

Chapter 5

Role of Augmented Reality in Vocational Education and Training: A PRISMA-Compliant Systematic Literature Review

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ABSTRACT

Augmented reality (AR) has the potential to revolutionize the field of vocational education and training. AR offers immersive and interactive learning experiences that are especially well-suited to skill-based education by superimposing digital information onto the real world. AR is a perfect tool for improving the teaching and learning process in a variety of vocational disciplines because of the growing complexity of vocational skills and the requirement for practical training. The use of AR in vocational education and training is still in its early phases, despite its promise, and a thorough analysis of the literature is required to comprehend its advantages, disadvantages, and potential future possibilities. Using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, this chapter attempts to conduct a systematic evaluation of the body of research on the application of AR in vocational education and training.

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INTRODUCTION

Augmented reality (AR) has become a game-changer in recent years and has enormous implications for education, especially for vocational education and training. Historically or traditionally, physical tools, in-person demonstrations, and real-world practice have been key components of vocational education and training, which places an emphasis on practical skills and hands-on experience. Nevertheless, by delivering hitherto unachievable immersive, interactive, and contextually rich learning experiences, the application of AR in this field has the possibility to improve these conventional approaches (Wang et al., 2017; Akçayır & Akçayır, 2017). By superimposing digital content over the real world, augmented reality technology allows students to interact with both virtual and real aspects at the same time. With the ability to practice intricate tasks in a virtual environment that closely mimics real-world settings, students can reduce the risks and expenses associated with traditional training techniques, which makes this capability especially important in vocational education and training (Pantelidis, 2010). For example, augmented reality (AR) can mimic dangerous work settings, giving students the opportunity to practice safety procedures without actually being in risk (Farra et al., 2019).

Numerous industries, including healthcare, engineering, automobile repair, and construction, have investigated the use of augmented reality in vocational education and training (Bacca et al., 2014). Research has demonstrated that augmented reality can enhance students' motivation, engagement, and skill retention, making it an effective tool for vocational education (Garzón & Acevedo, 2019). The use of AR in vocational education and training is still in its infancy, despite these encouraging results, and the corpus of research that has already been done on the subject is dispersed and varied in terms of technique, results, and settings. This chapter provides a PRISMA-compliant systematic literature review in order to methodically evaluate the current state of research on the application of AR in vocational education and training. A thorough and open method for evaluating and synthesizing previous research is offered by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework (Moher et al., 2009). The purpose of this review is to assess the usefulness of augmented reality (AR) in vocational education and training, pinpoint the obstacles and restrictions associated with its application, and draw attention to any gaps in the literature that call for more research.

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