no exception, as a rule, which is rather vulnerable to various types of transformations. Globalization of the current civilizational progress as a strategic constant and a short-term, but significant impact on the values of society associated with the pandemic COVID-19 - had a direct impact on the processes in education and science. At present, the issues of transforming certain attitudes that will allow not to lose the educational-scientific potential, but to continue its development already in the new conditions are actualized. Among the fundamental shifts in the humanitarian sphere of modernity, we note increasing dynamism of educational process and scientific research (linear thinking demonstrates an inability

to respond quickly to changes), the actualization of interdisciplinary discourse (challenges facing society are complex in their essence and to solve them. based on the integration of scientific knowledge), the influence of informatization of education and science on humanitarian and moral standards of these branches (application of new information and computer technologies. The article aims to develop a clear system of methodologically axiological settings in modern humanitarian-scientific discourse. The general scientific methodology was used to achieve the set tasks. Using the method of analysis, the main criteria for the proposed attitudes have been achieved. The philosophical-scientific methods of synergetics and dialectics allow evaluating the results and problem aspects of the implementation of value orientations to the humanitarian discourse of today. Practical elements of the obtained results of the article can be used as methodological recommendations for the working curricula at all educational levels and value components of scientific research. Consequently, dynamism, interdisciplinarity, integration, informatization, and humanization are the attitudes that contribute to the functioning of an effective system of education and science both in the global-civilization dimension and in the national-identity dimension.

**Keywords:** Axiology of science, Educational-scientific perspectives, Humanities and science discourse, Interdisciplinarity, Methodology of education.

**Resumo:** O artigo reflecte os principais problemas do discurso humano-científico característico do ambiente educativo moderno. As realidades socioculturais ditam novas regras e condições para o desenvolvimento de todas as esferas da actividade social. A esfera educacional e científica não é excepção, em regra, que é bastante vulnerável a vários tipos de transformações. A globalização do progresso civilizacional actual como uma constante estratégica e de curto prazo, mas com um impacto significativo nos valores da sociedade associados à pandemia COVID-19 - teve um impacto directo nos processos de educação e ciência. Actualmente, as questões da transformação de certas atitudes que permitirão não perder o potencial educativo-científico, mas continuar o seu desenvolvimento já nas novas condições, são actualizadas. Entre as mudanças fundamentais na esfera humanitária da modernidade notamos: dinamismo crescente do processo educativo e da investigação científica (o pensamento linear demonstra incapacidade de responder rapidamente às mudanças), actualização do discurso interdisciplinar (os desafios que a sociedade enfrenta são complexos na sua essência e para os resolver, baseados na integração do conhecimento científico), influência da informatização da educação e da ciência nos padrões humanitários e morais destes ramos (aplicação das novas tecnologias da informação e da informática. O objectivo do artigo é desenvolver um sistema claro de contextos metodologicamente axiológicos no discurso humanitário-científico moderno. A metodologia científica geral foi utilizada para a realização das tarefas definidas. Através do método de análise, os principais critérios para as atitudes propostas foram alcançados. Os métodos filosófico-científicos de sinergia e dialéctica permitem avaliar os resultados e os aspectos problemáticos da implementação de orientações de valor para o discurso humanitário da actualidade. Os elementos práticos dos resultados obtidos do artigo podem ser utilizados como recomendações metodológicas para os currículos de trabalho em todos os níveis educativos e componentes de valor da investigação científica. Consequentemente, dinamismo, interdisciplinaridade, integração, informatização e humanização são as atitudes que contribuem para o funcionamento de um sistema eficaz de educação e ciência, tanto na dimensão global-civilização como na dimensão nacional-identidade.

**Palavras-chave:** Axiologia da ciência, Interdisciplinaridade, Metodologia da educação, O discurso das humanidades e da ciência, Perspectivas educativas-científicas.

