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TVET needs to embrace metaverse technology

In Industry 4.0 (IR4.0), metaverse is a gold mine. A new technology is emerging. Beyond Artificial Intelligence (AI), metaverse is the next generation of the virtual world. -Reuters file pic

In Industry 4.0 (IR4.0), metaverse is a gold mine. A new technology is emerging. Beyond Artificial Intelligence (AI), metaverse is the next generation of the virtual world.

It is projected that metaverse technology will generate US$13 trillion worldwide.

Metaverse comprises augmented reality (AR), virtual reality (VR), mixed reality, hologram, digital avatars, AI, non-fungible tokens, blockchain, 3D modelling, and game design and development.

The rise of digital workers has changed the landscape of technical and vocational education and training (TVET) in several countries. Meta chief executive officer Mark Zuckerberg said metaverse was the next generation of the Internet.

The Internet today ubiquitous, with more than 40,000 networks worldwide, over a hundred million servers, almost two billion websites and tens of billions of devices.

The word "metaverse" was derived from *Snow Crash* — the 1992 sci-fi novel by Neal Stephenson. He coined the term "metaverse" to desribe a virtual world where future people communicate, play, work and do business.

Popular sci-fi movies, such as *Tron* (1982), *Total Recall* (1990), *Virtuosity* (1995), *Johnny Mnemonic* (1995), *Space Jam* (1996), the Matrix trilogy (1999), and *Free Guy* (2021), all depict a metaverse world.

In learning new knowledge and skills, metaverse allows for learners to experience working in challenging conditions, such as welding underwater, performing open-heart surgery or tracking booby traps in war zones, without the repercussions of making mistakes or a bad choice.

It is like training a pilot in a simulator. Vocational training using metaverse removes the need to have an extensive inventory of expensive equipment, such as CNC machines, automotive training facilities, and welding equipment.

In the disruption and digital revolution age, AI in the form of robotics is expected to replace 50 per cent of the full-time workers.

TVET also provides opportunities for job creation. Besides TVET practitioners, metaverse skills could be beneficial for teachers. About 85 million teachers are currently employed worldwide. And, an additional 69 million teachers will need to be recruited in the coming years.

In TVET, metaverse provides a virtual environment where apprentices work. It is predicted that investment in digitalisation would increase a country's gross domestic product to 28 per cent.

The Higher Education Ministry produced a digitalisation masterplan to make our universities and technical institutions more digital savvy.

The largest and fastest-growing investments are on immersive technology in education, which are projected to attract about US$404 billion of capital globally by 2025, amid increased recognition of the importance of technology-enabled and remote learning during the pandemic.

Malaysia targets 195 robots to 10,000 workers by 2030. Imagine if we had six million workers so we need at least 117,000 robots. There are companies that will make those robots and TVET technicians to maintain them.

Based on a Multimedia Development Corporation (MDEC) survey, 48 per cent of Malaysian companies adopted digital platforms, and about 85 per cent stated they needed to adopt digital technologies and are focused on reskilling or upskilling employees in digital technologies and applications.

However, when it comes to digitalisation in TVET, there are major inequalities among learners, trainers and industry in their ability to develop virtual products. Cyber-dystopia could be the by-product of a schooling system that lacks digital infrastructure.

The paradox of metaverse is that it is not only VR, cyber avatars and immersive games, but it also has real benefits for making a living. TVET deep learning using metaverse virtual labs is known as the avatars of simulated learning.

In virtual worlds, each person will have a digital avatar, essentially their doppelganger.

Metaverse economy aims to create cyber futurism. Selling a product is a normal business transaction, but selling the future is more profitable. In reality, it may be that people think of "metaverse" products as only VR games and digital avatars, but in reality, metaverse can be used for immersive virtual vocational training.

To boost the metaverse economy, TVET students should be trained to become cyber business leaders and metaverse technopreneurs. Hence, smart collaboration between training institutions, academia and metaverse industry is pertinent in developing TVET metaverse talent. TVET systems needs to embrace AI metaverse technology if it is to remain relevant and sustainable in IR4.0.