

Measuring teachers' knowledge on the applications of The nine pillars of the fourth industrial Revolution (4ir) in education

ABSTRACT

The Fourth Industrial Revolution (4IR) refers to the current rapid technological growth that fundamentally changes how humans live. 4IR is essential to improve higher education worldwide and develop crucial skills such as e-learning and innovation, information and media technology, and life and career skills. This study aims to assess the knowledge of the application of the nine pillars of 4IR in Education among STEM teachers in Malaysia. The nine primary pillars of 4IR that create a digital revolution in industries are autonomous robots, augmented reality (AR), system integration, additive manufacturing, cybersecurity, cloud computing, big data and analytics, the internet of things (IoT), and simulation. A quantitative study approach, through a survey questionnaire, is utilized to conduct the study. Meanwhile, a sample size of 200 secondary school STEM teachers in Malaysia had been chosen through a simple random sampling technique. Mean scores are used to assess the knowledge. The findings of the study showed that the teachers are highly knowledgeable about the application of simulation (M=4.15), augmented reality (M=4.11), and autonomous robots (M=4.06) in education. Meanwhile, the teachers have moderate knowledge in the application of cybersecurity (M=3.29), additive manufacturing (M=3.27), and the internet of things (M=3.11) in education. Finally, the teachers recorded a low level of knowledge toward the application of cloud computing (M=2.48), horizontal and vertical integration (M=2.20), as well as big data and analytics (M=2.02) in education. This study gives implications for ensuring the teachers can meet the demands of the present education system and help their learners become more proficient in learning. In conclusion, integrating 4IR technology is an important aspect that needs to be utilized in teachers' teaching practices.