FROM CONFUCIUS TO CODING AND AVICENNA TO ALGORITHMS: CULTIVATING ETHICAL AI DEVELOPMENT THROUGH CROSS-CULTURAL ANCIENT WISDOM

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Abstract: This paper explores the potential of integrating ancient educational principles from diverse eastern cultures into modern AI ethics curricula. It draws on the rich educational traditions of ancient China, India, Arabia, Persia, Japan, Tibet, Mongolia, and Korea, highlighting their emphasis on philosophy, ethics, holistic development, and critical thinking. By examining these historical educational systems, the paper establishes a correlation with modern AI ethics principles, advocating for the inclusion of these ancient teachings in current AI development and education. The proposed integration aims to provide a comprehensive education that not only encompasses foundational knowledge but also advanced learning, thereby equipping future AI professionals with the necessary tools to develop AI systems that are ethically responsible, culturally aware, and aligned with human values such as fairness, safety, transparency, and collaboration. This approach not only addresses the AI alignment problem but also fosters cultural harmony and global understanding, which are crucial in an increasingly interconnected world. The paper posits that the wisdom of ancient educational systems, when harmonized with modern AI ethics, can guide the development of AI technologies that are beneficial for humanity, ensuring these advancements are not just technologically sound but also ethically and culturally informed.

Keywords: AI Ethics, AI Alignment, Cross-Cultural Education, AI Development, AI Curriculum Design

1. Introduction:

Interaction with AI systems has become inevitable and their alignment with human values and interests is already under question. It is expected that the AI system should

act in an ethical manner and should not harm any human. AI alignment is emerging as a subfield within the AI ethics discourse. It is argued that if AI doesn't align with human values, it may lead to unintended consequences and to address this challenge, researchers in AI and philosophers are working on a variety of different solutions(1,2). One of these most propagated approaches is to install an ethical model of our own choice within the AI system and make intelligent machines with built-in ethical constraints(3,4). It is also advocated that there is a need to scrutinize the working process of these AI systems by developing methods for verifying and validating the behavior of AI systems(5–8). Turning off an AI system in order to control them is also often discussed in research circles.

We are of the view that it's important to focus on the individuals engaged at every stage of this AI's development. With the rapid technological advancement and emergence of new innovation technologies, besides a growing concern about ethical challenges which these technologies are posing, another challenge is the preparation of a cadre of scholars who can coup with the demand of this tech era, foresee future technologies and anticipate ethical challenges coming up with them.

One proposed way to achieve this is by teaching advanced technology-related subjects in schools' curriculum so the students start learning these concepts early in their educational journey(9). An emerging idea which is gaining traction among pedagogues is to introduce AI and Machine Learning related subjects and technologies at school level(10,11). They argue that the aim of university level advanced courses is to prepare experts in AI, however, there is a need to introduce AI in the curriculum of primary and elementary schools so that the students may focus on the foundation skills required to master these technologies. That is why, our school curriculum needs revision and to be flexible enough to adopt changes in the technological world(10,12–14). This curriculum is expected to help students understand and navigate a world increasingly run by AI and future technologies(15,16). There are attempts to demonstrate a link between AI and global education reform movement (GERM) with a claim that AI tools can be used to advance the agenda of technification and can be used to enable a mindset shift to a more engaged, authentic, compassionate, and collaborative approach to teaching and learning(15–19).

Contrary to this approach, we believe that it is too early to teach advanced concepts of machine learning and Artificial Intelligence at primary or elementary school levels and focus should be on more fundamental subjects such as basic philosophy, ethics and logic. The focus should be on foundational subjects that can serve as building blocks for more advanced subjects later on in their educational career. Instead of diving into applied subjects at such a young age, we should equip students with the basic tools they'll need to explore any specialized or applied field in the future.

This doesn't mean to advocate that children should be entirely uninformed about these technologies; rather, they should have a basic understanding of these fields. However,

the advanced technical features should be deferred in favor of studying these subjects through the prism of fundamental subjects such as ethics and logic.

