

REVIEW

The problem of science in Kazakh ethical thought

This review aims to discuss the ontological and ethical problems of science in the philosophy of Kazakh thinkers of the nineteenth and early twentieth centuries. These thinkers continued the Turkic-Muslim intellectual tradition of the colonial period and considered the nature of science in the context of ethics and enlightenment. Our particular focus is on the ideas of Abai Kunanbayev (1845–1904), Shakarim Kudaiberdiev (1858–1904), Sultanmakhmut Toraighyrov (1893–1920) and Alikhan Bukeikhanov (1886–1937). Kazakh ethical thought is analogous to the legacy of al-Farabi (870–950), who combined intellectual and ethical virtues.

The Kazakh thinkers added the imperatives of humanity and conscience to the ethos of science. According to them, moral rationality is the fundamental paradigm of science. The scientist is guided by his conscience, and the goal of scientific activity is to create good for all humankind. Abai Kunanbayev saw the process of decolonisation through education, enlightenment. He endowed science with a social and moral function. Al-Farabi wrote about happiness for the ‘people of a virtuous city’ as the achievement of a moral ideal. Kazakh thinkers also aimed to elevate the Kazakh people to a new intellectual level and worldview through the study of science. The study of Kazakh ethical thought seems particularly relevant as it addresses several important issues, such as whether a university can focus solely on profit or what will be the status and role of professors in the era of massive online education and artificial intelligence.

Science, as the identification of patterns and pursuit of objectivity, is embedded in the worldview of both the researcher and the scientific community. “Scientific cognition is not universal”; it is “a form of man’s relationship to the world” (Makarov, 2011, p. 9). The moral and aesthetic component is important in “the formation of a scientist’s personality” and “the connection between the metaphysical cognitive core and such spheres of sociocultural activity as morality and art is realised” by “the moral and aesthetic component” (Yakovlev, 2020, p. 128).

This appears to represent the new role of the humanities in the era of digitalisation and artificial intelligence. Will artificial intelligence be able to reason like a

researcher or teacher, or share their experiences of becoming a scientist? In fact, social and humanitarian knowledge “represents the unity of scientific-disciplinary and extra-scientific worldview knowledge and ideas” (Vyzhletsov, 2015, p. 23).

A researcher is guided by the public (national and social) worldview and personal experience, which shapes value perception. Contemporary theories cannot exclude the interaction of sciences and spiritual value-based understanding. It is a “rejection of the monological, extra-human understanding of theoretical reason” (Yakovlev, 2009, p. 306).

The evolution of European scientific thought may be considered through the chronological structural periodisation of classical, non-classical and post-non-classical sciences. In Kazakh ethical thought, however, the Turkic-Muslim understanding of science persisted in the second half of the nineteenth and early twentieth centuries. The approach to science was oriented towards moral and value imperatives, with ethical categories shaping both the perception and presentation of science as a field of knowledge and human activity. The Tengrian understanding of reality as an organic part of the universal cycle renders nature and man sacred; the categories of space and time merge in this universal cycle. This is synthesised with the Islamic understanding of knowledge as a divine good. Reason and spiritual purity, which are human virtues, are one; this forms the basis of human life and the structure of ideal social relations. Science is the path to understanding the world and humanity, and it is based on values defined by the very essence of man as a spiritual and moral being. In this regard, the scientist’s personality is not limited to research in merely one area of knowledge. Cognitive perception *a priori* assumes three spheres: specialisation, mentoring and practice-oriented social value.

Kazakhstan’s colonial status foregrounded the theme of modernisation. Kazakh thinkers defined spiritual and educational content as the basis for social and industrial development in the country. Science was presented as a field of knowledge that generates a new worldview for nomads in an industrialised civilisation, integrating the Turkic-Muslim understanding of the world and man with European Enlightenment.

This review applies the historical-philosophical method to explore the defining characteristics of the historical period. A philosopher or thinker is a person of a historical era, and their ideas and views are determined by the demands of that historical period.

The Kazakh thinkers of the second half of the nineteenth and early twentieth centuries recognised the urgent need to educate the people for the purpose of decolonisation, so that the intellectuals could challenge the imperial regime. The study of sciences was supposed to transform the worldview of the Kazakh people. It had to generate an awareness of their own significance in world history and a sense of human dignity. Only an educated person was considered capable of contributing to the common good.

Moral rationality and the ethos of science

The moral rationality of Turkic-Muslim ethics is evident in the ideas of the Kazakh thinker Abai Kunanbayev, whose ethics are similar to those described in the treatises of al-Farabi.

