Аль-Хорезми – выдающийся представитель ориентальной педагогики

Введение. В настоящее время отсутствует целостное представление педагогической системы, сложившейся в IX–XII веках на территории арабского Востока и Центральной Азии. Реконструкция педагогического наследия Востока позволит: во-первых, заложить ценостную платформу для определения координат развития исламского просвещения в настоящий период; во-вторых, обращение к положительному опыту может способствовать решению образовательных и воспитательных задач современного российского образования.

Цель статьи – целостно представить образовательную теорию одного из основоположников ориентальной педагогики – аль-Хорезми.

Методология. В качестве методологических основ определены: на философском уровне – цивилизационный, на общенаучном – системный и ориентальный, на конкретно-научном уровне – аксиологический подходы. Использованы методы историко-педагогического исследования: биографический, историко-типологический и конструктивно-генетический. Основными источниками стали сочинения арабских, персидских и среднеазиатских исследователей, а также опубликованные работы российских и зарубежных авторов, рассматривавших различные проблемы культуры средневекового ислама.

Результаты. Систематизирована педагогическая теория аль-Хорезми, представлявшая собой одну из самых ранних в мировой науке обращений к педагогике, как к науке – главному инструменту познанию образовательной действительности. Обосновано определение понятия «Ориентальная педагогика», представляющее собой науку о воспитании и образовании, исторически возникшую в IX веке, основанную на наследии выдающихся исламских просветителей Востока, и связанную с этническими и религиозными воззрениями народов, проживающих на территориях арабских и среднеазиатских стран, имеющая равновеликое значение наравне с распространенными мировыми педагогическими системами.

Заключение. Педагогическая теория аль-Хорезми была направлена на формирование самостоятельной, творческой, религиозной, добродетельной личности, стремящейся к постоянному расширению горизонтов познания. Он и его единомышленники считали, что сопряжение научных знаний, постоянного труда над собой и духовной культурой, способствует развитию формированию всесторонне развитой личности, в которой сбалансировано духовное развитие, совершенствование разума, сознания, мышления и чувств. Педагогические подходы аль-Хорезми, дополненные достижениями последующих поколений, получают свое отражение в современных образовательных концепциях и теориях.

Ключевые слова: Аль-Хорезми, ориентальная педагогика, цикличность и преемственность моделей образования

Al-Khwarizmi is an outstanding representative of oriental pedagogy

Introduction. Currently, there is no holistic representation of the pedagogical system that developed in the IX–XII centuries on the territory of the Arab East and Central Asia. The reconstruction of the pedagogical heritage of the East will, firstly, let lay a value platform for determining the coordinates of the development of Islamic education in the present period; secondly, the appeal to positive experience can contribute to the solution of educational and educational tasks of modern Russian education.

The purpose of the article is to holistically present the educational theory of one of the founders of oriental pedagogy – al-Khwarizmi.

Methodology. The following methodological foundations are defined: at the philosophical level – civilizational, at the general scientific level – systemic and oriental, at the concrete scientific level – axiological approaches. The biographical, historical-typological, and constructive-genetic methods of historical and pedagogical research are used. The main sources were the works of Arab, Persian and Central Asian researchers, as well as the published works of Russian and foreign authors who considered various problems of the culture of medieval Islam.

Results. The pedagogical theory of al-Khwarizmi has been systematized, which was one of the earliest appeals in world science to pedagogy as a science – the main tool for cognition of educational reality. The definition of the concept of "Oriental pedagogy" is substantiated, which is a science of upbringing and education that historically arose in the IX century, based on the legacy of outstanding Islamic enlighteners of the East, and associated with ethnic and religious views of peoples living in the territories of Arab and Central Asian countries, having equal importance on a par with the widespread world pedagogical systems.

Conclusion. The pedagogical theory of al-Khwarizmi was aimed at the formation of an independent, creative, religious, virtuous personality striving for a constant expansion of the horizons of knowledge. He and his like-minded people believed that the combination of scientific knowledge, constant work on oneself and spiritual culture, contribute to the development of a fully developed personality, in which spiritual development, improvement of mind, consciousness, thinking and feelings are balanced. The pedagogical approaches of al-Khwarizmi, supplemented by the achievements of subsequent generations, are reflected in modern educational concepts and theories.

Keywords: Al-Khwarizmi, oriental pedagogy, cyclicity and continuity of educational models

For Reference:
Introduction

Muslim culture, in the period of its highest development, became the link of universal culture as a whole. Islamic civilization has creatively comprehended ancient Eastern and, especially, ancient postulates, improved weak positions, enriched with new theories and passed all this on to subsequent generations. Therefore, in the history of culture, it is natural to single out the era of the "Eastern Renaissance", which subsequently caused the beginning of the formation and development of not only the European Renaissance, but also in many ways the Enlightenment era.

