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The state of readiness of government school teachers in the introduction of the fourth industrial revolution

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ABSTRACT

The World Economic Forum (WEF) has made it clear that the world has entered a new Industrial Revolution (IR). This new revolution is identified as the Fourth Industrial Revolution (4IR). The fourth industrial revolution features in late innovations and new technological transformation such as Three-Dimensional Printing (3D Printing), Artificial Intelligence (AI), blockchain, big data, Internet of things (IoT), coding, nanotechnology, quantum computing, and Programming. The world has started witnessing such technological advancements in other sectors of the economy such as aeronautics, construction, agriculture, health and finance. While the universe is growing digitally at a rapid pace, it is significant to question the state of readiness of teachers in government schools to determine their readiness in welcoming the 4IR in schools. Considerable attention must be paid to the education sector in preparing teachers and learners to meet the requirements of the 4IR and beyond. This qualitative study explored the state of readiness of public-school teachers in the introduction of the 4IR. The aim of the study was to identify how ready are teachers in delivering fourth industrial education (4IR Education) in the classrooms, what digital skills and e-skills are required and assessing teachers' knowledge on the 4IR. The study employed qualitative methods. Interviews and Surveys were used as a mixed method of data collection. Ten teachers from the Johannesburg Central District participated in the study. Purposive Sampling was employed to sample the participants. The results were analysed using content analysis. The World Economic Forum Education 4.0 Framework was adopted as the study's conceptual framework. The results from the e-readiness criteria tool indicated that public school teachers in the Johannesburg Central District are 69% ready in terms of ICT and other digital skills. Opposing to that, the results from the interviews indicated that teachers hold insufficient knowledge on the introduction of the 4IR making it difficult to implement 4IR learning in schools. It was recommended that teachers need to be developed on 4IR, engage in STEM programmes for technology integration, invest in 4IR resources and Implement ICT structures in schools.