Al-Farabi defined the deity as the Aristotelian First Cause, which is the supreme mind, the sole source of human morality and the grace of the whole world. The First Cause is the root and basis of the universe, encompassing both reason and morality. Man is the result of universal metamorphoses from the First Cause and represents the essential, natural unity of intellect and morality. Science is presented “as a virtuous worldview” (Müürsepp, Azerbayev and Nurysheva, 2024, p. 144). One could agree that scientific rationality today entails a multifaceted relationship between “the internal cognitive values of scientific knowledge with the external values and goals of culture” (Yakovlev, 2009, p. 311).

Abai Kunanbayev was concerned with the problem of enlightening the people and their decolonisation through comprehensive education. He perceived science as a means of renewing the society. According to him, science entails several hypostases: first, it is a repository of knowledge and wisdom; second, it is a way of viewing the world and reality; and third, it is a path to the social and ethical renewal of society.

Abai achieved a synthesis of the ethical heritage of East and West. He was the first in Kazakh philosophy to attempt to consider the world “from the point of view of the idea of development and change; his views are characterised by dialecticality” (Barlybayeva, 2018, p. 113). Abai was a Kazakh and a Muslim. His Tengrian-Muslim worldview shaped his perception of man as part of nature and the universe, which are themselves part of an infinite deity. There is the Muslim thesis “God is one; everything is in him, and he is in everything”. Abai

wrote, “The unity of God forms the universe, and God absorbs the universe into himself”.¹ By studying the natural sciences, mathematics and the humanities, one gains knowledge of the regularities of nature and man. This also means revealing the secrets of the creation of the world by a deity.

Abai characterised science as “one of the aspects of deity”.² As a Muslim, he agreed that God is one and in everything. And science, as a way of knowing—the ability of man to think, study and comprehend the truths and secrets of the universe—represents a gift from God. The deity contains the universe, and knowledge of it constitutes the essence of man. Knowledge should be used only for the benefit of people. Therefore, knowledge is necessary to distinguish the good from the evil, the imaginary from the reliable and the genuine from the formal.

The study of the universe and the world is permanent across all generations of humanity. According to Abai, “Allah is infinite, the human mind is limited. It is impossible to measure the infinite with the limited.”³ The horizons of research in the natural sciences and humanities will only expand through centuries with the development of human civilisation, and problems of great scientific and practical interest will only multiply. Knowledge and ignorance are eternally antagonistic and inherent to human nature. The essence of man lies in the knowledge of everything. Laziness, idleness, pride and boasting, which are characteristic of man, stifle his knowledge, turning him into an ignoramus.

The pursuit of perfection is a precept. Al-Farabi’s treatises include this idea as well. According to Abai, the human essence is the desire for perfection through knowledge. A person attains perfection by their own will, comprehending the truth in their mind, guided by pure and good intentions. The deity is virtue, and science, as one of the properties of the deity, creates the common good. The unity of faith and reason is one of the key tenets of Abai’s ethics. Thus, rationality contains moral criteria—that is, “rational is virtuous”.

If logic is based on tenets, criteria and norms that contradict moral principles, it cannot form the basis of rationality. Abai asserted the significance of combining three human factors: human vitality (will and physical strength), reason (logic) and heart (morality). The thinker asked which of the three components of human

¹ “Ол «бір» деген сөз ғаламның ішінде, ғалам алла тағаланың ішінде” (Abai, 2004, p. 127).

² “Ғылым – алланың бір сипаты...” (Abai, 2004, p. 125).

³ “Алла тағала – өлшеусіз, біздің ақылымыз – өлшеулі. Өлшеулімен өлшеусізді білуге болмайды.” (Abai, 2004, p. 127)

essence should be the primary one. Abai gave preference to the heart (morality), which entails justice, gratitude, conscience and mercy. People should keep their hearts pure and preserve their human essence (Abai, 2004, pp. 103–105). Morality defines humanity—with the loss of moral qualities, humanity is lost. Will, assertiveness and diligence can be used in negative ways, and logic can be conditioned by unfavourable criteria. Thus, morality—designated as the heart—is the most important criterion for guiding logic and directing vital forces.

Moral reasoning as a criterion and goal of research forms the foundation of science, combining research, education and mentoring, as well as the renewal of society. Abai understood the complex, integrated unity of the three components as genuine science, bypassing formal understanding.