The powerful rise in the development of exact and natural sciences in the countries of the East was largely due to the advanced provisions of the Islamic creed. The Koran called on believers not only to glorify science, but also to constantly strive to master new knowledge, and the holy book of Muslims itself was illustrated with examples relating to the comprehension of natural phenomena and different facets of the real world. It is no accident that the French scientist Boucaille wrote: "The decisive fact is that inviting humanity to science, the Quran contains many observations of natural phenomena and includes explanatory details that fully correspond to modern science" [1, p. 100]. The pursuit of knowledge is the duty of every Muslim," it was this saying that was the first thing students saw at the entrance to almost every educational institution.

The medieval flourishing of education in the Muslim centers of civilization of the Middle East and Central Asia provided a powerful impetus for the formation of the European scientific ecumene, which continued the discoveries and achievements of the greatest minds of the Islamic world. Scientific discoveries and pedagogical ideas of thinkers of the medieval East, such as al-Kindi, al-Khwarizmi, al-Farabi, ibn Zakaria Ap-Razi, ibn Miskawayh, ibn Sina, Kaykovus, Yusuf Balasaguni, al-Biruni, al-Ghazali, al-Marwazi, ibn Rushd, al-Din Zarnuji, Ahmad Yugnaki, Yahya Suhrawardi, ad-Din Tusi, ad-Din Maulavi, ibn Khaledun left a significant mark in the world history of pedagogy [2].

However, the problem is that today in science there is no holistic representation of the pedagogical system that developed in the IX – XII centuries in Muslim countries. Based on this, we hypothesized the existence of such a phenomenon as Oriental Pedagogy. The reconstruction of the pedagogical heritage of the East will let, firstly, lay a value platform for determining the coordinates of the development of Islamic education in the modern period; secondly, the appeal to positive experience can contribute to the solution of educational and educational tasks of modern Russian education. Achieving a balance between the Eastern and European models of education becomes a factor of restoration and historical justice, among other things.

Research methodology

The methodological foundations of the work were: at the philosophical level – civilizational, at the general scientific – systemic and oriental, at the concrete scientific level – axiological approaches. In the process of formulating the concept, the authors relied on the work of such domestic researchers of the development of education as V. P. Borisenkov,
N. A. Voskresenskaya, K. I. Salimova, A. N. Dzhurinsky, N. D. Nikandrov, who considered different facets of the organization of the educational process in the countries of the East and Europe. The axiological foundations were determined by the historical and pedagogical research of B. M. Bimbada, M. V. Boguslavsky, E. D. Dneprov [3]. Based on this, algorithms for the development of Islamic education in comparative study were formulated.

The main sources used were scientific works of Arab, Persian and Central Asian scientists, translations of which were actively published in the USSR in 1960-1980, monographs and articles by Soviet and Russian scientists published in the twentieth and twenty-first centuries (V. K. Kabulov, N. I. Konrad, G. P. Matviyevskaya, B. A. Rosenfeld, K. I. Salimova, A. F. Fayzullaev, V. M. Stein), as well as European orientalists such as Gustave Lebon, Stephen Frederick Starr. In recent years, there has been an increase in interest in the studies of Muslim intellectuals of the Middle Ages, which leads to the replication of both original translated primary sources and the works of their interpreters.

The subject of the analysis of the authors who studied the writings of Islamic thinkers, the way of life, economy and culture of the peoples of the East, were primarily pedagogical aspects. It must be recognized that the pedagogical component was not dominant in the works of scholars of the Islamic East, it acted more as a set of norms, principles and traditions characteristic of this era. "Fragmentary" ideas about the pedagogical system that developed in the IX–XIV centuries on the territory of the Arab East and Central Asia have reached our days. This problem caused the appeal to this topic.

Chronological and geographical scope of the study. Source data indicate that the heyday of Muslim enlightenment in the East falls on the IX–XII centuries – a period that is commonly identified with the Islamic Renaissance in pedagogy, philosophy, culture, medicine, mathematics and other sciences. The selected period was taken as the basis of this essay. It is known that the modern appeal to the history of Muslim education contributes to the creation of prerequisites for the renaissance of Islamic enlightenment in the XXI century. And the experience of medieval education and pedagogy was colossal. A common thread through the works of Gustave Lebon is the idea that the model of Islamic enlightenment played its historical role in the progress of European science. The Eastern enlighteners, the founders of the Arab–Islamic civilization, brought medieval Europe out of the dark ages into the cultural centuries of the Renaissance and created the prerequisites for the growth of universal education.