**Resumen:** El artículo refleja los problemas clave del discurso humanitario-científico característico del entorno educativo moderno. Las realidades socioculturales dictan nuevas reglas y condiciones para el desarrollo de todas las esferas de la actividad social. La esfera educativa y científica no es una excepción, por regla general, que es bastante vulnerable a diversos tipos de transformaciones. La globalización del actual progreso civilizatorio como una constante estratégica y un impacto a corto plazo, pero significativo, en los valores de la sociedad asociados a la pandemia COVID-19 - tuvo un impacto directo en los procesos en la educación y la ciencia. En la actualidad,

se actualizan las cuestiones de transformación de ciertas actitudes que permitirán no perder el potencial educativo-científico, sino continuar su desarrollo ya en las nuevas condiciones. Entre los cambios fundamentales en la esfera humanitaria de la modernidad señalamos: el creciente dinamismo del proceso educativo y de la investigación científica (el pensamiento lineal demuestra la incapacidad de responder rápidamente a los cambios), la actualización del discurso interdisciplinario (los desafíos que enfrenta la sociedad son complejos en su esencia y para resolverlos, se basa en la integración del conocimiento científico), la influencia de la informatización de la educación y la ciencia en los estándares humanitarios y morales de estas ramas (aplicación de las nuevas tecnologías de la información y la informática. El objetivo del artículo es desarrollar un sistema claro de ajustes metodológicos en el discurso humanitario-científico moderno. Para lograr las tareas planteadas se utilizó la metodología científica general. Mediante el método de análisis se han conseguido los principales criterios de las actitudes propuestas. Los métodos filosófico-científicos de la sinergia y la dialéctica permiten evaluar los resultados y los aspectos problemáticos de la aplicación de las orientaciones de valores al discurso humanitario de hoy. Los elementos prácticos de los resultados obtenidos en el artículo pueden utilizarse como recomendaciones metodológicas para los programas de trabajo en todos los niveles educativos y los componentes de valor de la investigación científica. En consecuencia, el dinamismo, la interdisciplinariedad, la integración, la informatización y la humanización son las actitudes que contribuyen al funcionamiento de un sistema eficaz de educación y ciencia tanto en la dimensión de la civilización global como en la de la identidad nacional.

**Palabras clave:** Axiología de la ciencia, Discurso de las humanidades y de la ciencia, Interdisciplinariedad, Metodología de la educación, Perspectivas educativo-científicas.

## INTRODUCTION

Education and science have considerable potential in the strategic understanding of the development of civilization. Information and technological advances, the improvement of everyday life, the formation of personal value priorities - such diverse and important aspects of each person's life are a direct and immediate result of scientific innovations and educational categories. The realities of the present make linearity and static social activity almost impossible. Changes condition the dynamism of all processes and phenomena related to both the everyday practical and theoretical dimensions. This is the key contradiction. For centuries, the potential of education and science has followed an established format. Science has always been at the forefront of innovation. At the same time, education provided a balanced advancement with the creation of fundamental worldview bases.

The question of contemporary problems of humanitarian-scientific discourse requires clarity in the strategic vision of their solution. To begin with, let us distinguish between educational and scientific clusters. Let us note that the elaboration of common constants for both of these elements and the implementation of installations separately for each sphere are proposed.

The axiological priorities of further development are more relevant for the scientific space. A powerful scientific potential simultaneously produces equally significant threats. Consequently, the value component becomes an effective regulator of scientific achievements.

The purpose of this study is to identify the problems of humanitarian discourse in modern science and education and to develop a strategy

for the more effective realization of the potential of these spheres of social activity. The humanities cluster needs methodological and axiological support to fulfill its mission in the sociocultural dimension. The development and implementation of the corresponding settings are dictated by the challenges of time, which create certain imbalances in the educational-scientific branch.

## LITERATURE REVIEW

The problem of humanitarian-scientific discourse is quite widely reflected in the source base. Let us note that the constants which are offered as precepts for the educational-scientific potential of the humanitarian component are dynamic and respond to changes in the sociocultural space almost online. Consequently, we use the ideas of scholars of recent years for the relevance of the study.

We find a fundamental understanding of the humanitarian potential in contemporary realities in De Lauri (2020), UN OCHA (2021). Ietto-Gillies (2021), Glaveanu (2020), Pogge (2018), Gaudelli (2021) explore the problems of humanitarianization of education and science in the context of globalization.

The dynamism of the realization of humanitarian potential and the formation of necessary professional components are illuminated by Albert (2018), Iglesias, Cardoso & Gonçalves (2021), Joynes, Rossignoli & Amonoo-Kuofi (2019), Berg et al. (2021).

Moral and moral precepts of humanitarian development in education and science are explored by Anam et al. (2019).

The use of information and computer technologies in the educational process and scientific research is indicated in Balyk et al. (2019), Shpak (2021), Dubrovina et al. (2021).

