TECHNOLOGY

# AI and Education: Strategic Imperatives for Corporations and Academic Institutions

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*AI and education are evolving and new strategic imperatives are essential for corporations and academic institutions.*

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# Introduction

AI applied in academic and corporate settings is increasingly utilized and is reshaping organizations worldwide. A **Markets.us** 2024 report indicated that the AI in education market was at $3.6 Billion in 2023 and expected to reach $73.7 Billion in 2033.[1]

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Many organizations are finding value in AI applications. A 2024 UNESCO [2] report indicated that students and teachers use AI for idea generation, writing, building programs and a rage of other activities. A 2024 Carnegie Learning [3] State of Education Report found that 77% of educators believe that AI is useful. In business organizations, A 2023 McKinsey [4] report noted that companies are using generative AI to learn and create such as crafting text drafts (sales and marketing), studying customer needs and building new designs (product and service development) and forecasting trends (service operations).

AI has provided the tools and environment for accelerated learning and enhanced productivity in organizations in a profound way. Amidst this landscape, academic institutions and corporations need to reconfigure how they teach and learn. The 2024 World Economic Forum [5] report underscores the importance of Education 4.0, the quest for preparedness for the future in terms of teaching, learning, skills and values.

# Forthcoming Education Challenges

While advancements in AI have opened new gateways in education, significant infrastructure and societal challenges exist:

**Shift in skills and job security:** Global challenges confronting humanity today, especially those impacting the youth have emerged due to rapid changes in technology, economy and life in general.  This has impacted the global workforce due to the rapid change in skills required to keep pace and the resultant threats to job security.

**Global gap in enrollment and potential costs:** There is an overall gap and deficit in global enrollment rates in higher education and there is a need to elevate participation among the less educated both in developed and developing countries. It is estimated that 250 million students are now currently enrolled, and the number is projected to double to 500 million by 2050.  It is important to prepare for the doubling of global higher education capacity by 2050 given that it requires an estimated cost of $10 trillion in infrastructure investment.

**Bridging the qualitative education deficit:** Quantitative challenge is one aspect of the issue. The greater challenge lies in raising quality by addressing faculty shortages, AI integration obstacles, quality assurance challenges, and skill development complexities. For example, a 2022 report found that some of India's premier Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs) suffered from faculty vacancy rates of 40% or more.[6]

# Challenges in Addressing Global Education Deficit

Creating a global higher education system that is affordable, accessible, and world-class requires a multi-dimensional approach that addresses structural, financial, technological, and cultural barriers.

**Training teachers and students:** A key challenge is the extensive training of those responsible for developing the AI self-paced tutoring systems for instruction. Educational modalities such as student and teacher interaction, feedback and evaluation of the students, the teacher/facilitators responsible for preparation, monitoring and instruction and the training of students to learn in a self-guided, interactive, learning environment need to be planned and prepared for.

**Digital connectivity:** Presently only about two-thirds of those in the higher education enrollment age group have access to internet. Therefore, the extension of the system from national level to both urban and rural locations within many countries will require significant investments in digital connectivity systems in order to make the system truly global in scope and accessible to all eligible students.

**Barriers to access:** A global system will have to achieve language inclusivity by offering multilingual courses and translation support for non-native English speakers. It will also have to address geographical barriers to reach rural populations by establishing satellite campuses in underserved areas.

It is necessary to navigate all these challenges to fully optimize the benefits of AI in education. These issues affect current and future learning in the classroom as well as the boardroom.

# AI Education Opportunities in Academia & Business

In academia, AI in education has been transformational in several ways:

**Growth in online education** – Online education has provided a scalable lower cost delivery system, and it is expanding. For instance, Arizona State University already has 180,000 students, half of them online.

**Cost advantage** – The integration of online education platforms and artificial intelligence tools has revolutionized the educational landscape by significantly reducing instructional costs. The cost of online learning is reduced by one-third compared to traditional brick-and-mortar education.[7]

**Scalability of operations** – Heightened global connectivity has broadened the reach of instruction across countries. Stanford professors use Coursera to deliver AI and computer science courses globally, reaching hundreds of thousands instead of 200 in a classroom. These courses offer expert instruction, scaling lectures and assessments while maintaining rigor.[8]

**Interactive, self-paced, and personalized learning** – Adoption of AI-based tutoring systems makes it possible to provide customized learning experiences for each student adapted to their speed and level of learning, and responsive to their specific questions and areas of interest, which is extremely limited in a normal physical classroom environment.

**Lifelong learning** – Lifelong learning, enhanced by AI, breaks free from traditional constraints by seamlessly integrating theoretical knowledge with practical applications, transforming education into a dynamic, ongoing process that evolves in real-time with industry demands and career progression. LinkedIn Learning uses AI to create personalized learning paths based on users' roles and skills, recommending courses like AI-driven marketing analytics. This approach improved engagement, and in the case of the company Laing O'Rourke increased LinkedIn Learning seat utilization from 35% to 95% after adopting bite-sized, AI-curated courses.[9]

**International talent** – Many universities have been able to access top technological talent and trained educators virtually from all corners of the world using various languages.

**Democratization of instruction** – Separation of instruction and learning through AI opens doors for other qualified sources of instructors including retired teachers, retired or experienced professionals, corporate educational institutions, NGOs, etc.

