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INTERDISCIPLINARY RESEARCH IN HISTORICAL SCIENCE

Abstract

At this time, the issue of interdisciplinarity is being investigated in almost all sciences, both natural and social-humanities. The study of a subject from the perspective of different sciences has become relevant as science and technology have developed. Interdisciplinary research in historical science was first proposed by the Annales school in the 1960s. Since then, the issue of interdisciplinarity has undergone dramatic change and has brought changes to the research.

Interdisciplinarity is a characteristic feature of postnonclassical science, i.e. the modern stage of science formation. Consequently, works on interdisciplinary research in different fields of science are increasing, which makes the issue of studying the essence and methodology of interdisciplinarity relevant.

The field of historical research is vast, so one of the leaders of interdisciplinary research is history. The establishment of links between historical science and natural, social and humanities sciences is increasingly intensified and becomes necessary in many studies.

The article discusses the emergence of interdisciplinarity, the definition of the object and subject of interdisciplinary research, the search for its methodology, as well as its application in historical cognition, the relationship of history with other sciences. Also the question of the possibility of using the synthesis of knowledge of different sciences in research.

Keywords: interdisciplinarity, history, methodology, post-non-classical science, synthesis of knowledge

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ТАРИХ ҒЫЛЫМЫНДАҒЫ ПӘНАРАЛЫҚ ЗЕРТТЕУЛЕР

Аңдатпа

Қазіргі уақытта пәнаралық байланыс мәселесін зерттеу жаратылыстану және әлеуметтік-гуманитарлық ғылымдар саласымен қатар, барлық дерлік ғылымдарды қамтып отыр. Пәнді әртүрлі ғылымдар тұрғысынан зерттеу ғылым мен техниканың дамуына байланысты өзекті бола бастады. Тарих ғылымындағы пәнаралық зерттеулерді алғаш рет 1960 жылдары Анналар мектебі ұсынған. Содан бері пәнаралық байланыс мәселесі түбегейлі өзгерістерге ұшырап, зерттеулердің түрлерін өзгертті.

Пәнаралық байланысқа ғылымның қалыптасуының қазіргі кезеңі, яғни постнеклассикалық ғылыми сипат тән. Демек, ғылымның әртүрлі салаларындағы пәнаралық зерттеулер бойынша жұмыстар көбеюде, ал ол өз кезегінде пәнаралықтың мәні мен әдістемесін зерттеу мәселесін өзекті етеді.

Тарихи зерттеулердің өрісі кең болуына байланысты, тарих пәнаралық зерттеулерде көшбасшылардың бірі болып табылады. Тарих ғылымының жаратылыстану, әлеуметтік және гуманитарлық ғылымдар арасындағы байланыстарды орнатуы барған сайын күшейіп, көптеген зерттеулерде қажеттілікке айналуға.

Мақалада пәнаралық байланыстың пайда болуы, пәнаралық зерттеудің объектісі мен пәнін анықтау, оның әдістемесін іздестіру, сонымен қатар оның тарихи танымда қолданылуы, тарих-тың басқа ғылымдармен байланысы мәселелері қарастырылады. Сондай-ақ, әртүрлі ғылым-дардан алынған білімдердің жинағын зерттеуде пайдалану мүмкіндігі туралы мәселе де бар.

Кілт сөздер: пәнаралық байланыс, тарих, әдістеме, классикалық емес ғылым, білім синтезі.

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МЕЖДИСЦИПЛИНАРНЫЕ ИССЛЕДОВАНИЯ В ИСТОРИЧЕСКОЙ НАУКЕ

Аннотация

В данное время вопрос междисциплинарности исследуется почти во всех науках, как в естественных, так и в социально-гуманитарных. Исследование предмета с точки зрения разных наук стало актуальным по мере развития науки и техники. Впервые

междисциплинарные исследования в исторической науке были предложены школой Анналов в 1960 годах. С тех пор вопрос междисциплинарности претерпел сильные изменения и изменил сам облик исследований.

Междисциплинарность является характерной чертой постнеклассической науки, т.е. современного этапа становления науки. Следовательно работы по междисциплинарным исследованиям в разных областях науки увеличиваются, что делает вопрос изучения сущности и методологии междисциплинарности актуальным.