The geographical scope of the study covers the boundaries of the territories in which the scientific and educational views of al-Khwarizmi were formed: The Central Asian and Arab East, Khorezm and the capital of ancient Asia – Baghdad.

Research results

One of the main objectives of the article is to substantiate the idea of cyclical continuity and correlation of models of Islamic and European enlightenment on the example of the heritage of al-Khwarizmi. Many people know about the life and work of Western European thinkers, but at the same time, most people have fragmentary ideas about the "golden era" of the heyday of the East, its powerful Renaissance, when the young Islamic civilization laid the scientific foundation for research constructions of subsequent times.
Therefore, turning to the pages of history allows us to take a fresh look not only at the scientific, literary, but also at the pedagogical heritage that contributes to the powerful impulse of the progress of all mankind.

The development of Oriental sciences or Oriental disciplines (from the derivative Lat. orientalis – "oriental") – an integrated set of systematized sectoral – humanitarian, socioeconomic and political knowledge about the East served to better understand its origins, distinctive cultural, religious, ideological, philosophical, ethnographic foundations [4]. Therefore, to date, Oriental languages, history and archeology, politics, philosophy and religion, spiritual culture have received scientific formalization, but outside of objective research there were areas of pedagogy, which, due to its specificity, can quite rightly be called oriental. In our opinion, we can confidently identify and fix the internal periodization of the development of oriental pedagogy.

The first stage is the formation of Wisdom Houses in the IX–X centuries as Arab-Islamic centers of scientific enlightenment, attracting scientists and educators from all over the Middle East and Central Asia. Thanks to the "House of Wisdom", the Arab East has its own philosophers, mathematicians, astronomers, physicians, geographers, poets and educators. As the historians of pedagogy of Uzbekistan, the historical homeland of al-Khwarizmi, note: "The House of Wisdom was a kind of Academy of Sciences, where scientists from Syria, Egypt, Persia, Khorasan and Transoxiana worked. It housed a library with a large number of ancient manuscripts and an astronomical observatory. Many ancient scientific works were translated into Arabic here. At the same time, Habbash al-Hasib, al-Fargani, Ibn Turk, al-Kindi and other outstanding scientists worked there" [5, p. 124].

In the IX–X centuries, the House of Wisdom became the largest translation and scientific center of the East, which had its own observatory and a rich library. Following his example, the creation of scientific centers throughout Asia and Europe began. Yu. A. Yurkina, researching the biographies of outstanding scientists al-Khwarizmi, ibn Turk al-Khuttadi, Ibn Kathir al-Fargani, Ibn Said al-Jauhari and many others, came to the conclusion that in this historical period: "The Caliphate he was not closed to himself. He adopted the achievements not only of the East, but also of the West, aspired to the maximum possible expansion of knowledge, which planted a variety of arts and crafts" [6, p. 109]. As we can see, there is a consistent correlation of Oriental and European knowledge, when Muslims studied with the Byzantines, and Christians sought to get an education from the Arabs.

It is necessary to pay attention to the fact that most of the Islamic thinkers of this era, one way or another, addressed the problems of education, training, enlightenment. Pedagogical ideas run like a red thread through all their works. The attention of thinkers, since the IX century, has been focused on the problem of human cognition of the surrounding reality and the universe as a whole, moral and ethical education, the content and methods of scientific education, book education as the main tools of continuous personal development, teacher-student dialogue [7].

The phenomenon of the Islamic Enlightened Renaissance, the heyday of oriental pedagogy is explained by Starr's definition – "Location, location, and location". Geographically, Central Asia, before the advent of the era of navigation in the XV-XVI centuries, was the heartland – the region of the Great Silk Road – the production and export of goods, migration flows, cultural exchanges, the growth of academic mobility of scientists and teachers. This Central
Asian ecumene, whose predominant population was ethnic Muslims, bordered by China in the east, India in the south, the Arab Peninsula in the southwest, the Ottoman Empire and Europe in the west, acted as the center of all kinds of communications. Before the advent of the "age of navigation", Central Asia was the center of Eurasia, the anchor region of the Great Silk Road, and not at all the periphery, the backyard of the Middle East.

But not only the geographical location determined the flourishing of the Islamic East. The new ideology embedded in the Muslim religion, its attitude to knowledge, science, education, enlightenment, and the social world order, became powerful mechanisms that allowed the medieval Islamic East to become the leading center of world culture.

For example, the famous French scientist Gustave Lebon believed that modern Europe owes its heyday to the Arabs: "Unlike other peoples and civilizations, which the Arabs influenced with the whole spectrum of their culture, the Arabs influenced Europe mainly with their intellectual achievements – in exact sciences, history and philosophy" [8, p. 607].

