Letter to Editor

Metaverse: A New Opportunity in Emergency and Disaster Training

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Citation Beyrami Jam M, Akbari-Shahrestanaki Y, Salavatian A, Shafiei A. Metaverse: A New Opportunity in Emergency and Disaster Training. Health in Emergencies and Disasters Quarterly. 2024; 9(4):247-248. http://dx.doi.org/10.32598/hdq.9.4.151.4

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New computer science technologies have sought to bring the virtual world and the real world closer and increase human interactions. Formerly, from the viewpoint of end users, personal computers, the Internet, and mobile devices were the three main waves of technology innovation, and the three-dimensional, immersive technologies, such as virtual reality (VR) and augmented reality (AR) are the fourth wave of this movement [1]. Metaverse is a new paradigm that is expected to revolutionize and change dramatically in various areas, such as business, telecommuting, entertainment, and especially education. Metaverse consists of two-compound hybrid words, including meta which is a Greek prefix, meaning post (after or beyond) and universe [1]. Metaverse is a multiuser, eternal, post-reality environment that combines digital virtuality and physical reality. Its foundation is the confluence of technologies, like VR and AR, which allow for multimodal interactions with digital objects, people, and virtual surroundings. As a result, the metaverse can be defined as a persistent multiuser platform that is connected to other networks of socially engaging settings [2].

Disasters are increasing at an alarming rate, and their effects, including human suffering and financial costs, are expanding [3]. Preparedness is an important phase of the disaster management cycle and training the staff of responsible organizations and institutions can play an effective role in reducing the adverse effects of disasters. The World Health Organization (WHO) and the Sendai framework for disaster risk reduction 2015–2030, have emphasized preparedness, especially in hospitals, for disasters [4, 5]. However, these organizations have continuously faced educational challenges, such as a lack of training opportunities and the cost of practical and live training [6]. This letter has been written to highlight the significance of the metaverse and its following opportunities in disaster training.

In recent years, with the development of computer and Internet technology and other electronic information technologies, new technologies, such as VR and AR, have been introduced and their creators have tried to address these challenges [6-9]. However, these technologies, similar to many other new technologies, have some limitations and problems for educational program learners, especially for disaster training learners. For example, expensive and heavy equipment, difficulty in use, and the possibility of breaking equipment when using them are potential problems of VR and AR technologies [10].

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Although metaverse technology has some challenges, including the probability of loss of users' privacy, using the expensive technology, the ethical concerns in using the technology, possibly fewer social ties, the potential for committing a wide range of crimes due to anonymity and the metaverse's virtual environment, etc. [11, 12]. It overcomes VR and AR technologies challenges, especially the weight, and difficulty of using the equipment, and has features that make it motivating from an educational perspective [13]. Through virtualization, the metaverse offers new experiences and high immersion while fostering new social ties increasing creativity, and sharing freedom [12]. Recently, studies have been conducted in this regard, which show the effectiveness of metaverse in teaching disasters [14-16]. The literature indicates that in the future, this technology will be used in disaster teaching more and more. As one of the metaverse technologies, VR offers immersive, repeatable, and affordable qualities that will better prepare the healthcare system to survive the effects of future disasters [17]. Also, AR and VR research is being done on training triage skills [18]. Accordingly, it is anticipated that the opportunity to employ metaverse technology in disaster training will expand with the resolution of the owners' current worries and issues.

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