Chapter 8
Exploring the Role of AI in K12:
Are Robot Teachers Taking Over?

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ABSTRACT

The purpose of this chapter is to discover the role of artificial intelligence (AI) in K12. How AI, in particular robot teachers, are taking over online learning is the key objective of this study. A focus group interview was conducted online to measure the phenomenon. Findings from focus group interview indicated that the traditional method of teaching and learning had been changed dramatically due to numerous reasons, especially due to market turbulence like COVID-19. As a result, the role of AI in K12 received massive attention in society. The study contained a limited number of respondents that may affect the generalizability of the study. Future studies with mixed methodology may shed light on the undiscovered phenomenon of AI in the context of K12.

1. INTRODUCTION

Artificial Intelligence (AI) catches scholarly attention with the development of popular mobile Apps and sophisticated online learning platforms (Hossain et al., 2019). K12 Teachers are facing a global crisis due to pandemic and working extra hours for teaching and evaluation. On average, previous research investigated 50 hours of work pressure on average (Jake, 2020). Although AI has been investigated significantly in business or e-commerce development (Harris & Goode, 2010), the role of technology-enhanced AI usage in educational development is still under shadow. Due to the COVID-19 pandemic, the learning arrangement has been renovated globally with high dependence of technology and online platforms due to increased lock-down around the globe (CNN, 2020). M-learning such as K-12 and the possible challenges for implementation has been explored recently in scholarly articles (Hossain et al., 2019). However, AI-enhanced teaching in the educational development for teaching, assessment, and evaluation during or after the COVID-19 outbreak needs to examine more as the world experienced the worst pandemic (Wu et al., 2020), which may affect the educational achievement of the students severely (de Jong et al., 1997). This chapter is a step-by-step guideline about AI-enhanced teaching and learning in educational development. Besides, the chapter is a representation of whether robot teachers are taking over the pedagogical domain or not. Figure 1 below represents the strategic importance of AI in seven countries where overall, 63% considered the critical importance of AI. Artificial Intelligence in the field of education has always been a topic of debate. Some people have always taken the side of robot teachers where some people have always preferred human beings as teachers. As education with artificial intelligence featured robots has some bright sides, it has some drawbacks too. Because when AI featured robots will be used in education, the cost of education will be higher. This cost will be accommodated to devices, machines, and technological expenses to feature artificial intelligence for better and efficient education. In this race, many students will find it difficult to pay for such an expensive education system. Yet somehow, students can avail of the opportunity because smartphones are very common nowadays to all kinds of people. Smartphones now are pretty affordable, and almost everyone has access to smartphones. Statistics show a massive increase in smartphone users over the years (O'Dea, 2020). This number of smartphone users that statistics show is mostly accommodated by students. Desktops or laptops are also available at a reasonable price. Graph 1 below is a representation of country-wise strategic importance of AI.

The key purpose of the study is to determine the AI-enhanced teaching with the help of robotic technology. Existing literature investigated the role of technology-enhanced social media usage; TPACK and the usage in the classroom (Hossain et al., 2019); variety seeking with education technology and mobile usage (Hossain, Nurunnabi, Khalid and Saha, 2019); role of AI and other available technology in education (Kamaluddin et al., 2020; Sundarseen et al., 2020; Hossain, Xi, Nurunnabi, 2019), however, the role of AI-enhanced teaching with the help of robotic technology has not been investigated by the scholars yet. This chapter aims to illustrate the AI-enhanced teaching with the help of robotic technology in order to ensure sustainable educational development.

2. LITERATURE REVIEW ON ARTIFICIAL INTELLIGENCE

Artificial Intelligence relates to the imitation of human intelligence but is represented in the form of machinery which is organized and scheduled to process and perform like a human being. In the current

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