Intelligence and morality are two interconnected, interdependent and complementary concepts that form an intellectual whose activities contribute to the transformation of society. The early twentieth-century highly educated Kazakh intelligentsia resembles the model of the active, educated person described by Abai Kunanbayev. Kazakh intellectuals, who combined scientific, educational and political activities, founded the first Kazakh political party, 'Alash', in 1917.

In the obituary to Abai, the prominent Kazakh political figure and leader of 'Alash', Alikhan Bukeikhanov (2009, p. 283) wrote, "The most difficult thing which cannot be achieved either by intelligence or wealth is peace of mind, accessible only through the highest morality, inherent only in comprehensive education; we feel this only when we do no harm to anyone, either in soul or body". "The highest morality" as a way of thinking and acting is the goal of worldview development with comprehensive education.

In his 1918 article 'Socialism', published in the journal *Abai* in the last year of the First World War, the Kazakh poet and thinker Sultanmakhmut Toraighyrov (1993, p. 158) wrote: "I understand European science, which can free humanity from hardship and lead it to happiness, as consisting of two parts: one is nourishment for the body and the other is nourishment for the soul".⁴ Toraighyrov's quote reveals that he distinguished in European science the material factor and the factor of conscience, both of which can be used to improve people's lives and happiness. The material factor includes the technical achievements of European civilisation. The factor of conscience implies justice, without which it is impossible to make people happier. The poet explained the

⁴ "Адам баласының ауыр күн көрістен құтылып бақытты болуына себеп болатын Еуропадағы ғылымды мен екі жікке айырып ұғамын, бірі – дене азығы, бірі – ар азығы" (Toraighyrov, 1993, p. 158).

millions killed and maimed during the First World War as a consequence of the insufficient manifestation of the conscience factor. Despite Europe's leading position in scientific and technological achievements, people have not become happier.

The contemporary ethos of science must be guided by the social responsibility of the scientific community. Humanity and caution are the fundamental principles that determine concern for society, alongside apoliticality, autonomy, openness and integrity, "which presuppose the accountability of the scientist to oneself and to society as a whole" (Sychev and Koval, 2021, p. 109).

The thinker and poet Shakarim Kudaiberdiev (2003, p. 88) used the concept of 'the soulful mind':

Ақыл деген өлшеусіз бір жарық нұр,
Сол нұрды тән қамы үшін жан жұмсап жүр.
Тағдырдың қиын, сырлы сиқырымен
Жан тәнге, ақыл жанға матаулы тұр.

[Reason is an immeasurable radiant light;
Yet the soul expends that light in the service of the body's needs.
By the difficult and mysterious magic of fate,
The soul is bound to the body, and reason is bound to the soul.]

The mind, a boundless ray of light, must be used only in union with the soul. Just as life is inseparable from difficulty, and magic from mystery, so too is the soul inseparable from the body and the mind from the soul.

Shakarim (2003, p. 153) wrote about the importance of science:

Ғылымсыз адам – айуан,
Не қылсақ да ғылым біл.
Ғылымға да керек жан,
Ақылсыз болса, ғылым түл.

[A person without knowledge is like a beast;
Whatever you do, strive to know.
Knowledge, too, requires a soul;
If there is no intellect, knowledge is empty.]

Shakarim understood science as a complex of knowledge, rational thought and moral education. The thinker declares that man without the study of science is

reduced to an animal. Ignorance is contemptible because the essence of man lies in virtue. Relying on a tradition of Turkic-Muslim ethics originating from al-Farabi, the poet argued that science is ineffective without soulful intelligence. His thesis may be described as ‘the soul in science’.

Europe asserted its own primacy in history; European values, defined as a standard, were adopted by colonial peoples in pursuit of modernisation. Shakarim, observing the carnage of the First World War, considered it reckless to use the achievements of science and technology for such mass destruction. Europeans were ahead of other nations in science and technology, yet they allowed the mass destruction of their own kind. The Kazakh thinker posed a simple question: “Why?”

Көрінер ғылымды елдің сырты таза,
Істерін әбден сынап талдағанда.

[The outward appearance of learned people seems pure;
When their deeds are thoroughly examined and analysed.]
(Shakarim, 2003, p. 101)

When analysing the lives and aspirations of peoples, Shakarim believed that only their external education is revealed.

Justice will not be granted through lies and formalism that conceal meanness and treachery. It needs the science of conscience.

Әр түзетін бір ғылым табылмаса,
Зұлымдықты жалғанда әдіс жеңбес’.

