

# Modern Challenges of Humanity and the Search for a New Paradigm of Education

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**Abstract.** The development of information technology means, with all its positive aspects, simultaneously creates a number of challenges to modern human civilization. One of the main challenges is the need for deep reforms of the education system and the search for a new paradigm of education. But in modern pedagogical science there is no consensus about what the concepts of "paradigm", "pedagogical paradigm", "paradigm of education", "educational paradigm" are. Confusion arises that hinders the search for a new educational paradigm and the implementation of the necessary reforms. The ways of searching for a new paradigm and directions of development of education are shown.

**Keywords:** Paradigm, Pedagogical paradigm, Educational paradigm, Paradigm of education.

## 1 Introduction

The rapid development of information technology means radically changes the face of human civilization. As Klaus Schwab rightly states in the book "The Fourth Industrial Revolution", we live in an era when radical changes in technology are taking place before our eyes, and what seemed fantastic yesterday is now becoming a natural, widespread and commonplace phenomenon, without which we can no longer imagine our life [1, p. 9]. For example, today it is already difficult to imagine our everyday life without computers, smartphones, the Internet, modern technologies, and even their temporary absence is already perceived as a serious inconvenience that significantly reduces the quality of life. The development of information technology means, with all its positive aspects, simultaneously creates a number of challenges for our entire civilization. The main challenge, undoubtedly, is a sharp increase in competition in such spheres of human activity as scientific and technical, technological, production, information, education. In turn, it creates economic, social, political, including military challenges. The sphere of education plays a special role in this process. Without modern and competitive education, a lag in scientific and technical

spheres, then in technological and production spheres, will quickly begin, which will quickly affect the economic and social spheres of life of any state.

Today, the modernization of the education system in Russia and bringing it in line with modern world requirements have been elevated to the rank of National Projects. Similar processes are taking place in all developed countries of the world. The question of the need for radical reforms is so acute that in the speeches of political and public figures, in the media, the idea is often heard that it is necessary to change the very paradigm of education. One gets the impression that the concepts of "paradigm" and "paradigm of education" are well-known and well-established concepts, their place and role in pedagogical science and the education system are determined. However, this is far from the case.

## **2 The history of the appearance of the term “paradigm”**

The term "paradigm" was introduced into science by the German philosopher G. Bergman (1840 - 1904) as a characteristic of normative methodology. But the term "paradigm" became widespread thanks to the work of Thomas Kuhn (1922 - 1996) "The structure of scientific revolutions" [2]. T. Kuhn was engaged in the philosophy of science and mainly considered the concept of paradigm in the context of the paradigm of science. Under the paradigm, he remembered "the scientific achievements recognized by all, which for a certain time provide the scientific community with a model for posing problems and their solutions." Not a single scientific community could be engaged in its activities without some system of generally accepted ideas reflected in the paradigm. A paradigm is actually the prism through which scientists perceive the world of science [2]. He argued that the emergence of a paradigm is a kind of frontier that determines the maturity of science. The paradigm has a great influence on the activities of the community of scientists, in fact, determines the way of solving a scientific problem. T. Kuhn substantiated the main stages of the emergence, formation and crisis of the scientific paradigm: 1) the pre-paradigm stage (preceding the emergence and formation of the paradigm); 2) the stage of the dominance of the paradigm; 3) the stage of the paradigm crisis, which develops into a scientific revolution and the search for a new paradigm [2].

Nevertheless, T. Kuhn does not have a clear and unambiguous interpretation of the concept of a paradigm. In his work there are various statements about the essence of the paradigm, which, on the one hand, seem to complement and clarify each other, but on the other, they are in some contradiction. Therefore, many scientists noted the overly expanded interpretation of this concept, which caused widespread discussion and criticism, during which it was noted that T. Kuhn's paradigm is understood as a theory recognized by the scientific community, as well as the rules and standards of scientific practice, and a standard system of methods [3]. Probably, under the influence of this criticism, T. Kuhn somewhat revised the content of the concept of a paradigm and introduced a new term "disciplinary matrix" [4, p. 477]. The introduction of this term was not entirely successful and only confused the problem even more.