The idea of a comprehensive and well-rounded curriculum is not curbed to a single culture, geographical region or time period. No matter, we observe "Liberal Arts" system in western traditions or "Six Arts" in Eastern traditions, the core of any curriculum is based on philosophical understanding of offering a broad-based, holistic approach to learning that aim to cultivate a sound mind and moral character(20–22). Despite geographical and chronological distances, these ancient civilizations sought to create a holistic educational system that cultivated both the mind and spirit. Each valued a harmonious integration of the individual with the society and cosmos, reflecting universal human aspirations for wisdom, balance, and ethical living. Through diverse lenses, these cultures converged on the shared goal of human flourishing, a testament to the enduring quest for wisdom that transcends borders and epochs. Different subjects offering these traits can be seen in diverse civilizations, notably in ancient China, Arabia, Persia, India and Greece are precursors to the modern educational landscapes found in today's corresponding geographical regions.

We argue that there is need to revitalize these rich intellectual landscapes to explore their unique takes on what constitutes a complete education to meet the demands of current and futuristic high-tech era. Teaching foundational subjects in schools would equip students with the knowledge to make ethical choices. Furthermore, this educational foundation could inform the ethical design and development of new technologies, thereby mitigating the risk of unethical practices in technology and solving the issue of AI alignment. This approach could also set the stage for the global standardization of ethical norms across diverse Next-Generation Technologies.

2. Shared Wisdom of Diverse Traditions

Due to the rapid integration of advanced subjects like Artificial Intelligence (AI) into modern educational frameworks(23), it is vital to reevaluate our educational roots, particularly those from Eastern cultures. We try to delve into the educational traditions of East to emphasize the profound importance of their foundational and fundamental teachings. Each of these traditions emphasizes a holistic educational approach, prioritizing ethics, philosophy, and cultural wisdom. This long-standing historic approach not only fostered a well-rounded student but also nourished a cross-cultural harmony. By juxtaposing these ancient curriculums against the recent urgency to integrate advanced tech-oriented subjects in curricula, we argue for the need of "Revisiting the fundamentals" and asserts that a premature emphasis on subjects like AI in school curriculum, without comprehension of more fundamental subjects such as philosophy and without grounding them in traditional knowledge, can lead to superficial comprehension and overshadow crucial aspects of personal, cultural and technological development.

In many parts of the world, educational systems are highly influenced by religious and philosophical ideologies. For example, in ancient China and Japan, Confucianism played a crucial role in shaping the current education system. The school curriculum and up brining of the children emphasizes classics, ethics and moral teachings(24–26). One of the oldest civilizations, India still has Gurukul system which has strong traditions of teacher-student relationship(27,28). They are equipped with the ancient wisdom of Vedic literature which focuses on holistic development and philosophy.

In the neighboring regions of Arabia and Persia, the Madrasah and Family and Community Based education systems were flourishing. Madrasah have evolved into religious intuitions but traditionally taught secular subjects such as logic, rhetoric, and sciences along with ethical and philosophical teachings. Zoroastrianism education was deeply interwoven with religious practices and the transmission of cultural values. In ancient Tibet, monasteries played a crucial role in teaching Buddhist scriptures and meditation(29,30). In Southeast Asia, temples served as vital hubs for community education. In ancient Mongolia, oral traditions were essential due to the nomadic way of life. Meanwhile, in Korea, Confucian State Academies, known as Seowons, played an important role in providing education in Confucian classics, philosophy, and ethics(31–34).

Historically, education systems across different geographical regions were deeply rooted in their cultural and philosophical traditions which made them unique. For example, in ancient China, the education system was greatly influenced by Confucian classics that placed a strong emphasis on philosophy, ethics, and moral teachings or rituals(35,36). These elements originating from the education system were integral in shaping the societal values and norms.

