

Reimagine and Redesign: Augmented Reality Digital Technologies and 21st Century Education

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Abstract : The future of education is reimagined and redesigned through new technologies and ways of interpreting the world. This reshaping of educational philosophies and their underpinning pedagogies transforms the modes of delivery in educational institutions worldwide. This paper explores new augmented reality digital technologies (ARDTs) and their use cases in reimagining education during the artificial intelligence (AI) age. The future of education and work will be a fluid panorama with no job or career guaranteed in a VUCA (volatility, uncertainty, complexity, ambiguity) environment. Structuring education as a menu of predefined disciplines and degrees in brick-and-mortar educational institutions may no longer be an optimal model. The convergence of three areas: ARDTs, big data and global demand of a highly qualified teacher workforce have far-reaching consequences in the field of education, raising fundamental questions about the nature of education and educators: what is taught, by whom it is taught, how it is taught, and where is it taught. The transformative way knowledge is generated, disseminated, and transformed into products and services comes on top of recent transformations in business processes enabled by data aggregation and networks. Learning centers are being transformed by computer-based intelligent systems. Algorithmic approaches to decision making are starting to permeate both institutional and personal spheres through decision support systems. In education, artificial intelligence (AI) and intelligent systems will become change agents with deep impacts not only on assessment, administrative functions, organizational strategic planning, student acquisition, and retention but also on curriculum design, personal learning networks (PNL), and the global competitiveness of educational institutions and their graduates. Keywords and changing terminology, such as Fourth Industrial Revolution, artificial intelligence (AI), the Internet of Things (IoT), robotics, Augmented Reality Digital Technologies, terminal automation, nanomaterials, educational transformation, frameworks, and emerging trends for a 21st-century education, globalization, Blockchain, Holochain, deep learning, personalized learning, machine learning, and gamification are indicators of a changing dialogue within the education landscape and among its professionals. Areas in which AI is already entwined in education include smart content, intelligent tutoring systems, virtual facilitators, ARDTs, and yet-to-be-invented learning environments with the distinct possibility of blockchain or Holochain integration for administrative organizational purposes. Blockchain or Holochain integration has the potential to disrupt through the automatic recognition and transfer of credits, the tracking of intellectual property, the use of verified sovereign identities for student identification, and immutable certificates/micro-credentials. In conclusion, ARDTs have the potential to foster learning through simulations, digital kiosks, live virtual events, live interactivity, instructor-facilitated learning, AI-driven chatbots, and hyper-realistic experiences. However, there are yet-to-be-analyzed dangers around pervasive information capture, which is more than tracking a user's browsing history. Ultimately, 21st-century ARDTs and computer-assisted learning present significant opportunities and challenges to educational institutions and learners alike.

Keywords : artificial intelligence (AI), Augmented Reality Digital Technologies (ARDT), Blockchain, educational transformation, Holochain, Internet of Things (IoT)

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