Поле исторического исследования обширно, вследствие чего одним из лидеров междисциплинарных исследований является история. Установление связей исторической науки с естественными, социальными и гуманитарными науками все более усиливается и становится необходимым во многих исследованиях.

В статье рассматриваются вопросы появления междисциплинарности, определения объекта и предмета междисциплинарного исследования, поиски ее методологии, а также ее применение в историческом познании, связи истории с другими науками. Также вопрос возможности использования синтеза знаний различных наук в исследованиях.

Ключевые слова: междисциплинарность, история, методология, постнеклассическая наука, синтез знаний.

Introduction

As the scientific world in the world has become communities organized into disciplines, special forms of communication have developed within each discipline, disciplines have created their languages, developed new publication forms, these disciplines have developed common values and common practices for their scientific practices, and have caused the formation of paradigms in each discipline as suggested by Thomas Kuhn. When a paradigm dominates a scientific discipline for a certain period, the questions asked and the forms of explanation become limited, and in this case, the validity of the knowledge produced begins to be determined by the micro-sociology of the members of that discipline rather than the realities of the outside world [1].

If the Enlightenment is the birthplace of the modern disciplines, it is also the birthplace of modern interdisciplinary studies—a particular instance of the general truth that the Enlightenment gave to modernity both «itself» and the grounds of «its own» negation. To approach this from a different angle, not only the epistemological foundation but also the conceptual power of interdisciplinary studies lie in the historical conditions of disciplinary division [2, p. 19].

Relevance of the topic: consideration of the problem of interdisciplinary research in historical science is one of the key issues in order to identify new trends in interdisciplinary research, to determine its essence, low-studied aspects of its development, to outline existing methodological problems, as well as to understand its future for historical science.

The object of the study is modern trends in interdisciplinary research.

The subject of the study is the process of genesis and development of interdisciplinarity in historical science.

Purpose of the study: to determine the essence, development and methodology of interdisciplinary research in historical science.

Objectives of the study:

- To identify and analyze the concepts of interdisciplinary research, its object and subject;
- To analyze the definitions of classical, non-classical and post-non-classical research methodology and their relation to interdisciplinary research;
- Identify the methodological basis of interdisciplinary research;
- Determine the significance of interdisciplinary cooperation of history with other sciences;

Materials and methods of research: for writing the article used general scientific methods: analysis of literature on the topic of research, synthesis and interpretation of knowledge obtained from various articles and books, i.e. identification of common and different in the general concept of interdisciplinary research and similar studies in historical science, generalization, including a common understanding of interdisciplinarity, modeling of the research problem, system method -

creating a specific structure of the object as a system, genetic method - consideration of the interdisciplinarity in its genesis. In this paper we analyzed articles and works on the theory, practice and methodology of interdisciplinarity of representatives of various fields of knowledge, such as: philosophy, economics, history etc.

Literature review: In the article was used literature that includes consideration of theoretical and methodological problems of interdisciplinary knowledge both in various sciences and in historical science. The article presents the works of philosophers speculating about the logic of interdisciplinary synthesis, modern transformation of interdisciplinarity. Also works of historians, revealing the issues of interdisciplinary approach in historical knowledge and interdisciplinary methods in historical research. In these works, the authors consider the strengths and weaknesses of the interdisciplinary approach, the feasibility of interdisciplinary synthesis and other relevant issues of application of interdisciplinary approach in various fields of knowledge.

Results and discussion.

The essence of interdisciplinarity.

It is interesting that despite the relatively recent emergence of interdisciplinarity, research is already underway to understand its nature.

One initial issue to consider when discussing interdisciplinarity is what it is to be contrasted against. What is interdisciplinarity an alternative to? According to the most common, and simplest, taxonomy of ways in which academic disciplines interact, interdisciplinarity is placed between multidisciplinary on the one hand and transdisciplinarity on the other [3, p. 22].

Any attempt to understand the concept of interdisciplinarity is complicated by significant differences of opinion about its origins. For some, for example, interdisciplinarity is quite old, with roots in the ideas of Plato, Aristotle, Rabelais, Kant, Hegel, and other historical figures who are described as “interdisciplinary thinkers”. For others, on the other hand, interdisciplinarity is a purely twentieth-century phenomenon, with roots in modern educational reforms, applied research, and interdisciplinary movements. According to Aram, the concept of interdisciplinarity has been used since the early Middle Ages to denote a way of organizing knowledge for teaching and learning. However, there are various studies that show that the first attempts at modern interdisciplinarity began in the 1920s and 1930s [4, p. 5].

