

# Chapter 1

## Artificial Intelligence and E-Learning: Best Practices Across the Globe

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### ABSTRACT

*The Edtech sector has grown with the emergence of new ventures at all levels of education and training. A number of experiments are carried out in this domain across the globe. Artificial intelligence is instrumental in helping institutions to engage students, provide personalised learning, and stay profitable. The chapter provides information about prevalent models being used for instruction design. It also includes examples of best practices of using technology in learning across the globe. Case studies of Yuanfudao (China), Embibe (India), Ruangguru (Indonesia), Tonies (Germany), Virti (UK), Examity (USA), and Packback (USA) are part of this chapter.*

### INTRODUCTION

E-learning segment is going through a major transition with multiple offerings and pedagogical innovations. Covid pandemic proved an accelerator for this sector as all the schools, universities, corporate trainings were forced to move online. This unexpected development led to number of experiments and new offerings in education.

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Venture capital investment in Edtech sector has grown 32 times since 2010 and it reached a record level of 16.1 Billion Dollars in 2020 (*\$16.1B of Global EdTech Venture Capital in 2020 – HolonIQ*, n.d.). Technology, which played a supportive role in classroom, became the centre stage for learning. It also shifted the boundaries of schools and universities making it possible for educators to teach beyond their local areas or regions. This shift made globalisation of education sector and redefined the concept of ‘campus’ and ‘classrooms’. Entire world can become the ‘campus’ now and student from various countries can study together in one classroom. AI interventions provided viable and sustainable solutions to reach rural areas, people with different abilities. 49% of the global population believes that online learning will provide better access to disabled people (Jenner, 2021).

In addition to conventional learning institutions like schools and universities, reskilling emerged as another growing and profitable sector. Rapid changes in business environments, formats and work from home require unlearning old methods and grasping new concepts in a short time. Almost half of the venture capital transactions (48%) in 2020 are for workforce reskilling compared to 33% for K-12, 16% for higher education and just 3% for pre-K level (*\$16.1B of Global EdTech Venture Capital in 2020 – HolonIQ*, n.d.). Key success factors for the reskilling market include autonomy in terms of time, privacy and applications of learning which can be translated into course designs with the help of AI. Virti trained health professionals with the aid of virtual patients and XR 9extended reality).

Although online learning was present prior to pandemic but it gained major traction due to the lockdowns and shutting of physical learning spaces during Covid crisis. In fact the online learning market is likely to increase at a CAGR of more than 13% during 2020-2026 (*Global E-Learning Market - Outlook and Forecast 2021-2026*, n.d.). This quick shift from traditional classroom teaching to online learning is made possible thanks to artificial intelligence. Moreover, AI leads to better retention of key concepts amongst students and improved academic outcomes (*Can Artificial Intelligence Actually Make Classroom Discussion Better? | League for Innovation*, n.d.). It also made education more inclusive by empowering institutions, educators and learners of all abilities (*Unleashing the Power of AI for Education | MIT Technology Review*, n.d.). Edtech companies like Ruangguru is taking education to rural areas of Indonesia. Teachers started to befriend technology to learn the ropes of online delivery, use of video conferencing platforms, and use of multiple tools to enhance student engagement. Micro learning and blended learning have become norms rather than exception in present education scenario (Khan, 2021). Virtual teaching assistants, chatbots, augmented reality, smart text messaging, proctoring services etc. are now widely used in content delivery.

In addition AI can benefit institutions, systems and people working in education domain Data science combined with instruction design principles resulted in numerous

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