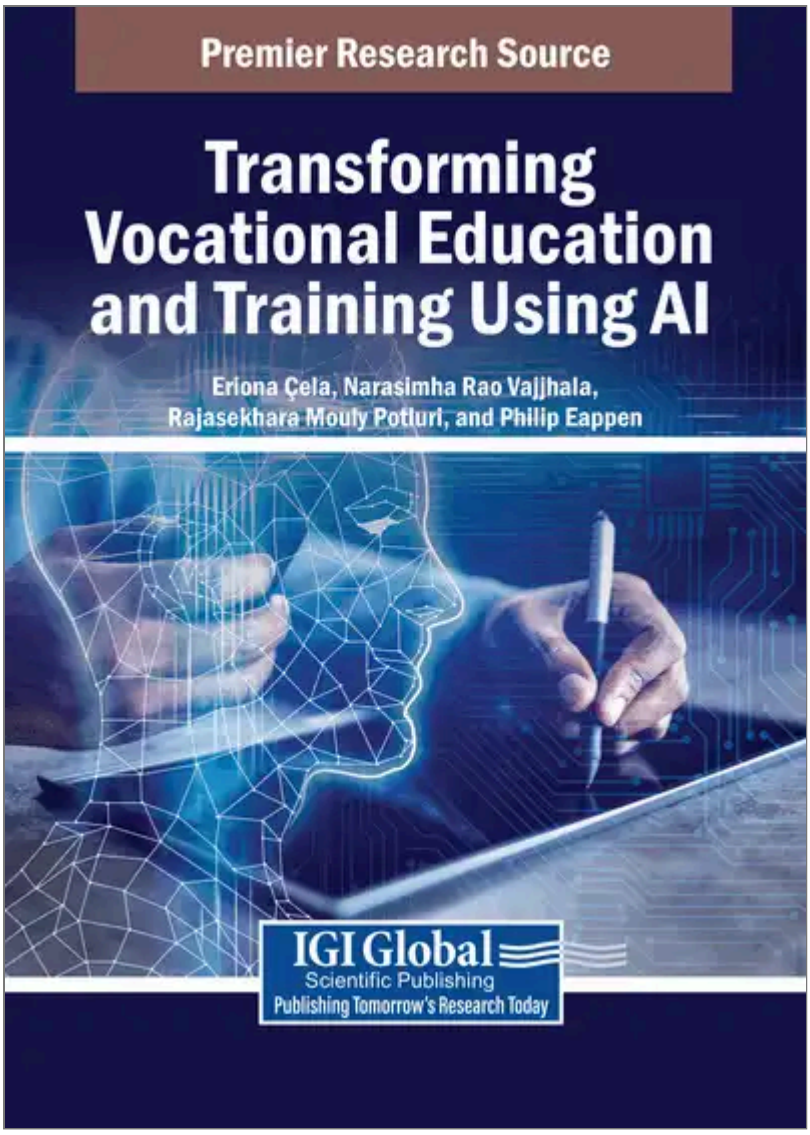

AI in Vocational Education and Training: Technologies and Applications

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Source Title: Transforming Vocational Education and Training Using AI (/gateway/book/349992)

Pages: 24

ISBN13: 9798369382523ISBN13 Softcover: 9798369382530EISBN13: 9798369382547

DOI: 10.4018/979-8-3693-8252-3.ch003

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Abstract

Vocational Education and Training (VET) equips individuals with practical skills and knowledge tailored to specific careers or trades, providing a direct pathway to employment and sustainable livelihoods. Unlike traditional academic education, which often emphasizes broader theoretical content, VET is inherently hands-on and career-focused. In today's digital economy, integrating Artificial Intelligence (AI) technologies into VET revolutionizes skill development and delivery, bridging the digital divide and

enhancing accessibility. This chapter explores the transformative role of AI in VET, examining a range of AI-driven tools and methodologies currently in use. Key innovations discussed include learning analytics, virtual and augmented reality, adaptive learning systems, and AI-powered educational platforms, all of which contribute to creating more personalized, immersive, and effective learning experiences.

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Artificial Intelligence (Ai) In Education

The integration of AI in Vocational Education and Training (VET) is transforming the learning territory. AI will likely evolve through a feedback loop between schools and students, driving enhanced academic outcomes. A balance between AI-driven instruction and human-centered teaching is crucial for successful adoption. Educators' perspectives and needs must be addressed to foster a dynamic learning experience. AI will augment human capabilities, optimizing task distribution and refining learning content recommendations.

AI is poised to reshape VET through a dynamic interplay of human and artificial intelligence (Suzuki, 2020). Technological advancements in AI necessitate a collaborative approach, striking a balance between AI-driven instruction and human-centered teaching (Ifenthaler and Schumacher, 2023). This reciprocity involves augmenting human capabilities, optimizing task distribution, and refining learning content recommendations (Ifenthaler and Schumacher, 2023). AI integration in VET will likely evolve through a positive feedback loop between the school and students (You et al., 2023). Schools' effective supervision and students' active participation will drive AI's evolution, leading to enhanced academic outcomes while preserving human-centric approaches (You et al., 2023). Understanding educators' perspectives, building trust through experience, and addressing their needs are paramount for successful AI adoption in VET (Suzuki, 2020). This delicate balance ensures that AI complements human intelligence, fostering a dynamic and detailed learning experience.

Historical Evolution and Key Milestones

The integration of AI in Vocational Education and Training holds great promise for improved learning outcomes. Educators must balance AI's benefits with human-centered instruction. Future research will play a crucial role in addressing AI's limitations in VET. This will optimize training outcomes and unlock AI's full potential. As AI evolves in VET, it's expected to bring significant changes to teaching and learning. AI is poised to revolutionize Vocational Education and Training (VET). Its role lies in enhancing learning outcomes (Suzuki, 2020). Educators must strike a delicate balance between harnessing AI's benefits and preserving human-centered instruction (Alqahtani et al., 2023). Future research and development initiatives hold immense significance in addressing current limitations (Denny et al., 2023). By exploring the applications of AI in VET, researchers can optimize training outcomes and unlock the full potential of this life-changing technology (Yilmaz et al., 2023; Gibson et al., 2023).

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Chapter 3
AI in Vocational Education and Training: Technologies and Applications

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ABSTRACT

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DOI: 10.4018/979-8-3693-8252-3.ch003

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