In multidisciplinary, interdisciplinary, and transdisciplinary research, values and a common conception of the object/system of inquiry are rarely articulated and shared. The object of inquiry is often defined by one discipline, thereby entitling their methodological approach and epistemology, imposing a particular set of values – epistemological sovereignty [5].

Thus, with the increase of interdisciplinary works, the search and definition of the essence of interdisciplinarity will only increase in various fields of knowledge, and accordingly it will be possible to come to its general categorization, principles, and a deeper understanding of the object and subject of its study, the development of its methodology.

Object and subject of interdisciplinary research

One of the important stages of research is the determination of the object and subject of the study.

The question arises how the subject of each discipline changes as a result of its merger with another field of knowledge. When defining the subject of interdisciplinary knowledge, it is important to take into account that «slice» of the object under study, those sides of it, those problems that attracted the attention of the scientist [6, p. 14]. Thus, the first principle of knowledge integration can be called the «principle of additionality». Its essence is that the systemic vision of the object of cognition is possible due to the construction of a theoretical model that includes elements of different sciences in the presence of a common object of cognition [6, p. 15].

However, the object of research itself depends on the stage of formation of science and research methodology.

When we say interdisciplinary relationship, we understand the combination of knowledge from studies conducted in two or more different disciplines in the research of a subject, in the actions developed to solve a problem [1].

Interdisciplinarity is a phenomenon that is usually defined by referring to the limitations of a particular discipline's level of analysis and the establishment of knowledge on the basis of reciprocity. For example, according to a common definition, interdisciplinary studies express «a process aimed at solving a subject or problem that is too complex or comprehensive to be adequately addressed by a single discipline or field of expertise». However, this definition mentions the functions of the concept rather than explaining its methodological features. It is clear that using the concepts and methods of different disciplines alone does not make a research interdisciplinary. In Stember's words, the interdisciplinary approach involves the integration of knowledge produced by different disciplines on a particular subject. However, this integration does not simply mean integration [7, p. 75].

By contrast, the widely recognized 1972 UNESCO classification describes interdisciplinary as the «interactions» between disciplines. Never specifying what «interactions» (or integration) might entail substantively, the interactions «may range from simple communication of ideas to the mutual integration of organising concepts, methodology, procedures, epistemology, terminology, data, and organisation of research and education in a fairly large field» [8, p. 783].

In the philosophy of history, classical, non-classical and post-non-classical research methodologies can be distinguished. Classical methodology was based on the monistic approach, which was developed by scientists oriented to positivism, among whom, first of all, we should note V.O. Kliuchevsky, M.M. Kovalevsky, N.A. Rozhkov [9, p. 150].

The other two methodologies also have their own research approaches, the results of which constitute a certain picture of the world, and represent a synthesis of different directions in science.

Non-classical methodology of cognition in the philosophy of history develops mainly the ideas of pluralistic approach, relying on the biosphere and noosphere ideas of V.I. Vernadsky, cosmic determinism of A.L. Chizhevsky, cybernetic methodology of S.Y. Yankovsky, as well as systemic, informational, humanistic and other approaches [9, p. 150-151].

Post-non-classical methodology relies on the «sciences of the complex», synergetics, virtualistics, universal synthesis of humanitarian and natural-scientific knowledge, cognitive approaches. When considering the historical process, it is necessary to rely on open evolving systems, taking into account bifurcations, possible catastrophes, fluctuations, various forms of self-organizing chaos and dynamic equilibria [9, p. 152].

Post-non-classical science studies not only complex, complexly organized systems, but also supercomplex systems, open and capable of self-organization. The object of science becomes also «human-sized» complexes, the integral component of which is a human being (global-ecological, biotechnological, biomedical, etc.) [10].

If we take a closer look at the theories within the framework of post-non-classical science and the works that have been carried out, we can note the following key studies in different fields of knowledge.