Gurukul system of ancient India is renowned for its holistic approach to education. Students were immersed in the study of Vedas, Upanishads, and other philosophical texts which was considered as a comprehensive method of teaching and learning that encompasses not only the intellectual or academic development of students but also their moral, spiritual, physical, and emotional growth.

Not only in the ancient Arabic world but today as well, traditional schools are called madrasahs. Unlike now they were central to education, focusing on subjects like logic, grammar, rhetoric, and foundational sciences. Today, madrasahs mainly provide religious education. In this approach of studying in madrasahs nurtured a well-rounded understanding of both the arts and sciences among students at that time.

The Zoroastrian principles of truth, purity, and righteousness were fundamental in shaping the educational ethos in Persian education. Education system was influenced by Zoroastrian teachings that stressed ethics, philosophy, mathematics, medicine, and astronomy(30,37,38).

Despite the influence of Confucianism and Buddhism from China, in Japan, the educational system developed in a novel way. The Edo period saw the rise of "Terakoya" schools, which were community-based institutions and focused on reading, writing, arithmetic, and moral values. Like Confucianism(39–41), Tibetan education can be seen as highly influenced by the Buddha's teachings and predominantly provided thorough training in Buddhist scriptures, debate, philosophy, and meditation, emphasizing spiritual development and intellectual rigor in monasteries.

Neighboring countries of China such as Cambodia and Thailand had temple schools, where temples served as the epicenter of learning. These schools taught religious scriptures, local history, traditional medicine, and other community-relevant subjects.

If we have a look on nomadic societies and ancient Mongolia being their representative, formal schooling was rare, but a rich oral tradition thrived, transmitting knowledge through storytelling, songs, and legends.
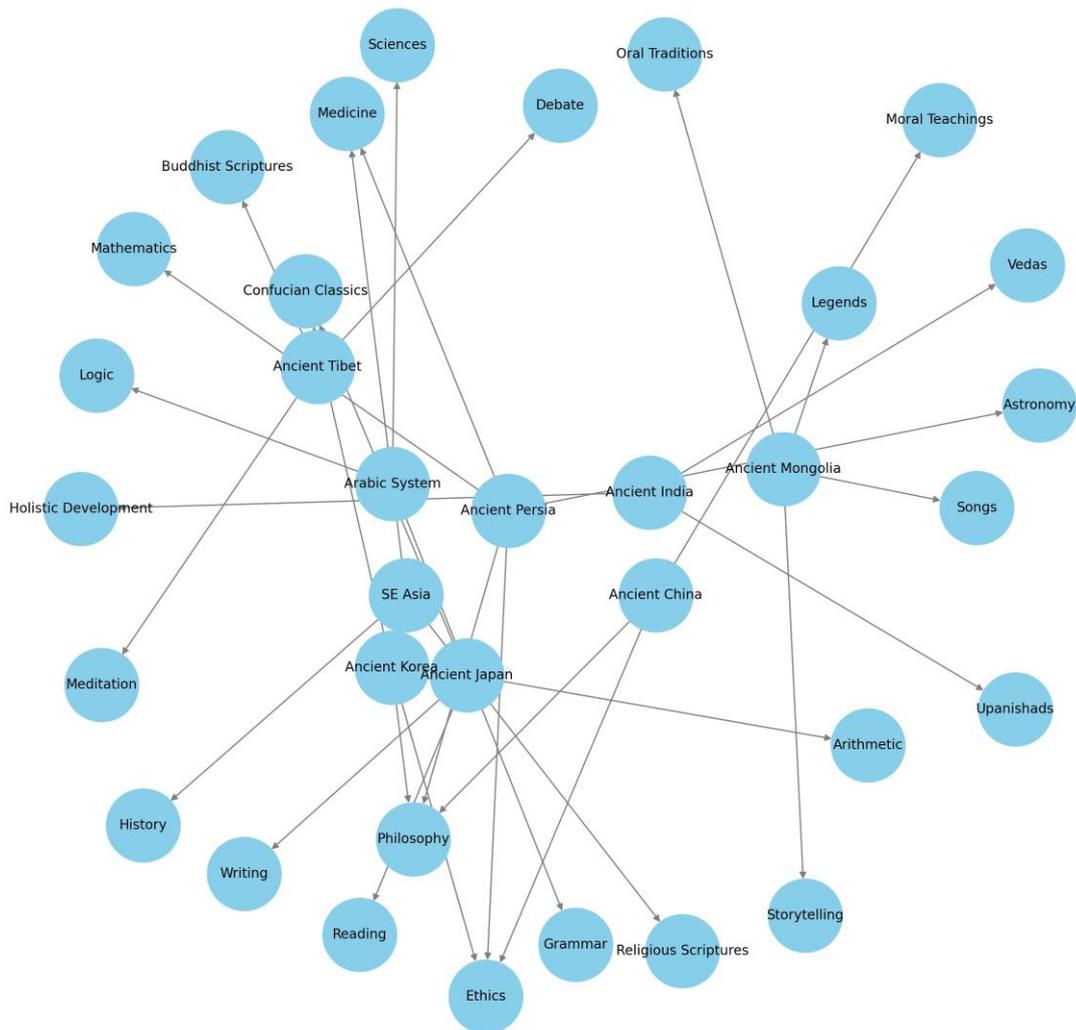
Education System	Key Subjects
Ancient China	Philosophy, Ethics, Moral Teachings
Ancient India	Theology, Holistic Development
Arabic Educational System	Logic, Grammar, Rhetoric, Sciences
Ancient Persia	Ethics, Philosophy, Mathematics, Medicine, Astronomy
Ancient Japan	Reading, Writing, Arithmetic, Moral Values
Ancient Tibet	Buddhist Scriptures, Debate, Philosophy, Meditation
Ancient Southeast Asia	Religious Scriptures, History, Medicine
Ancient Mongolia	Oral Traditions, Storytelling, Songs, Legends
Ancient Korea	Confucian Classics, Philosophy, Ethics