For more than half a century, the concept of "paradigm" is not only not outdated, but also increasingly attracts researchers. So, L. Mekeshina distinguishes two meanings of the term "paradigm": 1) a set of beliefs, including philosophical, values, methodological and other means, which unites a given scientific community, forming a special "way of seeing" in it; 2) a sample, an example of solving problems, tasks, "puzzles" used by this community [5, p. 353]. Moreover, the first meaning includes the second as a special case. "Essentially, concludes L. Mikeshina, the paradigm is widely accepted today as a designation of the integrity of a specific combination of the main" parameters "of knowledge - philosophical, ideological and value, epistemological and methodological" [5, p. 353].

N. Savotina gives the following interpretation of the paradigm:

a paradigm is a leading theory (basic approach) and the highest in relation to other categories of scientific knowledge, based on binary oppositions, adopted as a model for posing and solving problems during a certain historical period, recorded in textbooks, scientific works and recognized by the scientific community, regardless of the branch of knowledge;

within the paradigm, several theories and concepts can be put forward. Concept - a system of concepts (scientific concepts identified as significant), substantiated for scientific purposes (provisions, postulates, laws, hypotheses). In this case, the paradigm acts as a system of concepts;

within the paradigm can coexist a variety of paradigmatic models and representatives that do not differ in the unity of views [6, p. 6-7].

Note that researchers use in defining the concept of paradigm such concepts as methodology, basic theory, concept, establishing a certain relationship between them.

### **3 Analysis of the meaning of the concept of paradigm in pedagogical science**

The pedagogical paradigm can be viewed as:

- a set of theoretical, methodological and other attitudes adopted by the scientific pedagogical community at each stage of the development of pedagogy, which are guided as a model (model, standard) in solving pedagogical problems, a certain set of prescriptions (regulators) [7,8];

- a system of scientific and pedagogical views, which are a set of theoretical provisions, methodological foundations, concepts and value criteria of pedagogical activity [9];

- the set of scientific achievements accepted by all, which, for a certain time, provide the pedagogical scientific community with a model for posing problems and solving them;

- a stable system of socially significant pedagogical ideas and theories that reflect the laws of education development;

- a model for solving research and practical problems in the field of pedagogy and education.

N. Savotina notes: "The paradigm should be considered not just as a leading theory, but as a whole worldview, in which it exists together with all the conclusions made thanks to it. All this allows us to define the paradigm as the highest category of scientific knowledge in relation to others. Consequently, all other scientific categories of pedagogy become subordinate to the category of "paradigm" [6, p. 30]. Developing this thought, it can be argued that science never exists by itself. It is born and develops in a specific human society and in specific conditions, and the characteristic features of this society have a significant impact on the worldview of scientists and, accordingly, the paradigm of science.

The classical paradigm in pedagogy took shape in the era of the collapse of feudalism and the emergence of capitalism, the emergence of machine production. In machine manufacturing, technology is of great importance. A well-organized technological process always gives an enterprise a serious competitive advantage. Therefore, the technological approach began to gradually be introduced into all spheres of human activity. Education has always been one of the main spheres of human society, and since the inception of capitalism, it began to acquire special significance. Therefore, the technological approach found its place in education, which defined the first classical pedagogical paradigm. The main emphasis in pedagogy began to be placed on standardized educational procedures and fixed standards for the assimilation of knowledge. For example, Ya. A. Komensky argued that a school is a workshop, a "living printing house" in which people are "printed". The teacher, raising and educating children, uses the same means as typographers, creating a "book". Accordingly, a person is likened to a machine, and for its training (upbringing) it is only necessary to master its management and make education similar to a production technological process. Naturally, for this, a system of coercion is created, the learning process is refined, and the reproductive activity of students becomes predominant [10].