Stephen Starr clarifies and corrects Gustave Lebon, talking about the "east wind over Baghdad", he says that "Baghdad in the IX century was the center of intellectual life – the place where Arab sciences reached their apogee. All this was supported by the economic and political power of the caliphate. We see that cultural life also changed under the influence of the East, and that many outstanding "Arab" scientists were not Arabs at all, but residents of Central Asia who decided to write in Arabic" [9, p. 143]. It can be argued that the influence of Central Asian thinkers on the development of Arab culture, education and science is quite comparable to the contribution of Greek civilization to the heyday of the Roman Empire. Such a noticeable correlation, which runs through several centuries (IX-XI centuries), is seen in the attraction of the Central Asian intellectual movement to the "Houses of Wisdom" of the Arab Caliphate.

The famous researcher of the East, academician N. I. Konrad quite rightly emphasized that "Chinese, Indian, Arab, Iranian, Central Asian culture in this period (the Middle Ages) both in many fields of technology and material culture, especially in art, and in the field of legislation, political teachings, philosophy, historiography and fiction, it developed earlier and was richer in content for a long time than all these fields of culture in the West" [10, p. 226].

During the second stage (X–XIV centuries), there was a flourishing of scientific and pedagogical thought, a cyclical process of education and development of "houses of wisdom", as well as madrassas - famous Arab–Islamic universities in the countries of the East. During this period, the active scientific migration of scientists and teachers to knowledge centers continued. As K. Salimova notes: "The Islamic rulers encouraged the development of education and sciences. The pedagogical teachings of Ibn Sakhnun (IX century), Ibn Sina (X-XI century), Al Ghazali (XI-XII centuries) and others were formed, which contributed to increasing the prestige of education. The authority of an educated person was also supported by religion" [11, p. 108].

At the third stage (XV-XX centuries), which, like the fourth, is beyond the scope of our study, there is a significant decrease in the cultural and educational impact of Eastern science on world progress. This was manifested in the localization of educational activities within the Islamic ecumene, the predominant replication of religious knowledge in spiritual educational centers, the transition to the mode of internal self-development and the final separation from the European pedagogical school [12; 13]. One of the reasons for the educational regression...
was the famous Mongol invasion and the change of the Silk Road to a safer sea route. As a result, the prevailing conservatism of Eastern models of education on the scale of Asia led to the replication of traditional forms of education, which were static in comparison with the development of progressive European pedagogical and scientific thought of this long period. Not all well-known teachers were ready to accept the existing orders in education, as well as the limitations of academic disciplines. For example, in the XIII century, Muslimuddin Saadi advocated the connection of knowledge with life and practice at a time when education in maktabs and madrassas was, in fact, away from reality of life [5, p. 120].

The fourth stage – the end of the XX – beginning of the XXI century is marked by the fact that the crisis of the neocolonial policy of the West in Arab and Asian countries led to the rapid development of oriental pedagogy as a further vector of development of spiritual and secular education based on the heritage of national enlighteners of the past centuries [14].

Indeed, one of the brightest large-scale figures in the history of the East is Muhammad ibn Musa al-Khwarizmi. It is not by chance that the famous Belgian historian George Sarton called al-Khwarizmi "the greatest mathematician of his time and ... one of the greatest mathematicians of all time" [15, p. 667]. The historical homeland of the scientist is Khorezm (ancient Khiva), located on the territory of Central Asia in Transoxiana, where he was presumably born in 780. It is believed that his first mentors who revealed the mathematical genius of were the great thinkers of Transoxiana and Khorezm.

There are not many reliable biographical facts about the origin and personal life of al-Khwarizmi. Only information about the milestones of his professional path, discoveries and routes of movement on the world map of the early Middle Ages, as well as his scientific works, handwritten testimonies of contemporaries and like-minded people of subsequent centuries allow us to make a portrait and imagine the scale of the personality of the great thinker of the East. The last reliable evidence of the life of the "Father of Algebra" dates back to 847, and there is an assumption that he ended his life in 850.

Historians suggest that thanks to his talents and service at the court, presumably in 809, al-Khwarizmi met al-Mamun, an outstanding patron of sciences, who in those years was governor in the eastern province. After al-Mamun became Caliph, he brought al-Khwarizmi closer to the palace, offering the scientist to head the library of the "House of Wisdom" – a kind of Baghdad Academy. It is known that Caliph al-Mamun was a supporter of rationalism, and among other tasks he pragmatically "set before al-Khwarizmi one impossible task for that historical time: to prove the existence of Allah through the complex and precise beauty of mathematics, to which he was subsequently forced to give a theological answer – it is impossible to prove His existence with the help of science, but it (the existence of Allah Almighty) must be accepted on faith without any doubt" [16].

