Chapter 3
The Impact of AI Requires Integration Across K-12 and Tertiary Learning

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ABSTRACT

This chapter explores the integration of artificial intelligence (AI) in South African K-12 education and its influence on literacy, especially as students progress to higher education. It addresses the varying levels of school development in South Africa and the challenges teachers face, including infrastructure issues and differing attitudes towards AI. Using Rogers' diffusion of innovations model, teachers are categorised into five groups, from innovators to laggards, to assess their openness to AI in education. The study emphasises the crucial role of early adopters in successfully implementing AI technologies. It suggests that by supporting innovators and early adopters, significant improvements in literacy levels in schools could be achieved, potentially elevating literacy in higher education. The chapter discusses AI's potential to transform traditional educational models and its role in literacy enhancement within South Africa's K-12 sector.

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"Artificial intelligence is not a substitute for human intelligence; it is a tool to amplify human creativity and ingenuity." – Fei-Fei Li, Co-Director, Stanford Institute for Human-Centered Artificial Intelligence and IT Professor, Graduate School of Business

"I believe AI is going to change the world more than anything in the history of humanity. More than electricity." – Kai-Fu Lee, AI Expert, Chairman and CEO of Sinovation Ventures, Author of 'AI Superpowers' and 'AI 2041'

INTRODUCTION

South African education has a vast, divided past. While many institutions of learning are losing the literacy battle daily, others are flying ever higher and would rank highly in global metrics. However, in a contemporary world with increasingly digitized interconnectivity, one cannot merely consider literacy in its traditional milieu. Although the time-honored concept of the Three Rs (Reading, 'Riting and 'Rithmetic) is still vital (Ippolito, 2008), one must now consider several literacies when preparing young citizens for a happy, productive, successful, and rewarding future. So, according to Reddy et al. (2023), besides traditional literacy (as mentioned above), further important literacies to be considered and incorporated include communication literacy, computer literacy, information literacy, media literacy, technological literacy, and visual literacy.

Branson (2023) highlights the value of including New Literacies Studies at elementary schools, claiming that,

"Digital literacy goes beyond merely operating technology tools and devices. It includes the cognitive and social processes that take place when reading, writing, and communicating in digital spaces and with digital tools."

Furthermore, Lankshear & Knobel (2006) caution that the introduction of new technologies "widen the gap" between those with "insider status" who are comfortable with technology and those who are "outsiders", with minimal access to or experience of the digital world. Contemporary students also require academic literacy, digital literacy, and knowledge of how to work with artificial intelligence (AI literacy) to succeed in their studies.

Although this book is aimed at artificial intelligence and literacy in higher education, school-leavers enrolling at tertiary institutions need to be well-positioned in the aforesaid literacies to cope and excel in higher education. The better the literacy levels of school-leavers, the sounder the literacy levels of first year university students, with the concomitant likelihood of greater success in higher education.