[If there is no science to rectify each fault,
No method in this world will overcome injustice.]
(Shakarim, 2003, p. 103)

Shakarim distinguished between theological (religious) and materialistic knowledge, and proposed a third truth: conscience. The third truth is an important understanding of human existence. Conscience consists of modesty, justice and kindness. Conscience is a “need of the soul” (Shakarim, 2010, p. 385). Robert K. Merton (1973, p. 270) wrote: “Four sets of institutional imperatives—universalism, communism, disinterestedness, organised skepticism—are taken to comprise the ethos of modern science”. Kazakh thinkers would add the imperatives of humanity and conscience.

The wise man and the scientist: coherence of concepts

Al-Farabi's 'virtuous city' as an ideal community envisaged a certain volume of knowledge, divided into two directions. The first is knowledge about the structure of the universe, about the rational essence of man, about heavenly substances, about the constant renewal of nature and the origin of man. The second direction concerns social structure and spiritual life, that is, knowledge of the "virtuous city, its inhabitants and the happiness that their souls achieve; they should know about the cities opposed to it..." (Al-Farabi, 1970, p. 339).

There are two kinds of knowledge of these things: knowledge "in reality" or knowledge through the perception of images—that is, "by analogy and imitation" (Al-Farabi, 1970, p. 340). The thinker did not identify a separate category of the universal scientist, but only referred to wise men who see and know "in reality", "through evidence and their own intuition". These wise men have followers who perceive knowledge as necessary for the inhabitants of a virtuous city. The rest know only images—that is, "representations of an object"—some have representations close to the object, while others have representations far from the object (Al-Farabi, 1970, p. 340). If "things are known by their proofs, there can be no dispute about them" (Al-Farabi, 1970, p. 341). Controversies arise when knowledge is based on "mimetic representations". Thus, the knowledge of the wise men corresponds to what would now be understood as scientific knowledge. The wise men conveyed the true knowledge of the "inhabitants of the virtuous city", the ideal community.

About a thousand years later, in the Kazakh steppe, Abai Kunanbayev, combining the categories of faith and reason in understanding the world and humanity, distinguished between wise men (thinkers) and scientists in his writings. Abai wrote, "not every scientist is a wise man, but every wise man is a scientist".⁵ Scientists invented the steam engine, harnessed electricity, discovered cellular structures of the body and even launched a man into space—however, they also invented the atomic bomb. The wise man (thinker) possesses universal knowledge and advances beyond the scope of a specialist scientist.

God created the world as harmonious and orderly; every object and phenomenon has its intended place and role, and man represents the highest good. Abai believed that the highest reason and virtue is God, who gave life, knowledge, strength, will, vision, sensitivity, speech and the ability to create. Is evolution capable of creating a world so diverse and a human being so beautiful, yet also mysterious?

⁵ "Әрбір ғалым – хакім емес, әрбір хакім – ғалым" (Abai, 2004, p. 138).

Abai suggested that “the highest truth is God, this is reality, and rather than dispute it, it is better to explain it fairly”.⁶ The dispute between materialists, atheists and theologians is of no significance. The being of God is manifested in the beauty, harmony and regularity of the world, which is explained rationally and scientifically. The being of God is also present in justice, love and the good deeds of man. Is it acceptable, then, to argue about justice?

Wise men or thinkers possess scientific knowledge and the virtue of the human soul. In the true sense, they preserve the meaning of love, justice and morality. According to Abai, “without wise men, the world would descend into chaos”.⁷ He also wrote that “mullahs are hostile to the wise men”.⁸ Mullahs’ limited education confined them solely to religious life.

Abai believed that one should engage in science only as a life mission, oriented towards the common good. The study of sciences and new discoveries should be the highest reward for the scientist. “Science cannot be a business”,⁹ he argued.

According to the ethics of al-Farabi and the legacy of Abai, science serves the common good and scientists’ inquiry should only aim at improving life. A scientist must reveal the humanistic and virtuous significance of scientific discoveries and their consequences. The personality of a scientist is determined by his intellectual potential, research skills and commitment to the common good.

The social and moral function of science

Science is divided into fundamental directions. There are theoretical principles and applied science, which is focused on the practical application of knowledge. Theory contains knowledge about the subject, whereas practice is aimed at “improving some external conditions of human existence” (Kupriyanov and Dushina, 2020, p. 58).

Al-Farabi’s ethics characterises science in its theoretical consideration and practical application, establishing harmonising and balanced life of a community (city, state) and all of humanity as the main goal.