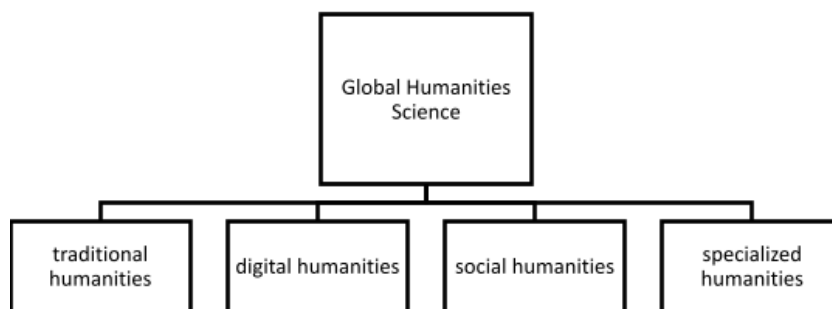
## METHODOLOGY

General and specialized methods of scientific-cognitive activity are relevant for this study. Analysis and synthesis were used for a general understanding of the potential of education and science and the rationale for their development prospects. Through the comparative method analyzed the factors that lead to imbalances in the functioning of the humanitarian, natural, technological and informational components. Dialectical and synergetic philosophical-scientific methods provide an opportunity to study the fundamental categories of education and science by contrasting and combining them.

## RESULTS

Recently, there has been a significant expansion of the list of humanities disciplines. The traditional legal, social, or medical sciences are being supplemented by new relevant humanities elements, among them the

digital, social, and specialized humanities clusters. A new format for the humanities disciplines is provided by a renewed set of scholarly journals, book series, and conferences. As Mintz (2020) accurately noted, humanists are looking for a “new currency” for the humanities market. According to the laws of general development, a framework is forming for a global humanities science (see Figure 1) that will emphasize cross-cultural contacts and synergistic disciplinary connections.



**Figure 1**

A Perspective Model for the Humanities in the XXI Century.

The new classification of the humanities cluster implies a significant renewal of skills and abilities for those who are applicants to this knowledge. So far, the notion of a specialist-humanitarian is a rudiment. The present involves the involvement of methodological elements of exact, technical, and informational elements in the humanities cluster. This leads to the versatility of the scholar or scientist of the humanities.

At the same time, the pedagogue or scholar of the humanities retains that set of methodological guidelines that ensure the consideration of processes and phenomena from the perspective of an anthropocentric worldview.

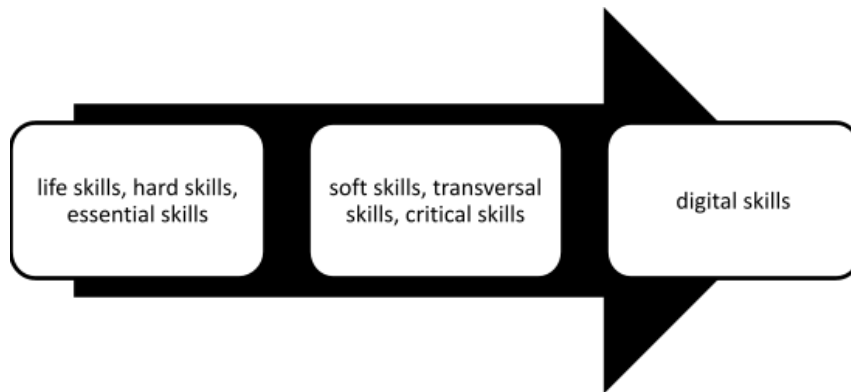
Anthropocentrism in general has long held the role of methodological and axiological regulator of humanitarian processes in all areas of human life and society. However, modern trends in the development of civilization are gradually pushing out the humanitarian-scientific component from the educational cluster, replacing it with technocentrism and transhumanism.

Humanitarian discourse is changing the format of activity. Where once it was said that science ensures the development of human civilization, now there are frequent warnings that science is a threat to the existence of humanity.

A group of researchers (Joynes, Rossignoli, & Amonoo-Kuofi, 2019) highlights the most relevant skills that are effectively synonymous with the skills offered by education in the twenty-first century. Among the most relevant are noted: “life skills,” “soft skills,” “transversal skills,” “critical skills”, and “digital skills.” Previously, the key task of secondary and basic higher education was to provide applicants with “life skills,” “hard skills,” and “essential skills”. Terminology related to the use of information and computer technologies “digital skills”, “ICT skills” or “digital literacy” is gaining weight in the educational cluster, forming



a dominant role in the information and communication support of the educational process (see Figure 2).



