

https://dspace.org/

Preparing Grade 9 technology learners for the terrain of the fourth industrial revolution

Ngcobo, Zime

2024

https://hdl.handle.net/10539/37333

Downloaded from a DSpace repository. https://dspace.org/

Abstract

The fourth industrial revolution (4IR) represents a complete shift from manual and conventional methods of operation to a more computerized one. It is crucial to get ready for this environment so that civilization can survive and manage it throughout this period. The goal of this research was to find out if technology students in grade 9 are being adequately prepared for the 4IR environment. The study examined the pedagogies, subject-matter expertise, and 4IR knowledge that potential grade 9 technology teachers may possess to achieve this goal. Due to the nature of the focus of the study, it remains important to target individuals who are relevant to the study and may contribute relevant findings, purpose sampling was done, hence, only well experienced Grade 9 Technology teachers were requested to participate. Five South African public schools in Gauteng province participated in the study. In these five South African public schools, only grade 9 Technology teachers were requested to participate. Learners did not form part of the research as the research dwells much on the teaching strategies and type of content presented in the classroom. Data was collected using interviews through Google Meets virtual platform with ten Technology teachers in grade 9. The study is qualitative and used a case study. The conceptual framework for the development of 4IR skills, which was modified from (Kamaruzaman, Hamid, Mutalib & Rasul, 2019), served as the basis for the data analysis. The data analysis approach of this study was entirely based on inductive reasoning as all the findings and conclusions were based on evident information. The link between educational institutions, graduates, and workplaces was explained in detail and in broad strokes by this paradigm. This demonstrates how crucial it is for the educational system to deliver high-quality instruction that is compatible with the demands of the 4IR workplace. The 4IR skills are anticipated to be taught through the educational system utilizing digital tools and effective pedagogies. The research revealed that the majority of technology educators in public schools lacked adequate digital teaching and learning resources, which impede them from using digital technology-driven instruction in the classroom. This further prevent students from using digital resources to acquire 4IR skills like digital fluency. Participants also mentioned that the majority of them lacked digital technology abilities and were unable to use these educational tools because of this. Participants are thus unable to get learners ready for the 4IR. Learning the skills required for the 4IR workplace are being hampered by learners' lack of exposure to digital technology. Some participants also expressed their lack of familiarity with the 4IR. They are unaware of and do not think that 4IR is a possibility. Because of this, it is impossible to prepare students for this period. To ensure for protection and reliability of the

study, ethical procedures were followed according to the expectations of the university. Personal information of all the participants was protected at all times.

Key words: Fourth Industrial Revolution, Digital technology, design process, instruction, Artificial Intelligence