**Enhanced instruction** – AI tools provide a foundation for content customization to fit learner's interests and pace of learning, continuous feedback for learner, as well as efficient and instant assessment.

In the corporate environment, AI tools have contributed to major inroads in teaching and learning:

**Knowledge sharing** – AI is changing the way knowledge is shared and accessed. AI enables faster discoveries and practical solutions. This competence opens up new opportunities for collaboration, allowing newly gained perspectives to contribute to progress at a fraction of the time and cost.

**Virtual training sessions** – AI-powered virtual classrooms have altered global education and training. Participants from anywhere in the world can now collaborate and learn together in real-time. Geographical barriers are better managed. Many companies are promoting inclusive knowledge sharing and are bringing a precise global perspective to every learning experience. The effectiveness of knowledge sharing and virtual training sessions has already been validated in several school districts in the US. Khan Academy in a grade school research conducted in collaboration with Microsoft and Open AI on Chat GPT-4, found that virtual instruction significantly enhance learning outcomes compared with conventional classroom instruction.

**Research & development** – From abstracting groundbreaking ideas to delivering real-world products, AI accelerates every phase of Research and Development. It enhances prognostic capabilities, streamlines operations, and creates more cost-effective pathways to innovations.[10]

**Customer knowledge** – AI tools are redefining how businesses connect with their customers. By leveraging predictive analytics, companies gain a deeper understanding of customer behaviors and preferences. It is  not just about meeting customer needs but anticipating them and delivering value in ways that feel tailored, meaningful, and effortless, all while building stronger, lasting relationships.

**Thorough analysis** – AI technologies enhance understanding of external and internal operations by providing market intelligence, performance metrics, and trend analysis to inform decisions, mitigate risks, and drive competitiveness.

With major changes unfolding in academia and the corporate realm, a paradigm shift in the application of AI education is necessary.

# Strategic Imperatives in AI Education

Academic institutions and corporations can benefit from five (5) strategic imperatives relating to AI and education:

**Hybridization** – Academic institutions and corporations have the opportunity to blend brick and mortar fundamentals with technological breakthroughs, more fully leveraging and vastly extending the capacity of existing physical, institutional infrastructure. For instance, Stanford University's "AI-Enhanced Learning Spaces" (2023-2024) integrated AI-powered classrooms with the "Stanford Hybrid+" platform, boosting enrollment capacity by 45% and achieving a 92% remote participation rate. Challenges with technical integration and faculty adaptation were resolved through training and support. This initiative demonstrated hybridization's potential to maintain high standards while expanding access.[11]

**Transdisciplinarity and integration** – It has become increasingly convenient to develop transdisciplinary courses combining and integrating perspectives from many different academic fields and drawing on comprehensive integrated databases of content. Harvard's "AI-Integrated Climate Solutions Program" (2023-2024) combines climate science, public policy, computer science, economics, and psychology through an AI-driven knowledge platform. Students developed real-world solutions like AI-based carbon pricing models, leading to 15 research publications and three patent-pending innovations. This initiative showcases AI's role in breaking academic silos and fostering impactful, transdisciplinary learning.[12]

**Dissemination** - computerized AI-driven can be used to scale instruction in academia and to provide up-skilling in corporations at a rapid pace and scale. IBM's "Quantum Learning Accelerator" (2023-2024) rapidly up-skilled 25,000 employees in quantum computing across 40 countries within six months, achieving a 92% completion rate and saving $3.5 million in training costs. The AI-powered platform offered personalized learning paths, real-time progress tracking, and 24/7 AI tutoring support, effectively scaling instruction while maintaining quality.[13]

**Agglomeration** – a combination AI with different technological tools such as virtual reality, quantum computing, and augmented reality can enhance instructional delivery and learning. Microsoft's "HoloLearn XR Training Program" integrates AI with mixed reality, using HoloLens to deliver immersive learning experiences. Achieved a 30% reduction in healthcare training time, saving $63 per labor hour and up to 75% in manufacturing training costs. Users reported annual Personal Protective Equipment (PPE) savings of $954 per employee and operational savings of $3,500 per avoided expert trip. In medical education, HoloLens users experienced improved engagement and higher satisfaction compared to traditional methods.[14]

**Ethical governance and application** - To ensure ethical AI implementation in education, it is essential to establish clear and transparent frameworks that prioritize data privacy, address algorithmic biases, create accountable learning systems, and develop responsible usage guidelines for educational technologies. Stanford's "AI Ethics in Education Framework" ensures ethical AI implementation in education through real-time bias detection, a blockchain for student data privacy, and transparent AI decision-making. The framework includes regular audits by diverse committees and built-in accessibility features for equitable access.[15]

A combination of these approaches can help mitigate the challenges and strengthen the potential brought about by opportunities in AI and education.

# Concluding Thoughts

The World Economic Forum (2024) Education 4.0 Framework highlights the importance of several skills such as global citizenship, innovation and creativity, technology, interpersonal, personalized learning, and the lifelong quest for learning. A set of carefully planned strategic actions that prioritizes the learner, understands the challenges, and leverages the best technological tools can provide a strong foundation for success in education for academic and corporate organizations worldwide.

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