**Figure 2**

The direction of skills in the modern educational space

Scholars and academics face the challenge of developing and presenting digital humanities projects (Liu, McKay & Buchanan, 2021). Contradictions arise in both the content dimension and the form of presentation of such elements. The electronic format of traditional public activity involves the transfer of an element of spiritual culture into the format of digital technology. Society has demonstrated a willingness to perceive such a product in the sphere of entertainment or the media. The introduction of digital humanities into the scientific and educational sphere is only at the initial stage, so it is too early to talk about the effectiveness of such a step.

At the same time, we are not even talking about a scientific component, because the skills in question are not a form of scientific cognition but have long since become its content elements. Professional skills were the task for educational programs in a particular specialty. However, the current realities of the educational process indicate the need for the universalization of professional competencies. The dynamism of the processes and phenomena of social development leaves no chance for a balanced and consistent acquisition of skills. Flexibility in providing and receiving the educational product is almost the only effective model of learning relevance.

The format of “learning for learning's sake” is so far useless because it breaks the relationship between knowledge and competence. Such guidance is positive for the humanities-science discourse since it answers questions about the demand for certain clusters of knowledge.

An important aspect of the development of education is a fundamental change in the source base of this sphere. Previously, the main source of educational information was the teacher in various manifestations of this profession, and the main place where knowledge was obtained was the school of various levels. In today's environment of information and technological development, these fundamentals have undergone significant changes. The COVID-19 pandemic has completed a paradigm shift in the educational process of today. Under the new conditions, educational information can be obtained by activating one's own search

and research activity. Moreover, the ability to find and work through educational material independently is included in the list of so-called soft skills, which are valued on a par with basic knowledge.

Consequently, the humanitarian aspect ceases to be something abstract, being a valid element. Naturally, this gives rise to new challenges of humanitarian content and certain configurations of methodological nature.

Such precepts have caused a change of strategy in the issue of providing an educational and methodological arsenal. In particular, there has been a reorientation toward accessibility of educational and scholarly literature. The generalized concept of “e-book” embodies all types of electronic educational materials available on the Internet-environment and on information-technological media. Electronic text (Shpak, 2021) has been given a specific purpose in the educational process. Such informatization changes the accessibility and perception of education in general.

Informatization is also important for scientific life because it removes its remoteness from the individual. Now everyone can join in any manifestation (from contemplative to transformative) of scientific achievements with the help of information.

In this context, we should note the need for information-technical support of such an array of educational and scientific content. Therefore, we note the growing role of information and computer technologies in the overall structure of this sphere of social activity.

A separate aspect of the current state of educational-scientific life in a technologized world is the use of the latest technological elements. This leads to a departure from the traditional human-centered worldview of education and science to the ideas of transhumanism and posthumanism (as an element of post-nonclassical science). The biological essence of man is being transformed into a human being “equipped” with nanotechnology, cyberspace, virtual communication, etc. Herein lies the key problem of human civilizational development.

As of today, there is a decreasing trend in the demand for qualified specialists with an exclusive humanities education. Humanitarian specialties are not becoming redundant, but the present challenges dictate the need to bring the skills and abilities of the natural-technological cluster to the training of humanitarians. This is how an interdisciplinary methodological approach is formed to ensure the versatility of specialist training. Considering the demand for the most in-demand specialists, we find the following trends:

- the immediate need for skilled STEM workers with the necessary practical skills to manage the latest information technology facilities.
- expediency of training non-technical specialists with elements of general STEM literacy (Balyk et al., 2019).

Modern education and science are characterized by the dominance of a new type of thinking based on the information technology concept. Digital competencies have become a basic characteristic of professionalism. This format has an ambiguous impact on the humanities-science discourse. On the one hand, digitalization allows expanding the



potential of the humanitarian component, adding to it a previously inaccessible amount of information and significantly improving the ways of its transmission. Moreover, information and computer technologies, while expanding the format of humanitarian knowledge, threaten its content component.

Digital humanitarianism (De Lauri, 2020) is seen as the humanitarian outreach of society through digital tools with human participation or passive behavior. Internet resources, social networks, and mobile communications all provide the growth of the communicative element. Of course, education and science are becoming a field for the introduction of the latest information technologies.

The emergence of a globalized network of information and communication has contributed to the emergence of a new phenomenon of social relations. National, regional, religious or cultural life is gradually weakening its dominant influence, giving way to global manifestations. Identification processes (from the individual to the national) are completely taking on secondary roles. The creation and active use of the global information space forms a new format of information communication (Kravtsov et. al., 2021). In science and education, the emergence of this globalized dimension has caused a revitalization, as the accessibility and openness of these spheres have greatly increased.

