Chapter 5
Pedagogical Benefits and the Future of Digital Education With a Focus on Teaching and Learning Processes

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ABSTRACT

This study attempted an examination of the benefits of digital education and its future in the educational sector with particular emphasis on artificial intelligence which has dominated teaching and learning processes. The evolution of education technologies has impacted immensely on education, especially with the ascendancy of artificial intelligence which has added another dimension to the impact of educational digitalization. Both teachers and students are beneficiaries of this technological boom. Intelligent technology is also taking the lead in universalizing or internationalizing education. Distance learning platforms, mass open online courses (MOOCs), and other virtual models have made tremendous impacts in global education as learners can now choose how, when, and where to learn since distance is no longer a barrier to teaching and learning processes. The outbreak of COVID-19 has also strengthened and increased the value size of digitalization in the educational sector.

INTRODUCTION

Educational technology or EdTech has made education highly accessible to people in different parts of the world. Technology, as an agent of transformation and interconnectivity, has generally taken education to a higher level. In specific explanation, educational technology has impacted positively on curriculum design; lecture delivery and learning processes. Betty, Pawar, Sopan, Arinal, Fadhilah, and Astuti (2020) postulated that both teachers and students strongly acknowledged the importance of technology in distance education; and that students' attitude towards educational technologies was also commendable.

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De Lange (2015) posited that most human disabilities would become history in 50 years, considering the pace of technological and research advancements. Social media which are a group of internet-based applications built upon the principles of Web 2.0, which could support creating and exchanging of generated contents (Kaplan and Haenlein, 2010) have added so much to teaching and learning experiences among teachers and students. Intelligent machines are equally doing amazing things that can even outperform man's ability like the cases of the Watson supercomputer which defeated Ken Jennings and Brad Rutter in a Jeopardy game to earn $35,734, leaving Rutter and Jennings to earn only $10,400 and $4800, respectively (Gustin, 2011); and in another situation, two artificial intelligence (AI) programs demonstrated high intentionality and capacity by beating human professional card players at the popular poker game of Texas Hold 'em (Riley, 2017). Artificial intelligence (AI) like Jill Watson is commonly used for teaching and learning activities in educational settings (Kaplan 2021). A lot has been said about the impacts of educational technologies from a more generalized standpoint among scholars, with little space specifically set aside for the discussion on the benefits and future of intelligent technology on teaching and learning processes in the educational sector. Before the infusion of intelligent technologies in the educational sector, technologies like the personal computer, video discs and cassettes were used. However, these technologies could only provide factual knowledge, and could not help learners process ideas (Garito, 1991), making such technologies to be unintelligent as they could not do much to aid learning. However, today, a learner through an intelligent and smart device like chatbot can have individualized learning experiences with the device playing a role of a teacher as it can guide the learner to pace his or her study accordingly. Intelligent technology or artificial intelligence keeps evolving and revolutionizing the educational field leading to effective teaching-learning processes. With the ascendancy of intelligent technology, computers have acquired some levels of intentionality and consciousness, leading to machines being able to demonstrate ability and capacity to combine modern algorithms with deep machine learning experiences to solve complex human related matters (Wogu, Misra, Assibong, Olu-Owolabi, Maskeliūnas, & Robertas 2019). Artificial technology is driven by artificial intelligence. Hence, we cannot talk about intelligent technology without turning to artificial intelligence to contextualize our definitions of the term. With the steady digital growth, leading to some gadgets becoming smarter through Io T technologization, tasks that are usually peculiar to human beings can now be infused into a machine for it to do them. According to Britannica (n.d) Artificial intelligence (AI), is "the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings." Popenici and Kerr (2017) also defined artificial intelligence "as computing systems that are able to engage in human-like processes such as learning, adapting, synthesizing, self-correction and use of data for complex processing tasks." Thus, artificial technology refers to technological devices with intelligent endowments or potentialities that are peculiarly human. Internet search engines that could be used to source information automatically with high level of precision are good examples of technological intelligence that are widely used by teachers and students to advance their teaching or learning endeavors. Teaching and learning tools, learning environment and approaches to teaching and learning have received significant support and enhancement from the ever-growing intelligent technological advancement strides. Students can now receive lectures through intelligent technological devices from the comfort of their homes and offices. Sensors that can even turn on devices' digital alarms or calendars to remind students of important dates and times have equally added glamour to learning activities. Technologized devices or facilities with different degrees of intelligence are helping teachers and students to achieve goals of teaching and learning. Hence, graphing calculators, smartphone apps, interactive whiteboard, dynamic geometry software, and intelligent tutoring systems are used (Glaze, 2019) to facilitate teaching