The affirmation of the whole set of ideas of nonlinearity, probability, chaos, etc. occurs in the 70s-80s simultaneously in the most diverse areas of both natural-scientific and socio-humanitarian knowledge. It is connected with the development of interdisciplinary studies of the formation of ordered structures, the theory of self-organization (synergetics of Hermann Haken (Germany), the theory of dissipative structures of Ilya Prigozhin (Belgium) and the theory of catastrophes of Tom René (France). The subject of the theory of self-organization (synergetics) is complex systems in conditions of unstable equilibrium and their self-organization near bifurcation points, where a small impact turns out to be significant and unpredictable in its consequences for the behavior of the system as a whole. An object is not an existing thing but an emergent thing [10].

Today it is quite obvious that there are parallels between post-non-classical science with its uncertainty, incompleteness, and unverifiability and the fundamental methodological principles of postmodernism. «Modern» world, including the social world, was organized by the categories of determinism, universality, certainty and directionality of development. Postmodern social theory uses the categories of uncertainty, nonlinearity, and multivariability. It reconciles with the essentially

pluralistic nature of the world and its inevitable consequence - the ambivalence and randomness of human existence [10].

From a postmodern perspective, interdisciplinarity has two forms. In its most ambitious modern version, it dreams of the end of the disciplines with their hideous jargons and false divisions of knowledge; it wants to unify the disciplines, rendering them translucent. Insofar as postmodern thinking seeks to multiply the differences and respect heterogeneities, the recent proliferation of (inter)disciplines is an encouraging turn. The postmodern version of interdisciplinarity seeks, therefore, not to unify or totalize but to respect the differences. And, significantly, it predicates internal and external differences as ineradicable [11].

In this context, each discipline itself is always already infiltrated by some other discipline. Physics has mathematics, astronomy, and chemistry not only as neighbors but also as guests. Literary studies, a more permeable discipline than most, is entangled with history, mythology and religion, psychology, linguistics, philosophy (especially aesthetics), folklore and anthropology, and political economy. And I have omitted areas (theater, sociology, gender studies, cultural studies) [11, p. 129].

While the postmodernist position claims that there is no scientific method that can make a claim to truth, the interdisciplinary position is content to say that different methods have their strengths and weaknesses, and therefore that every discipline can contribute to the integrative approach. At the same time, the interdisciplinary position either does not explicitly state the radical position of the postmodernists, which prioritizes intuition over reason and rejects the idea of progress altogether, or does not adopt a radical stance in this area. As mentioned earlier, one of the most significant features that distinguishes the interdisciplinary position from the postmodernist position is the interdisciplinary approach's belief in the integrative approach and its ability to produce truth claims [7, p. 78].

Thus, the characteristic features of post-non-classical science are integration, interdisciplinarity, destruction of the myth of the omnipotence of science, comprehensive approach, etc. The approach of post-non-classical science is to create more accurate and complete models of the world.

Denoting the concept of scientific research and interdisciplinarity, scientists use different formulations in order to reveal this concept and establish a connection.

Post-non-classical science has not only a theoretical component, which is used to designate new processes in science, but also an applied component, with the help of which problems related to the development of technology in various fields, such as information technology, biotechnology, etc., are solved.

However, research is not production because research is conducted in institutions, but on the contrary, institutions are necessary because science as research itself has the character of production. Consequently, all sciences, including the socio-humanities, have a productive character, which creates a prerequisite for their unity and interdisciplinarity; and it is not about reductionism itself, but about its deeper, objective foundations [12, p. 9].

Modern scholars also point out the need for interdisciplinarity because of its feature of research assistance, in order to obtain the result in a shorter time.

Interdisciplinarity implies an attitude towards problems that have arisen in one or another science, the solution of which is facilitated, or even made possible only by means developed in another field of knowledge [13, p. 32].

And since interdisciplinarity is a characteristic feature of post-non-classical science, the utmost importance of post-non-classical science is to influence the worldview of modern man, such as taking into account cultural, economic, political, social factors in different countries when conducting research.

Methodology of interdisciplinarity

One important question for a researcher with an interdisciplinary research subject is the use of interdisciplinary methods, that is, what methods and theories can be used in the research. Is it necessary to understand and utilize the methods of all disciplines involved in the research? or is it sufficient to utilize the results of their research?

The qualitative distinction between the subjects and methods of natural sciences and socio-humanities occurred during the period of non-classical science, which replaced classical science.

Also at this time the influence of interdisciplinarity on research methods is very high, which is one of the features of research methodology and approaches.

Interdisciplinarity concerns the transfer of methods from one discipline to another. Like multidisciplinary, interdisciplinarity overflows disciplines, but its goal still remains within the framework of disciplinary research [14, p. 19].