In a general sense, there is a global reorientation from the interaction model: "human-human" to the format: "human-machine" (Habib et al., 2021). Science no longer involves trivial inventions of a technical nature. Technological tools are now integrated into the system of human scientific activity. Through technology, new technologies are created. Man is transformed from the status of an inventor into an organizer of scientific achievements. This reality presupposes the consideration of transhumanitarian foundations in the educational-scientific cluster.

Another problematic point in the development of modern education and science is the role of the creative component. Total digitalization and technologization allow the production of high-quality and precise elements. And the creative component is practically leveled, which is replaced by algorithms and modeling. In the production cluster, such a format is justified and effective. The application of such a model in science and especially in education is quite debatable, as it potentially provokes quite a few contradictions. Creativity and globality are characterized by mostly positive aspects (Glăveanu, 2020).

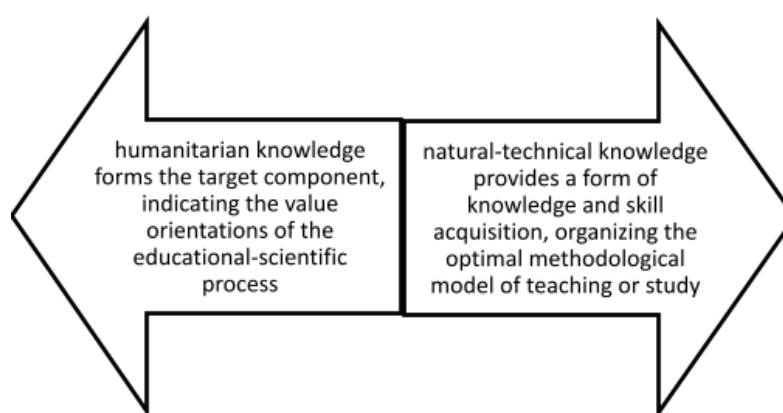
These components must have a place in the education system. It is impossible to deny the fact that the current state of education and science, their rapid development was the result of creativity. Therefore, it is neither appropriate nor correct to exclude creativity or replace it with certain algorithms in further studies of humanitarian potential.

Active and direct pedagogical communication involves the teacher's presentation of pedagogical instructions. Pedagogical communication (at the level of: subject-subject relations) manifests itself in cooperation, which is characterized by creative essence and contributes to the humanization of learning. Regardless of the trends of digitalization of

modern education, the foundations of pedagogical activity still take place in the conditions of live communication. This model of communication is the best answer to accusations of the exclusion of the individual from the scientific and educational process.

Education and science are subordinated to the general trend toward optimization, increased efficiency, and improved common-practice activity. Such admonitions of globalization are characteristic of modern man. "...Education has much to gain from human flourishing...Man and education are seen as a process of constant growth and improvement..." (Gaudelli, 2021).

We get two aspects concerning the human potential directly and its diversified direction in matters of effective implementation in educational programs and scientific research (See Figure 3).



**Figure 3**

Divergence of humanities and natural sciences in the educational-scientific process.

The trend toward prosperity in development on a global scale (Pogge, 2018) pursues an interdisciplinary methodological cluster that will provide training in any field of knowledge.

In today's world, economics plays a defining role in shaping the demand for quantity and quality in education (Ietto-Gillies, 2021). Moreover, all scientific innovations now have an economic basis. While scientific innovation used to be at the forefront of all socially important processes and acted as a kind of locomotive for the economy, today economic realities are shaping the research agenda.

This process is also ambiguous. Scientific discoveries were constantly characterized by novelty - a distinctly new understanding of the essence of the economy, determining its further prospects of development. Now scientific research only fuels economic processes. As a result, there is a tendency to the permanence of scientific potential, which is a critical factor for science. Science in its essence should not implement the economic cluster but guide it. This is the model by which real scientific discoveries are made.

Social and economic inequalities (Iglesias, Cardoso & Gonçalves, 2021) are complex unresolved problems of our time. The problem is

the transfer of this type of inequality to the field of education and science. In particular, we note the inaccessibility of the full range of educational services and scientific achievements to certain groups (on regional, national, religious, economic grounds). This state of affairs is a vivid manifestation of the humanitarian problem in the educational-scientific cluster.