Key Subjects in Ancient Educational Systems Across Various Cultures

These diverse educational systems, each with their unique methodologies and focal points, collectively highlight the rich tapestry of ancient educational practices around the world but still we can find different subjects overlapping across different educational systems. Some geographical regions still proudly carry these educational traditions.

We can also observe a strong interaction among ancient scholars from different regional backgrounds, interacting among themselves and communication in educational lingua franca which was understandable by everyone even in a highly diverse cross-cultural setting. Many scholars travelled to seek knowledge from different geographical regions.

Besides invasions for oppressions, there are many historical instances when cultured monarchs, had scholarly councils which were expected to innovate. Monarchs themselves sanctioned and sponsored voyages and educational journeys of his merchants and scholars so they may travel globally, interact with intellectuals from different regions and bring back new ideas besides merchandise. This interaction or cross-cultural psychology(42) yielded into very powerful collaborations which proved to be beneficial for mankind. Scholars and merchants travelling all over the world, most of the time, were able to find a common ground with locals whenever landed in an unknown land. The reason behind it was their intensive training and upbringing in an educational environment which was fundamentally similar to each other.

Confluence of Wisdom: A Mapping of Ancient Educational Systems and Core Subjects

We assert that the incorporation of fundamental subjects into modern curricula will not only equip students with the ethical grounding needed to make responsible choices about the usage of technology but also a strong foundation in these subjects will influence the ethical design and implementation of futuristic technologies. This holistic

approach to education could pave the way for the global standardization of ethical norms in the development and use of new innovation technologies in general and AI in particular.

3. Balancing Foundational Knowledge and Advanced Learning

If we trace back to our roots and investigate the curriculum being taught at that time, we realize this fact that the purpose of education was to shape an individual who is responsible, moral and brave citizen of society and ready for the futuristic challenges faced by him or to the society. The curriculum covers essential topics like philosophy, which encompasses ethics and logic, arithmetic to enhance financial literacy, oratory for effective communication skills and activities to enhance physical strength like archery, swordsmanship, and horse riding, among others. The purpose was to equip students with techniques, tricks and skills to face any challenges they might face in future. On one side, students were anticipated to balance their daily responsibilities and on the other side, were expected to innovate and contribute towards the development of the society.