It is known that al-Khwarizmi arrived in Baghdad in 819 as an established scientist who had scientific, social and pedagogical authority and recognition in the Arab world, which allowed him to rightfully become the head of the "House of Wisdom" – the prototype of the modern Academy of Sciences. At this time, the House of Wisdom gained fame as a famous scientific center. In fact, it became not only a repository of rare books from all over the world, but also the focus of the most advanced scientific thought of that time. During this period, a galaxy of famous scientists worked in it – al-Marwazi, al-Farghani, ibn Turk, al-Kindi and many others [17; 18].
Al-Khwarizmi systematized all the disparate mathematical representations into algebra, and the very name of this educational and scientific discipline has been named after him for many centuries. The scientist proposed an affordable and effective method for solving linear and quadratic equations, thereby formulating an algebraic standard recognized by descendants for another 500 years. His book served as the main textbook on mathematics in Europe until the 16th century. As a universal scientist, a deep connoisseur of mathematics, astronomy, geography and history, al-Khwarizmi conducted interdisciplinary research, which was reflected in his main treatise "Kitab al-jabr wal-Mukabala" (The Book of Completion and Opposition), from the name of which the term "Algebra" (al-jabr) originated. It should be noted that in those historical times there was not much difference between a fundamental scientific work and a textbook in its modern sense.

The author's arguments of al-Khwarizmi in the Middle Ages were reinterpreted by European mathematicians, and the wide interdisciplinary range of his research led to a significant expansion of the scientific thesaurus, the emergence of new sections of mathematics, rules for using the lines of sine, cosine, tangent and cotangent, tables of values of the corresponding functions.

The transformation of the Arabic name "al-Khwarizmi" in Eastern and Latin primary sources took place for over a millennium – before al-Khorazmi, Algorithmi, Algorithmus, Alchwarism, Hwarism, Algorithm, but acquired a common meaning in the definition of a mathematical function, focusing on the scientific concept of "algorithm". The book "Algebra" by al-Khwarizmi was intended for Central Asian practitioners to conduct trade cases, such as "... in cases of inheritance of property, division, lawsuits and trade, as well as in all their transactions with each other or when measuring land, creating canals, other objects of various types and geometric calculations", which confirms the thesis about the economic prosperity of the region.

The concept of "algorithm", which forms a basic element of any programming language, was derived from the name of al-Khwarizmi. European mathematicians – followers of the algorithmic theory of this thinker, who advocated the replacement of Roman numerals with Arabic ones, called themselves in his honor "al-Khorezmi" – "algorithmists". The continuity of scientific thought can be traced for many centuries. Thus, on the basis of the works of Khwarizmi, an algorithmic (algorithmic) tradition was established in educational institutions and academies of Western countries in the XII-XIII centuries. A new subject appeared – arithmetic gained great popularity in Europe, and it began to be called by the name of al-Khwarizmi in the Latin manner: "algorithm" or "algorithm", since the Latin translation of the book begins with the words: "Algorithmi said", and on the basis of his work, the works "Algorithmus vulgaris" and "Carmen de Algorithmo". In the subsequent time, the interest of European scientists in incorporating the heritage of Eastern scientists into Western ideas for the development of branches of science was seen (there was an active translation activity from the Eastern languages of the works of outstanding thinkers into Latin) [19].

The works of al-Khwarizmi determined the future of algebra and computer science with mathematical precision. As noted above, a new mathematical object and a term widely used in the field of information technology – algorithm - was created. At first, the "algorithm" denoted the name of the scientist, then numbering according to the positional number system, and now – any system of calculations performed according to strictly defined rules.
Most of al-Khwarizmi's discoveries and works continue to have an applied impact on the development of almost all spheres of human activity. In fact, he set the coordinates of the development of mathematical science for centuries to come. It is quite rightly believed that al-Khwarizmi is the founder of modern algebra.

Objectively, al-Khwarizmi can be called a pioneer in the field of experimental pedagogy and the founder of Islamic didactics based on empirical knowledge of the world and the introduction of practice-oriented methods of research and teaching. His works are rightly considered the earliest scientific and pedagogical works of the Middle Ages.

Al-Khwarizmi's didactic approach to the presentation of the foundations of individual sciences represents the earliest appeal in world science to pedagogy as a science—the main tool for cognition of educational reality. Almost all of the scientist's writings begin with addressing the reader as a student with the words: "If you want to learn ...", "Do so." For example, such a technique is used in the works "A short book on the calculus of Algebra and Almukabala", "A Book on Indian counting", "Zij" and others.