On the one hand, however, the actors of interdisciplinarity (i.e., scientists doing interdisciplinary research) are not always very clear on the methodologies they employ. As observed by Robertson et al., for example, while the desirability of interdisciplinary inquiry has been widely acknowledged, indeed has become 'the mantra of science policy', the methods of interdisciplinary collaboration are opaque to outsiders and generally remain underdescribed. Many have analysed interdisciplinarity, especially in relation to the creation of new disciplines and institutions. ... Still, there currently persists a silence about the methods of interdisciplinary collaboration itself. On the other hand, the analysts of interdisciplinarity (i.e., historians, sociologists and philosophers of interdisciplinary science) do not agree on whether such a method exists, or even whether it would be desirable to find it [15, p. 245].

To date, the methodology of interdisciplinary research has not been formed. A number of specialists believe that these functions are performed by system analysis, synergetics. However, if this were true, scientific research in a relatively short time would reveal new subjects, technologies of their study, areas of application for new theoretical results [16, p. 54].

A significant characteristic of interdisciplinary research is its problem orientation, leading to the emergence of fundamentally new knowledge at the intersection of particular disciplines.

The base of methodology of the interdisciplinary research is the common object of the humanities and social sciences, that is the person with his/her life activity. Every social and humanities disciplines have its own research methods and results of researches are interpreted differently.

On the example of such a complex phenomenon as culture it is possible to note the significance of using the methods of one or another science. Cultural studies a priori assume the versatility of the object of research and, accordingly, call for the use of special approaches.

The complex multidimensionality of cultural phenomena, combining activity-creative, value-meaning and socio-natural aspects, requires for its study a combination of different methodological approaches and research directions: historical, sociological, psychological, anthropological, axiological and others. Thus, interdisciplinary studies of culture are emerging and developing, and with them arises the methodological problem of the subject of these studies [17].

This is also the case in religious studies, for example.

Scholars of religion recognized long ago that the study of religion is inherently cross-disciplinary. Religion is a cultural phenomenon that must be explored philosophically, historically, psychologically, sociologically, politically, scientifically, geographically, literarily, theologically, ethically, aesthetically, and so on. Philosophical fields too must be examined in terms of their historical development and social relevance: metaphysics, ontology, epistemology, aesthetics, and ethics all operate in ways that are shaped by their adaptations to changing social values and applications [18, p. 67].

Thus, the development of methodology of interdisciplinary research was the goal of scientists of various directions, who saw the facilitation of their research in the search for research methods, application of common theories and concepts, in the development of some common methodology.

The fundamental and deeply developed formulation of the methodological problem of the subject of interdisciplinary research was realized in the domestic literature by G.P. Shchedrovitsky in the early 80s of the last century [17, p. 188].

Consequently, today the elaboration of interdisciplinary methodology is one of the key issues in the philosophy of science, which is reflected in the interdisciplinary research that has become so popular in our time. And requires evidence regarding the possibility of its application in a particular

field of study. At the moment, one of the important aspects of methodology is the synthesis of knowledge of different sciences.

Interdisciplinarity in historical knowledge

«Interdisciplinary history» means historical scholarship which makes use of the methods or concepts of one or more disciplines other than history [19, p. 428].

For a full reflection of historical events, it becomes inevitable to use the methods, results of other sciences. And with the development of various directions and disciplines, their contribution to historical science grows.

Historical science has a complex disciplinary structure and sets itself the task of complete immersion in the life processes of people of past eras and therefore it actively uses an interdisciplinary approach, and in this context it occupies a leading place among the humanities.

At any rate, a pioneering role in «humanistic» interdisciplinary studies was played by the «history of ideas» school established in the United States by Arthur O. Lovejoy in the 1920s and 1930s, culminating in the establishment of the *Journal of the History of Ideas* in 1940 [19, p. 441].

During the period of formation of interdisciplinarity, history used methods of various sciences, but today historical science is a sphere of interdisciplinary research. Historical science uses theoretical and practical achievements of humanitarian, social, exact and even natural sciences. With an interdisciplinary approach, it is possible to study the object of research in its entirety, synthesize data obtained by specialists of different disciplines, which contributes to the emergence of new concepts that help to consider various historical events in a more comprehensive and deeper way and thereby enrich scientific knowledge.

