HIGHER EDUCATION

Bridging Cartesian roots with 4IR realities

by **M Shahidul Hassan**

THE evolution of higher education over the past three centuries has been guided by the ideas of various philosophers, each contributing to distinct goals: cultivating reason, promoting individual growth, advancing society, and solving practical problems. Dominant philosophies like rationalism during the Enlightenment and pragmatism in the Industrial Age shaped education while coexisting with alternative viewpoints, resulting in a rich and diverse global trajectory. In the Fourth Industrial Revolution era, marked by rapid technological advancements and a highly interconnected world, revisiting these philosophical foundations is crucial to reimagining and adapting Bangladesh's higher education to meet modern challenges effectively.

While philosophers significantly shaped educational ideals, the two oldest universities — Al-Qarawiyyin (established in 859 in Morocco) and the University of Bologna (founded in 1088 in Italy) — emerged independently of direct philosophical frameworks. Al-Qarawiyyin, which began as a mosque, evolved into a hub of higher learning during the Islamic Golden Age. Its ethos was deeply rooted in the Islamic view of knowledge as both a spiritual duty and a societal obligation. While it later incorporated the works of thinkers like Aristotle, Ibn Sina, and Ibn Rushd, its foundation reflected the vision of Fatima al-Fihri, an Arab woman dedicated to fostering intellectual and educational growth within an Islamic framework. Conversely, the University of Bologna, influenced by classical thinkers like Aristotle and Cicero, Roman legal traditions, and mediaeval scholasticism, focused on law and a pragmatic approach to education aligned with societal needs and its philosophical context.

In the modern era, René Descartes' Cartesian philosophy had a profound impact on higher education, emphasising logic, reason, and systematic inquiry. Descartes' distinction between the mind ('thinking substance') and the body ('physical substance') laid the groundwork for a rationalist model of education. His assertion, 'Cogito, ergo sum' ('I think, therefore I am'), prioritised intellectual reasoning over sensory or emotional experiences, fostering an emphasis on deductive reasoning, analytical thinking, and disciplinary specialisation. While revolutionary at the time, this framework now struggles to address the demands of a globalised, technology-driven world.

Over time, alternative philosophical approaches emerged to critique and complement Cartesian ideals. In the late 17th century, John Locke's empiricist philosophy emphasised experiential learning, arguing that knowledge is acquired through sensory experiences and interaction with the environment. Locke's Some Thoughts Concerning Education (1693) advocated tailoring education to individual contexts and societal needs, bridging intellectual and practical learning.

The 18th century saw Jeremy Bentham's utilitarian principles align education with societal good and practical utility, giving rise to vocational and professional programs. In the early 19th century, Wilhelm von Humboldt introduced the concept of Bildung, focusing on holistic personal development through critical thinking, creativity, and intellectual freedom. Humboldt's integration of teaching and research, first implemented at the University of Berlin in 1810, laid the foundation for modern liberal arts and research universities. However, critics argue that Humboldt's principles, developed for elite education, struggle to scale for mass education systems, which prioritise efficiency, standardised curricula, and employability. Additionally, his philosophy's focus on theoretical knowledge often neglects practical, vocational, or market-oriented skills, leaving graduates less prepared for modern labour markets.

The industrial era brought John Dewey's pragmatic philosophy, which emphasised experiential learning and education's integration with societal progress. Universities increasingly adapted to industrial and administrative demands, further entrenching disciplinary specialisation and standardised curricula.

These century-old models, however, now struggle to keep pace with the transformative demands of the 4IR. Rapid technological advancements, automation, and global interconnectedness require reimagining higher education to prepare graduates for an unpredictable future. As routine tasks are automated, uniquely human traits — such as emotional intelligence, empathy, creativity, critical thinking, innovation, entrepreneurship, and adaptability — are becoming indispensable in complex, innovation-driven environments.

Emotional intelligence and empathy are vital for effective communication and collaboration in diverse, globalised settings, while adaptive skills like problem-solving, resilience, and creativity are essential for thriving in a technology-driven world. These competencies, deeply intertwined with cognitive, emotional, and experiential dimensions, necessitate an education model that integrates all three aspects.

Traditionally, higher education has been seen as a one-time process, preparing students for single professions, often aligned with industrial or bureaucratic roles. Today, careers are increasingly nonlinear, with individuals frequently changing fields or combining roles (e.g., engineers working in healthcare AI). Higher education must equip learners with adaptive skills to navigate this reality. This shift calls for moving beyond rigid, one-size-fits-all models to a dynamic, flexible, and learner-centred system that meets the challenges of the era of 4IR.

Bangladesh is gradually embracing the 4IR, with advanced technologies slowly making their way into industries, services, and administration. At this critical juncture, the question of how higher education should evolve remains pressing. Given the education community's reluctance to embrace major changes, a balanced approach integrating Cartesian and non-Cartesian models is essential. This strategy will equip graduates with the adaptive skills needed for the 4IR while fostering a workforce capable of addressing both local and global demands. Coordinated action is urgently required to meet this challenge, and the nation eagerly awaits its realisation.

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