The thinker made a significant contribution to the substantiation and development of the theory of cognitive activity. He introduced the experimental-observational and experimental method of cognition into scientific circulation. The scientist revealed the essence of the principle of unity of the singular, special and general in the aspect of induction and deduction. He built the methodology of his works on the basis of the following general didactic methods and forms, such as: independence, creative activity, description and consistent explanation of observed facts and phenomena; experimental-observational and experimental methods; the principle of unity of the singular and the general in the aspect of induction and deduction; a question-and-answer form of learning. All these principles were subsequently reflected and developed in classical pedagogy [20].

Al-Khwarizmi was one of the outstanding authors of textbooks, which were taught in schools of both East and West for several centuries. Thus, analyzing the system underlying the textbook al-Khwarizmi ("The Algorism of Muhammad ibn Musa al-Khwarizmi is the oldest textbook of mathematics using Indian numerals"), A. P. Yushkevich emphasized: "The historical role of this manual is very great: it marked the beginning of the spread of the principles of decimal positional arithmetic based on the use of signs 0, 1, ..., 9, first in the countries of Islam, and then in Western Europe. Many generations of authors of arithmetic textbooks were sent from this book, which was distinguished by high methodological merits" [21, p. 60].

Or, as A. F. Fayzullayev rightly states: "Al-Khwarizmi discovered impeccable methods for solving [mathematical problems], which, in fact, are used by all schoolchildren of the world. These methods have logical perfection, beauty of thinking, pedagogical convenience. The heuristic nature of the methods of problem solving discovered by Muhammad al-Khwarizmi has received universal recognition in world science" [22, p. 30].

Muhammad al-Khwarizmi attached special importance to the activity of the teacher in the formation of the research skills of his students. Thus, the thinker in the essay "Kitab al-jabrwa-l-mukabala" (A short book of completion and opposition), evaluating the activities of teachers, wrote the following: "One of them is ahead of the others in the implementation of his predecessors, and interpreting the works of his predecessors, discovering the secrets of nature, and clarifying it. Or is it the person who collects
some defects scattered in books and at the same time he will speak positively about his predecessors and does not feel arrogance and pride for the work done" [23, p. 526]. In fact, the scientist understood that at the dawn of the development of science, every research approach is important, and even to some extent erroneous, since it is only in an experimental way that the right solution can be found. At the same time, the work of every scientist and teacher, without exception, is valuable, no matter what era he worked, and no matter what theorems he put forward. Following this approach according to its logic allowed students and scientists to form the most reliable picture of the world and of a particular science in particular.

The geographical coordinates of more than 2,400 places throughout Eurasia, applied by al-Khorezmi, supplemented and corrected the "Geography" of Ptolemy, who worked in the III century. Based on the generalization of scientific discoveries of his time, he made a summary of the picture of the world with a description of seven climatic zones, representing the Indian and Atlantic oceans as a mass of open water, and not in the form of continental seas. For the first time, the Pacific Ocean was marked on the world map. He excluded "white spots" in Central Asia and the Middle East, adding hundreds of places and clarifying information. In particular, in 827, al-Khorezmi took part in measuring the length of a degree of the earth's meridian on the plain of Sinjar. Under Caliph al-Wasik (842-847), he led an expedition to the Khazars. Almost a contemporary of al-Khorezmi, al-Biruni, in 1025, hypothesized the existence of North and South America many centuries before their discovery by Christopher Columbus. All this suggests that the scientific and pedagogical continuity of views and schools was preserved, leading to new discoveries and the appearance of a galaxy of talented students. The fundamental composition of Khorezmi on geography was used by scientists of the Eastern and European world for many centuries.

The discoveries and merits of Al-Khwarizmi before the world science cannot be overestimated. He was a legendary pioneer among the scientists of Medieval Asia, who connected the science of Antiquity and the wisdom of the East, paved the way for the science of the European Renaissance. Objectively speaking: "The works of Khavarizmi (Khorezmi), and especially his arithmetic, served as the basis for both Eastern and European mathematical literature in the early years of the Renaissance. If the inspiring primary source of every chisabu hindi in the East was the arithmetic of Khavarizmi, then in the West, i.e. in Europe, in the last years of the medieval stagnation of scientific thought and in the early years of the Renaissance, it performed the same role; it is the eastern school of Muhammad ibn Musa al-Khawarizmi in these difficult years for European science prepared famous mathematicians in the person of Leonardo de Pise, nicknamed Fibonacci, Lucas du Burgo, nicknamed Paccioli and others" [24, p. 27].

