

Disruptive Technologies Enhancing Learners' Experience in Teaching and Learning

Zanele Mpanza and Ngaka Mosia

University of South Africa

zanelemp@gmail.com, mosian@unisa.ac.za

Abstract

Higher education is rapidly changing, and technology is the catalyst for the change. The appeal for integrating robotics education into the engineering curriculum has become more attractive and commonplace in lecture rooms. Robotics is a technology-based experiential learning activity that enables participants the opportunity to learn and apply 4IR and automation skills. The integration of robotics education into engineering programs and its impact on the pedagogical proposals leads to the development of 3IR skills that will enable learners to transition into 4IR professionals. The research addresses the question of whether the robotics thinking concept applied in education may go beyond the application of didactic and pedagogical practices and increase students' digital skills. Therefore, the application of 4IR strategies in education enhances students' experience and results in learners becoming digitally skilled and competent. This research adopts a qualitative research approach to explore and explain the primary strength of disruptive technologies in teaching and learning activities in engineering education. The results are a) The value derived when students become aware of the impact of cross-functional team relationships and decisions about the design of engineering products, automation, and 4IR implications. b) Students learn how to develop engineering design concepts and establish a clear insight about alignment and the dynamics of production execution, c) Engineering technology students learn to work with the current technology to solve current problems, and graduate engineering students learn to develop new technology to solve future industry problems.

Keywords

Healthcare, Big data, Analytics, Hospital, Technology