Individual educational models do “question the notion of usefulness” (Albert, 2018) defending moral and ethical standards, the format of educational accessibility, the model of freedom for educational applicants, etc. As Salwen (2021) notes, the Internet, as a tool, or as a field of study, adds moral concerns to an already complex research ethical background.

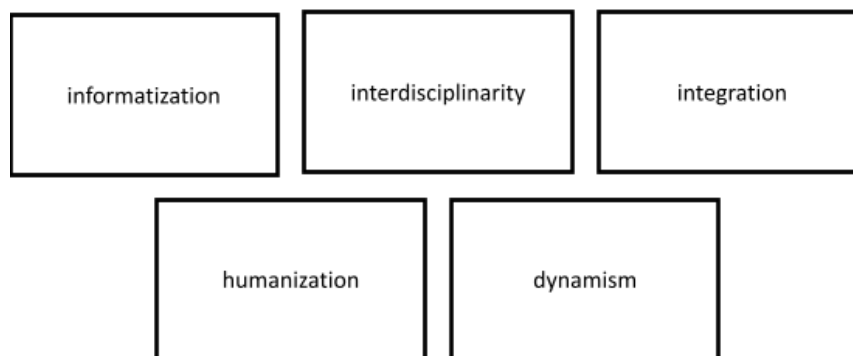
When it comes to the axiological constants of the educational-scientific process, there is a correlation of the achievements of science and education with the value norms of the individual society. These are peculiar personal thoughts, words, and actions that guide people (Anam et al., 2019). National, ethnic, cultural, or religious values influence the organization of the educational process as a whole and the implementation of scientific achievements. To avoid contradictions, these points should be regulated by aligning educational programs and scientific research with the realities of the sociocultural environment.

Interdisciplinarity is characteristic of both the educational cluster and the scientific component. In particular, as Manchul (2021) notes, the current integration of knowledge focuses on the use of a common methodology of scientific cognition, the unification of scientific terminology, and the development of new approaches to scientific research. Interdisciplinary integration is a key part of educational programs. In general, integration in science and education fully reproduces general civilizational trends in the synergetic model of development.

## DISCUSSION

The idea of self-improvement begins to prevail over the idea of introspection. Constructing the future becomes the dominant tendency over exploring the past. The humanitarian potential of the educational-scientific cluster is becoming larger in volume, but less and less relevant in a dynamic world of digital and technological concepts. Under such conditions, imbalances in civilizational development with the loss or limitation of humanistic values (freedom, rights, personal development, tolerance, etc.) are possible.

Consequently, the following guidelines for the development of educational programs and research are suggested (see Figure 4).



**Figure 4**  
Constants of humanitarian educational and scientific potential of modernity

The use of methodological and axiological attitudes ensures a balance in the development of contemporary humanitarian knowledge. Any social activity presupposes the appearance of problem elements. Modern humanitarian-scientific discourse is also riddled with contradictions. However, the systematization of the available components of humanitarian knowledge into a harmonious system will allow us to effectively realize the powerful potential of this direction.

Among the principles which will allow avoiding contradictions in the realization of educational-scientific potential, we'll note:

- openness;
- accessibility;
- pragmatism;
- creativity;
- ethics.

Considering these axiological principles, we can state contradictions even between them (for example, at the level of pragmatism-creativity). However, such contradictions lead to the development of a single strategic model for the development of education and science in the modern world.

## CONCLUSION

Prospects of further research of educational-scientific potential cause quite a lot of contradictions. On the one hand, education and science have their fundamental aspects of development, according to which the constants of humanitarian development of these spheres are formed. On the other hand, there are certain problems in the realization of humanitarian precepts, taking into account realities of the present and challenges of the time, characteristic for our days. The rapid development of all spheres of social life denies the conservatism of education and does not determine the exclusivity of science in progressive advancement. Consequently, there is a need to create a set of constants or attitudes that define the content and form of educational-scientific potential. "The criterion of new knowledge is not only new content but also

new means of organization, classification, and interaction with this content” (Dubrovina et al., 2021).

Today's world of science and education is immersed in dynamism, losing one of the key target components of education, responsibility, which Atkinson (2021) notes, “At a time when the world is facing unprecedented change, when misinformation is confused with the truth, and when social media have such great influence students need knowledge and the context of the humanities to mitigate false claims and questionable ethics more than ever. The responsibility falls on teachers to explain to their students the perspective that the humanities offer, allowing students to work through the important issues of their time.”

Thus, education should not only state changes in social life but must form the fundamental foundations of law and morality.

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