We think that without foundational knowledge, understanding of advanced subjects like AI can be superficial. In the rush to stay updated, we may neglect subjects that develop critical thinking, ethics, and philosophy that are all crucial in a technologically advanced society. No one would neglect the benefits of ancient educational practices that provide foundational knowledge. Our main assertion is this that understanding foundational subjects provides a robust base for advanced learning later in life. Holistically developed ancient systems focused not just on academic excellence but also on the moral, ethical, and spiritual development of the individual. By studying basic subjects rooted in various cultures, students develop respect and understanding for global cultures which brings cultural harmony and integration. In general, cross-cultural appreciation reduces global misunderstandings and conflicts, not only in politics but in manufacturing, utilization and adaptation of technology as well(43).

Subjects like philosophy promote analytical thinking, argument evaluation, and ethical considerations. Theology, Ritual studies, logic stimulate cognitive sciences that provide insights into how humans think and learn, which can be pivotal when dealing with machine "thinking" and learning in AI. A foundation in basic subjects can offer students a broader perspective and the flexibility to navigate between different domains, which is essential in interdisciplinary fields like AI.

We aim for a modest but comprehensive strategy to address the AI alignment problem by integrating a balanced educational approach. By emphasizing both advanced technology subjects like AI and machine learning, and foundational disciplines such as philosophy, ethics, and logic, the proposed curriculum can equip future generations with the necessary tools to navigate and ethically engage with AI technologies. Drawing inspiration from historical educational models, this approach seeks to cultivate well-

rounded individuals who can contribute to the responsible development and deployment of AI systems, ensuring their alignment with human values and societal needs.

4. Aligning Ancient Educational Principles with Modern AI Ethics Principles

Principles of Artificial Intelligence or AI Ethics Principles address social and ethical aspects for future AI development and have been originating from diverse sources including research institutes, government bodies, and industries. All versions of AI principles are with different considerations covering different perspectives and making different emphasis and no single set is exhaustive or able to encompass all others. There is a genuine effort behind all these AI ethics principles to make AI more aligned with human values and less harmful. Initiatives like LAIP(44) have been established to link and analyze these varied AI principles. This involves identifying common themes and distinct elements across the principles proposed by different entities. In light of these analyses, scientists argue for the necessity of incorporating various AI Principles into a comprehensive framework and focusing on how they can interact and complete each other. This approach aims to understand how these principles can work together and fill in each other's gaps. By taking into account the unique perspectives and scopes of different AI principles, a more holistic and effective strategy for current and future AI developments can be shaped.

We believe that values taught in ancient curriculums have their relevance to modern AI ethical principles. To analyze how the common subjects taught in ancient education systems might cultivate the values common in AI ethics principles, we can draw parallels between the key subjects from these educational systems and the identified AI ethics values. Ancient China, Korea and Persian emphasized on Philosophy, Ethics, and Moral Teachings in the form of rituals(32,45–47). These subjects directly relate to AI ethics principles like Humanity, Fairness, and Accountability. Philosophy and ethics education instilled a deep understanding of human dignity, freedom, justice, and responsibility, which are critical in developing AI systems that respect human rights and ethical standards. If we consider only Confucian teachings then they can be seen emphasizing on societal harmony, respect, and ethical conduct, directly relating to AI principles like Humanity, Fairness, and Collaboration(48–50). This educational foundation promotes the creation of AI systems that respect societal norms and work towards the common good.

Ancient India's curriculum coming from Vedas and Upanishads focused on holistic development. This education system emphasized the overall well-being and balanced development of individuals. This ancient holistic education aligns with the Humanity and Safety principles in AI ethics. It could foster an understanding of the broader impact of technology on human life, ensuring AI development prioritizes human well-being and safety(51,52).