However, despite the widespread use of interdisciplinary approaches, historical science has its own conditions for their application. History studies specific events and phenomena of the past in a certain socio-cultural context, which gives it an empirical character. To go beyond empiricism, to expand its intellectual horizons and possibilities, history can primarily through the use of the conceptual apparatus and methodological tools of related sciences [20, p. 6].

A significant contribution to the understanding of the use of interdisciplinary approaches in history was made by the *Annales* school and outlined the range of its interests.

The *Annales* School, unlike the traditional dominant historiography that focuses on political history, has evaluated the subjects of historical studies (such as purely political, economic or social) in a holistic manner, rather than singularly. Thus, they have emphasized taking into account all human activities as much as possible. This, on the one hand, has ensured a diversity of sources and ensured that not only archival sources but everything that human touch and can reach is accepted as the raw material of history, on the other hand, it has brought to the agenda the necessity for historians to benefit from different disciplines [21, p. 51].

But only in the 20th century, within the framework of the «*Annales*» school, interdisciplinarity in the study of history was justified as a fundamental principle of scientific cognition of the past. Its importance stemmed from the whole system of historical-theoretical ideas about history as a global science of man in society, which should study the past in the organic unity of all its constituent elements and, accordingly, with the help of the sciences that study them. Global history required a global methodology for its study. Just as it broke down the boundaries that separated separate scientific disciplines, so the method of this new science had to synthesize the possibilities of different disciplines studying various aspects of the socio-historical life of man and man himself as a social being [22, p. 21-22].

With the emergence of interdisciplinarity and the development of science, research is becoming more and more focused on a certain specific field of knowledge, which were not previously in the field of scientists' attention.

If interdisciplinary work is a methodological necessity in historical research, then the historian who is trying to understand the past must definitely cooperate with social science experts such as anthropologists, sociologists, psychologists, philologists, archaeologists, geographers, theologians, linguists, political scientists, writers, economists, architects, art historians. He/she must also be in

close contact with experts in fields such as climatology, botany, geology, medicine, chemistry, econometrics, statistics, materials engineering, digital sciences, and geodesy [23].

Also recently, more and more research has been conducted at the intersection of history and sociology.

Historical research is strongly influenced by global trends in various fields of knowledge, such as «linguistic turn», «cultural turn», «anthropological turn».

Within the framework of an interdisciplinary understanding of history, it is possible to synthesize research from the humanities and social sciences on the human past, and thereby reflect two realities in the context of the historical environment - this is the reality of nature and society and the personal reality of a person, which is formed from his social and cultural conditions.

The tasks facing historical knowledge require the use of results obtained by various sciences, thereby identifying and analyzing the directions and nature of the development of an individual and humanity as a whole. The method inherent in one science has some limitations and can only provide one-sided knowledge. Therefore, the basis of interdisciplinary research is the synthesis of methodologies of various sciences.

History is not just about what humans have done, there are countless stakeholders in the story of humanity and the universe we live in. Therefore, interdisciplinarity is a necessity for every science, especially for social sciences and history that study humans [23, p. 21].

Thus, interdisciplinary research in historical science continues its development, each time coming into contact with more and more sciences and developing different topics. The change of trends in various sciences is also reflected in historical research, which shows the close interconnection and interdependence of all sciences.

Conclusion

The emergence of interdisciplinarity in historical science is due to the fact that history as a science stopped serving the political elite, describing only events related to politics, and pulled out of his role as a predictor of the future. At the same time, history «went to the masses» and became interested in the fate of the «little man», i.e. an ordinary citizen. And accordingly, in order to penetrate into the depth of human life and society, more extensive information covering all spheres of its life activity is needed. Thus, the results of research and methods of related sciences and even natural sciences were needed. Cooperation with different disciplines enriches historical discipline, both in terms of knowledge, methodology, etc., but most importantly historical science sets itself more and more different goals and learns more methodological techniques to achieve them. Due to the openness of historical science to new experiments and sources of knowledge, it becomes more understandable to the average person.

The question of methodology of interdisciplinarity remains open in every interdisciplinary research, the researcher tries to realize the boundaries of his discipline and related sciences, to understand what he can use in his research and what not.

But as it was said above, the use of interdisciplinary approaches is inevitable, which is dictated by the time itself and the modern stage of science development.

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