⁶ “Растың бір аты – хақ, хақтың бір аты – алла, бұған қарсы қаруласқаниша, мұны ұғып, гадаләтпен тәптеіштеуге керек” (Abai, 2004, p. 139).

⁷ “Адаспай тура іздеген хакімдер болмаса, дүние ойран болар еді” (Abai, 2004, p. 137).

⁸ “Бұл заманның молдалары хакім атына дүшпан болады” (Abai, 2004, p. 139).

⁹ “Біз ғылымды сатып, мал іздемек емеспіз” (Abai, 2004, p. 140).

In this context, the First Leader (“the First Head”) plays a major role—that is, the leader of the community, who guides it towards happiness. The First Leader presents an analogy of the First Cause of the world in the human community. While the First Cause represents the moral and intellectual absolute—the highest reason and virtue—the First Leader represents perfection for the community.

A thousand years before Abai, al-Farabi asserted the primary importance of the heart as the principal organ of the human body. The First Leader is analogous to the heart in the human body. Al-Farabi (1970, p. 309) wrote that the First Leader is

the reason for the existence of the city association and its members, the reason for the emergence in them of those properties that have their source in the will, if one of the members of the city association becomes upset, it is the head of the city who ensures the elimination of this upset.

The First Leader is endowed with innate spiritual potential; he governs the people according to moral and rational imperatives, guiding them virtuously towards achieving happiness and protecting them from ignorance. This creates a vital imperative to attain happiness with its own moral and rational regularities and criteria. Happiness is achieved by completely overcoming ignorance; the ignorant are incapable of knowing happiness. Al-Farabi’s idea of the virtuous city thus entails the concept of social and moral recovery and renewal.

In Kazakh ethics at the turn of the nineteenth and early twentieth centuries, thinkers and poets sought to educate the people and cleanse their consciousness and mentality of ignorance. Achieving this goal marks the transition to a new stage of civilisation’s development, which is consistent with al-Farabi’s ‘attainment of happiness’. The study of science introduces people to industrial civilisation while preserving the virtue inherent in man according to his universal nature. The virtuous essence of man is comprehended and sustained through faith. The unity of faith and reason gives science virtuous content and a rational form. Abai (2004, p. 125) wrote that science is one of the manifestations of the deity; therefore, love for science is a manifestation of humanity.

Leaders of the early twentieth-century Kazakh intelligentsia formed the Kazakh political party ‘Alash’. They recognised that “for the political education of the people, it is necessary to cultivate their desire for knowledge, since politics and education are closely interrelated” (Nuryшева, 2001, p. 10). The colonisation of Kazakhstan by the Russian Empire, which lasted for a century and a half,

left nomadic societies on the periphery of civilisation. Coloniality is a political process, worldview and ethical concept. Colonial consciousness blocked all development and narrowed the horizons of thought. The perception of oneself as perpetually lagging behind and secondary—established during the process of colonisation—can only be overcome through education. Decolonisation is an educational process that cultivates human and civic dignity.

Abai Kunanbayev may be regarded as the first author to modernise the Kazakh people. The thinker clearly defined what should be discarded and what should be preserved. This process of renewal, proposed by Abai, affects the virtuous and moral foundations of society. It is impossible for society to overcome social stagnation without moral and intellectual enlightenment. The study of science presupposes the virtuous application of what is known and discovered for the creation of the common good.

Conclusion

The commercialisation of science has become a notable trend over the past 15 to 20 years. Scientific projects are increasingly being carried out in accordance with demand. Science as a social institution develops in response to the times. Scientific research should be aimed at helping people; the social responsibility of the scientist cannot be excluded. The university should be regarded as the temple of science—yet, can it focus solely on profit? Are university professors responsible for training scientific personnel?

Defending of dissertations and awarding of academic degrees should primarily confirm the level of research competence. Conscience, justice and responsibility are the most important qualities of a researcher. Professors, assistant professors, heads of departments, deans, vice-rectors and rectors bear considerable responsibility for the moral development of future scientists. Thus, formalism in the educational process, lack of research ethics and internal intrigue within universities may lead to the moral decline of students, who may come to perceive these negative factors as the norm.

The introduction of massive open online courses and the growing use of artificial intelligence compel a reconsideration of the status of scientists and university teachers in the era of global change. Is it possible to transfer the experience of becoming a researcher through massive online courses such as Coursera? What

should be done when academic tasks are increasingly completed using artificial intelligence? We can only speculate on the specifics of a professor's work in the context of artificial intelligence, especially in the humanities.

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