The Arabic educational system coming from Madrasahs taught logic, grammar, rhetoric and sciences. These subjects contribute to the development of critical thinking and analytical skills, pertinent to AI ethics values like Transparency and Accountability. A strong foundation in logic and science enables future AI professionals to create systems that are explainable, predictable, and accountable.

Focus on Reading, Writing, Arithmetic can be seen in Ancient Japan. Basic literacy and numeracy are foundational for understanding and interacting with technology, relevant to AI ethics principles such as Privacy and Security. Educating individuals in these areas ensures they are informed and can actively participate in discussions and decisions regarding personal data protection and cybersecurity.

Study of Buddhist scriptures, debate, philosophy, and meditation was common in Ancient Tibet. These teachings foster a deep sense of mindfulness, compassion, and ethical reflection, aligning with AI ethics values like Humanity and Collaboration. This perspective encourages the development of AI technologies that are human-centered and promote cooperative and beneficial outcomes for society.

Nomadic cultures such as of ancient Mongolia educated their children through oral traditions, storytelling, songs and legends(53–56). These traditions cultivate values such as Sharing and Fairness. They emphasize community, equality, and sharing knowledge, which are important in creating AI systems that are equitable and just.

Regions	Ancient Education Subjects	Related AI Ethics Principles
Ancient China	Philosophy, Ethics, Moral Teachings, Confucian Classics	Humanity, Fairness, Accountability
Ancient India	Holistic Development	Humanity, Safety
Arabic Educational System	Logic, Grammar, Rhetoric, Sciences	Transparency, Accountability
Ancient Persia	Philosophy, Ethics, Mathematics, Medicine, Astronomy	Humanity, Fairness, Accountability
Ancient Japan	Reading, Writing, Arithmetic, Confucian Classics	Privacy, Security
Ancient Tibet	Buddhist Scriptures, Debate, Philosophy, Meditation	Humanity, Collaboration
Ancient Mongolia	Oral Traditions, Storytelling, Songs, Legends	Share, Fairness
Ancient Korea	Confucian Classics, Philosophy, Ethics	Humanity, Fairness, Collaboration

By incorporating these ancient educational subjects into modern curricula, it's possible to foster a set of values among future AI professionals that align with essential AI ethics principles. This approach could create a globally consistent ethical foundation in AI development, as professionals regardless of their geographical location would share a common educational background emphasizing these core values.

5. Conclusion

The examination of ancient educational systems across various cultures highlights a significant correlation with modern AI ethics principles. By integrating the wisdom and teachings from ancient China, India, Arabia, Persia, Japan, Tibet, Mongolia, and Korea, we can create a foundation for AI development that is not only technologically advanced but also ethically sound and culturally sensitive.

These ancient systems, with their emphasis on philosophy, ethics, holistic development, and critical thinking, provide valuable insights into creating AI technologies that are aligned with human values such as fairness, safety, transparency, and collaboration. The study of these diverse educational traditions reveals that a comprehensive education encompassing both foundational knowledge and advanced learning is essential in shaping individuals who are not only proficient in technology but also ethically responsible and culturally aware.

The proposed integration of these ancient educational principles into modern curricula aims to cultivate a globally consistent ethical foundation in AI development. Future AI professionals, equipped with this rich, cross-cultural educational background, will be better positioned to develop AI systems that respect human rights, societal norms, and ethical standards. This approach does not only address the AI alignment problem but also fosters cultural harmony and global understanding, essential in an increasingly interconnected world.

As we stand on the brink of a new era of AI and technological advancements, it is imperative to look back at our rich historical intellectual landscapes for guidance. The ancient wisdom, when harmonized with modern AI ethics, has the potential to guide the development of AI technologies that are beneficial for humanity as a whole, ensuring that these advancements are not just technologically sound but also ethically and culturally informed.

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