The socio-cultural conditions of the development of society have always had a great influence on pedagogy. In addition, the authorities, both secular and religious, have always paid close attention to education and pedagogy due to their great influence on society. All of this in a complex found its embodiment in the pedagogical paradigm and the paradigm of education.

Of course, the modern pedagogical paradigm differs significantly from the classical one. Human society has changed, social relations have changed, science, technology, technology have received colossal development. The world itself has changed. But some features of the classical pedagogical paradigm can be seen in the modern paradigm.

T. Kuhn argued that the paradigm is not an eternal and unshakable essence. At a certain stage in the development of science, a situation may arise when the existing paradigm cannot explain the essence of the processes under study or meet the needs of scientists in the development of a scientific direction. This is how a paradigm crisis arises, which leads to the search for a new paradigm and replacement of the old one. It should be noted that the period of the paradigm crisis is also a period of unique opportunities for scientists. [10, p.13]. It is in the struggle of the ideas of new scientific schools that the basis of a new paradigm of science is created. But the process of changing the paradigm is always difficult and painful. "In the scientific community,

there are always scientists who are true to one or another outdated point of view. But over time, they simply drop out of the profession. The new paradigm also presupposes a new definition of the field of research. And those who cannot adapt their work to the new paradigm must move to another group, otherwise they are doomed to isolation” [2, p. 22].

In science, it is quite often possible to observe a change in the meaning of various concepts and terms, as well as the filling of the same term with a different meaning. For example, the well-known concept of "information" has a different meaning in different sciences, depending on the field of its application. Teachers are no exception, in which the concepts of "paradigm" and "pedagogical paradigm" in different pedagogical theories have different meanings. For example, in pedagogy, the point of view of polyparadigmality has received great development. Its supporters consider it permissible to use several pedagogical paradigms, even by one teacher, as well as the combination of elements of different paradigms in a specific curriculum, the existence of private paradigms within each paradigm, etc. [10]. It is difficult to agree with such judgments, since the meaning of the concept of "paradigm" becomes very far from the general scientific one. Nevertheless, in modern pedagogical science, an important place is occupied by “pedagogical paradigms of education,” for example, there are four leading paradigms of education: cognitive, personality-oriented, functionalist, and cultural [11].

According to V.A. Testov, today in pedagogical science there is a process of grinding the concept of a paradigm, narrowing its semantic field. Some researchers declare their views in the theory of pedagogy to be the beginning of a new paradigm. A whole number of scientists defend the principle of polyparadigmality in the field of education and even introduce the concept of an interparadigm approach in the context of polyparadigm modern education. A number of authors, in order to somehow reconcile the general scientific understanding and the established practice of the widespread use of this term in other meanings, consider it expedient to separate the scientific paradigm and the educational paradigm. This confuses the problem even more [9].

## **4 Conclusion**

The way out of this situation, apparently, is to change the paradigm in the science of pedagogy and bring terminology in accordance with new views. But this process will be complex and lengthy, since the carriers of the paradigm are specific people with their established scientific traditions, style of thinking and, characteristic of many scientists, a certain intellectual inertia.

To solve the problems of modernization of the education system, it is necessary to move from a multitude of paradigms to one clear and understandable paradigm of education, as the basis of the basic concept of the future education system. Strange as it may seem, but today it is an almost completely open scientific direction. There are much more unsolved problems here than something has been done. For example, in order to formulate the modern paradigm of education, it is necessary to conduct fun-

damental research. Already at this stage, serious difficulties arise, since the development and implementation of the latest technologies are associated with uncertainty and mean that we do not yet have a complete idea of how the transformations caused by the new industrial revolution will develop in the future [1, p.10]. Nevertheless, it is already obvious that the new paradigm of education should be associated with digitalization with all the resulting components: the development of distance learning, the creation of a digital educational environment, a multiple increase in the number and quality of distributed educational resources. All this leads to a radical transformation of the entire education system: a revision of the teaching methodology, a change in the content of education, forms and methods of teaching, the creation of new teaching methods.

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