Discussion of the results

Considering that the periodization and sections of historical and pedagogical science are currently being revised, it becomes expedient to introduce a scientific thesaurus of the term "oriental pedagogy". Oriental pedagogy has played its historical role in the formation of Arab-Muslim and Central Asian ethnocultures, and, in our opinion, its potential should not be underestimated at the present time. For a long time, the pedagogical bias towards
European pedagogy prevailed, and the achievements, unique developments and practices of the East remained out of the attention of researchers, textbook authors, teachers of pedagogical disciplines. Such a one-sided approach will be overcome by referring to the legacy of al-Khorezmi and other thinkers of the medieval East.

The totality of the analyzed works illustrates that the consideration of the pedagogical heritage of Islamic thinkers determines the allocation of such a phenomenon as "oriental pedagogy". In our view, "Oriental Pedagogy" is a science of upbringing and education, historically originated in the IX century, based on the legacy of outstanding Islamic enlighteners of the East, and associated with the ethnospheres and religious views of peoples living in the territories of Arab and Central Asian countries, having equal importance on a par with the widespread world pedagogical systems.

The facts prove that the Islamic pedagogical system formed in the IX–XIV centuries on the territory of the Arab East and Central Asia was distinguished by an advanced level of training of scientists, intellectuals, merchants, representatives of various fields of life. The concentration of advanced educational institutions, libraries, and so-called "houses of wisdom" in this vast region of Eurasia attracted scientists not only from Asia, but also from Europe, who in turn continued scientific research, engaged in translation and educational activities. Al-Khorezmi became the personification of the progressive scientific thought of the East, whose fate was connected simultaneously with Khorezm and the Arab Caliphate, whose works were ahead of the realities of their time in their depth and were accepted as the basis of education in many academic and scientific disciplines.

E. Said's book, devoted to the revision of approaches to the history, culture, and art of Asian countries, the revision of existing knowledge and the emergence of new areas of academic analysis, and the emergence of the phenomenon of "orientalism" states that "Orientalism is a study based on rethinking what for centuries was considered an insurmountable chasm separating East and West" [25]. On this basis, we conclude that there is no balance between Oriental and European pedagogy. It is possible to incorporate elements that are valuable for preserving the stability of a particular field of knowledge, method and technology of learning, but they do not exist in solidarity as communicating vessels. Therefore, the restoration of the importance of oriental pedagogy in the world pedagogical system becomes a factor in achieving historical and scientific justice.

The dominant core of Islamic medieval education was the idea of universal literacy for both sexes and all classes, which demonstrated the superiority of the Eastern model over the European one, where teaching foreign languages and knowledge for many centuries was considered an exclusive privilege for the elite. And about the prevalence of European languages in Central Asia, F. Starr notes: "For at least 200 years, the Greek language in Central Asia played the role of the language of interethnic communication, as was medieval Latin in Europe" [9, p. 35]. This suggests that the bookishness of Europe was accessible to Eastern scholars who read the works of the classics of antiquity in the original.

Thanks to the extensive network of "houses of wisdom", along with the development of exchanges of scientists and teachers, active expeditionary and practice-oriented research activities, trade relations of the Islamic civilization with India, China, Egypt, advanced world knowledge in pedagogy, philosophy, chemistry, astronomy, mathematics and medicine were concentrated in the East.
The formation of modern models of education in the national republics of Russia caused the overcoming of ignorance regarding the scientific and pedagogical heritage of the Islamic enlighteners of the Middle Ages and Modern Times. It is obvious that the excessive centralization of student training that existed for many decades on the examples of the European pedagogical school led to distortions and oblivion of the achievements of the founders of Eastern pedagogical science. In this regard, there is currently a combined theoretical formulation and empirical confirmation of such an educational phenomenon as the "Islamic Pedagogical Renaissance" and the formation of a new section of pedagogical science "Oriental Pedagogy".

The discrimination of the Eastern pedagogical heritage, which has been going on for a long time, and even in the era of the neocolonial policy of the West, ceases to work in the public consciousness. This is due to the definition of the role of the enlighteners of al-Khwarizmi and his associates, philosophers, doctors, poets, thinkers of the medieval East. Orientalism is becoming one of the vectors of science, and first of all, traditional pedagogy.

In our opinion, the pejorative cultivation of the superiority of the West over the East in the value dimension is gradually disappearing into history, since it is in the spiritual dimension of the commitment of Asian countries to the primordial traditions and ideals, the sources of enlightenment laid down by the pedagogy of the past centuries that there is much more pedagogical potential than in the total crisis, for example, modern Western pedagogy of tolerance.

