# A Review on Adapting the Four-Component Instructional Design Framework for Immersive 6DoF VR in Vocational Training

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## Abstract:

This review paper explores the integration of the Four-Component Instructional Design (4C/ID) framework within immersive six degrees of freedom virtual reality (6DoF VR) environments for vocational education and training. As traditional vocational training evolves to embrace digital transformation, immersive VR presents a compelling opportunity to simulate real-world skill scenarios. However, instructional design models such as 4C/ID must be modified to align with VR's embodied, interactive, and adaptive affordances. This paper examines the theoretical foundations, pedagogical challenges, and comparative advantages of the 4C/ID model relative to other instructional design frameworks such as ADDIE, Gagné's Nine Events, and Learning Experience Design (LXD). Supported by presence pedagogy and complexity theory, the study proposes a conceptual model that integrates real-time feedback, spatial interaction, and learner agency into 4C/ID's original structure. The model serves as a structured yet flexible blueprint for designing immersive VR training modules tailored to vocational contexts. The review identifies critical gaps in current research and offers a pathway for empirical validation. Findings suggest that a modified 4C/ID framework can bridge the gap between immersive technology and pedagogy, enhancing engagement, skill acquisition, and instructional effectiveness in vocational training.

## Keywords:

Immersive Learning, Instructional Design, Vocational Training, 4C/ID Framework, 6DoF Virtual Reality.