

## The Digitalization of Occupational Health and Safety Training: A Fourth Industrial Revolution Perspective

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**Abstract :** Digital transformation and the digitization of occupational health and safety training have grown exponentially due to a variety of contributing factors. The literature suggests that digitalization has numerous benefits but also has associated challenges. The aim of the paper is to develop an understanding of both the perceived benefits and challenges of digitalization in an occupational health and safety context in an effort to design and develop e-learning interventions that will optimize the benefits of digitalization and address the associated challenges. The paper proposes, deliberate and tests the design principles of an e-learning intervention to ensure alignment with the requirements of a digitally transformed environment. The results of the research are based on a literature review regarding the requirements and effect of the Fourth Industrial Revolution on learning and e-learning in particular. The findings of the literature review are enhanced with empirical research in the form of a case study conducted in an organization that designs and develops e-learning content in the occupational health and safety industry. The primary findings of the research indicated that: (i) The requirements of learners and organizations in respect of e-learning are different than previously (i.e., a pre-Fourth Industrial Revolution related work setting). (ii) The design principles of an e-learning intervention need to be aligned with the entire value chain of the organization. (iii) Digital twins support and enhance the design and development of e-learning. (iv) Learning should incorporate a multitude of sensory experiences and should not only be based on visual stimulation. (v) Data that are generated as a result of e-learning interventions should be incorporated into big data streams to be analyzed and to become actionable. It is therefore concluded that there is general consensus on the requirements that e-learning interventions need to adhere to in a digitally transformed occupational health and safety work environment. The challenge remains for organizations to incorporate data generated as a result of e-learning interventions into the digital ecosystem of the organization.

**Keywords :** digitalization, training, fourth industrial revolution, big data

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