Based on the above judgments, taking into account the periodization of the development of enlightenment in the ecumene of the Arab-Islamic world, it can be concluded that scientists and teachers of the Middle East and Central Asia aimed their scientific works at the formation of an independent, creative, religious, virtuous personality striving for a constant expansion of the horizons of knowledge. The quintessence of the wisdom of the Eastern enlighteners is that it is the combination of scientific knowledge, constant work on oneself and spiritual culture that contribute to the development of a fully developed personality in which spiritual development, improvement of mind, consciousness, thinking and feelings are balanced. In general, the pedagogical approaches of medieval thinkers of the East, coupled with the achievements of subsequent generations, are reflected in modern educational concepts and programs for the formation of a spiritually and intellectually developed personality.

Conclusions

Thus, the conducted research, the purpose of which was to resolve the scientific hypothesis about the formation of such an educational phenomenon as "Oriental Pedagogy", allows us to draw the following conclusions:

1. The high level of development of Islamic enlightenment confirms the legacy of al-Khwarizmi, his outstanding contemporaries and followers, who continued the traditions of the "House of Wisdom", founded in the IX-X centuries by the great project of Caliph al-Mamun.

2. The model of Islamic (can be read as Oriental) education, which existed for centuries and was designed as a system in the early Middle Ages, had such important advantages as: 1) universal education (accessibility for all strata of society, children of poor peasants went to
the cities to study); 2) multilingualism (multinational cities of the East, especially located in
the attraction of the Great Silk Road, were centers of cross-communication between peoples,
and knowledge of languages was not only welcomed, but also considered an obligatory
norm); 3) the centers of enlightenment were libraries, to which caravans from all over the
world brought books in different languages. Since the students who analyzed the manuscripts
had to be proficient in foreign languages, methods of calculation adopted in Roman, Indian,
Chinese, Iranian and other great cultures, they, comparing, compiling and analyzing these
sources, found the most important thing, could abandon established dogmas, and made new
scientific discoveries; 4) any innovations were welcomed, as it was claimed that knowledge
and discoveries bring the student and the scientist closer to the comprehension of the
Almighty; 5) the training period covered the age period from 5 to 30 years.

3. A systematic scientific worldview that revealed the nature of things, ideas about
pedagogy, philosophy, psychology, ethics as knowledge systems subject to laws, algorithms
and logic was formed in the so-called era of the Islamic Pedagogical Renaissance, 600-700
years before the appearance of European pedagogy by Jan Amos Komensky.

4. The Islamic enlightenment has never rejected the possibility of introducing its students
to the origins of ancient and Islamic philosophy, since turning to various theories and views
in search of truth expanded the boundaries of knowledge that existed at that time, and
served as proof of the omnipresence of the will of God.

5. Ancient cities were known for their book quarters, where books by Aristotle, Plato
and other ancient authors could be purchased along with works of Islamic theology.

6. Famous madrasahs of Central Asia and the Arab Caliphate in the IX - XII centuries
averaged from one thousand to three thousand students who were granted scholarships
for the period of study.

7. During the period of scientific activity of al-Khwarizmi, his associates and followers,
the foundation of the Eastern enlightenment was laid, on which the construction of modern
sciences, the best educational practices of his time, schools and teachings took place.

8. Al-Khwarizmi’s scientific discoveries had a tremendous impact on the development of
European science, created the prerequisites for the emergence of completely new fields of
knowledge in much later centuries, for example, computer science.

9. Central Asia, according to the testimonies of Persian and Chinese chroniclers and
the fair statements of many modern scientists, with which the authors of this work agree,
has been the center of literacy for centuries, and was considered one of the most reading
regions of the world.

10. Appealing to the great names of brilliant thinkers of oriental pedagogy helps not
only to see a reliable picture of the chronicle of discoveries and achievements of inquisitive
minds of mankind, but also to learn new lessons, since they carried a powerful moral
charge – they served the cause of upbringing and education, and were commensurate with
religious teachings – the Koran and Hadith, created prerequisites for the creation and the
development of Islamic culture in general.

11. In our opinion, "Oriental Pedagogy" is a science of upbringing and education,
historically originated in the IX century, based on the legacy of outstanding Islamic
enlighteners of the East, and associated with the ethnic and religious views of peoples living
in the territories of Arab and Central Asian countries, having equal importance on a par
with the widespread world pedagogical systems. Thus, we believe that the hypothesis put forward at the beginning of this work has been confirmed.

Financing

The research was carried out with the support of the Bashkir State Pedagogical University named after M. Akmulla as part of a competition for conducting fundamental and exploratory scientific research in priority areas by separate groups (Order No. 123/n of 30. 05. 2022).

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