


Chapter 12

Exploring the Benefits of Virtual Reality (VR) in Manufacturing Training: A Comprehensive Overview

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ABSTRACT

Manufacturing necessitates a delicate balance of productivity and safety, and factory training must reflect this. Leaders must be able to swiftly grow the workforce to guarantee high productivity. Through off-the-line mental repetitions, virtual reality training assists industrial coworkers in acquiring task execution abilities, boosting situational awareness, and comprehending safety standards. Manufacturers are embracing virtual reality training because it has been shown to drastically cut training times, safety issues, and worker time to profitability. By generating engaging, genuine teaching settings, virtual reality (VR) technology revolutionizes human learning by giving hands-on experiences, improving safety, increasing productivity, and lowering costs. Virtual reality (VR) technology enhances hands-on experiences, reliability, efficiency, and affordability by creating immersive, genuine instructional settings. The chapter presents an overview of the major advantages that VR offers in industrial training programs.

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INTRODUCTION

Training plays a key strategic role in many organizations since it affects employees' knowledge, potential, efficiency, and effectiveness. Companies are constantly looking for the greatest personnel, therefore the need to educate industrial workers is becoming increasingly clear. Training is an activity that alters the behavior of employees. The primary objective of the training is to boost productivity. However, it is simply one of the advantages of training. Training is necessary not just to increase productivity, but also to motivate, encourage, and educate workers by emphasizing the significance of their activities and giving them all of the knowledge, they require to accomplish their jobs properly. In recent years, the industrial business has changed tremendously. With handcrafting through highly structured mass-producing facilities to highly tailored Industry 4.0, items have traditionally been made. As a result, the workforce's ability to adapt to fast-changing environments has increased. Commodity creation is today driven by global competition, and there is a need for rapid adaptation of skills, procedures, and production to meet the demands of changing markets (Doolani,2020; Punia,2012). A manufacturing company's chances of success rise considerably when it helps new and existing personnel realize their maximum potential and productivity via learning. Training for the performance of manufacturing operations is any activity that focuses on delivering information that will help a person conduct their work more skillfully. Training can range from updating best practices in the sector to introducing new skill sets. The ultimate aim is for work teams in a manufacturing plant to coexist at a constant evolutionary level. In this continually changing labor market, it is critical to preserve a competitive edge by regularly educating industrial staff. A continuous growth plan for manufacturing plant staff is one of the most effective and proven strategies to do this (Garavan et.al.,2021). Manufacturing is a key component of global economic growth engines, contributing to both broader economic activity (especially productivity) and jobs. The global manufacturing industry is undergoing major structural change, with the comparative influence transferring progressively from developed to emerging nations. Global value chains have become increasingly important in the creation and manufacture of new goods, and developing nations are increasingly competing with developed economies in knowledge-intensive and low-technology components. Productivity has improved as industrial technology has advanced rapidly. As a result, ensuring employee engagement, achievement, and well-being is critical. Both cognitive and athletic abilities are required. The growing industrial sector has resulted in a major increase in skill demands (Donovan,2013). Training has been identified as a crucial factor in acquiring the skills and competencies required to participate in innovative activities. Manufacturing organizations spent an average of \$1,217 per person on training and development in 2020, accordance to a Training Industry, Inc. survey. According to McKinsey, the survey demonstrates that manufacturing automation and digitalization have radically changed the skill requirements for employment vocations. This is because all new tools and technologies will only work if they are installed and operated by a trained, upskilled workforce (Xie,2020). According to a recent Economic Times study, workers who receive training can improve their performance, increase productivity, and acquire greater leadership qualities. Because a firm is the sum of its workers' achievements, it is critical for organizations to make every effort to ensure that individuals reach their full potential. The introduction of new technology in industrial facilities has produced a talent gap that must be filled. Because of this skill transition, managers and learning and development professionals must rethink their employee training procedures and begin reskilling and upskilling their staff in new digital skills and technologies. The revolution in the field of training has brought Virtual Reality (VR) Training into the market which is helping to improvise the training process very easily. Virtual reality is a sort of

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