



GAME DEVELOPMENT & TECHNOLOGICAL ADVANCEMENTS IN MARITIME TRAINING



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The role of technology in training

These technologies enhance traditional training methods rather than replace them, offering users the flexibility to learn anytime and anywhere, track their progress, and develop skills through feedback.

Yet, to function effectively as a tool, it must align with employees' needs. This highlights the importance of user-friendly interfaces and data analytics so that users can analyse their performance. The analysis suggests techniques or resources to aid the user in reaching their training, education or personal objectives.

Technology is pivotal in training, enabling users to track progress

Technological advancements are significantly impacting training and education across various sectors, including the maritime industry. The significance of leveraging this technology to support the dedicated maritime workforce is becoming increasingly important, argues Jordan Gardner, Immersive Learning Developer at Mintra.

and develop skills through feedback, enhancing traditional methods with user-friendly technology. Virtual Reality (VR) and Augmented Reality (AR) are among the rapidly advancing technologies transforming training across various sectors.

Both the military and the NHS are already using VR tools to revolutionise training methodologies. The maritime industry can leverage these technologies to move away from conventional 2D screen or paper-based training towards immersive real-time environments. scenarios. This shift enhances engagement through hands-on learning, translating directly to practical skills.

For example, ship maintenance or cargo handling training can benefit from VR by demonstrating effective physical performance and testing users in

their execution of tasks. Game engines enable developers to create this type of customised training with scenarios that are tailored to meet specific learning outcomes. They can be seamlessly updated and modified to ensure content remains relevant and adaptable over time.

We can tailor training scenarios to precise outcomes, ensuring content remains relevant and adaptable over time. Integrating feedback mechanisms into VR/AR applications allows session recording and performance review, helping users identify strengths and areas for improvement.

The integration of Artificial Intelligence (AI) in these environments offers immense potential, with AI avatars acting as knowledgeable guides to help users clarify the rationale and navigate complex tasks. This enhances under-

standing and the adoption of specific approaches to accomplish objectives effectively.

Traditional learning and teaching methodologies will be enhanced and enriched by technologies like VR, AR, and AI. The goal is to ensure practical utility, where individuals experience tangible benefits and improvements in their learning and work experiences.

Technological hardware and gaming

As a lecturer in games and interactive media, I focus on the interaction between theoretical and practical aspects to create tangible results. The technological hardware we use today is rapidly advancing with a continual expansion of features and significant sales growth in computers, consoles, and mobile phones. The video game industry, now generating more revenue than the movie and music industries combined, offers a wide range of experiences that cater to all types of users and situations.

What motivates users to play video games? It could be the immersive experience, interactive narrative, social interaction, or competitive nature. Regardless of the reason, the gaming industry offers a wide range of experiences to cater to all types of users and situations. People enjoy games, whether in a digital format or as a physical activity.

Integrating game-based activities into learning environments offers numerous benefits. For instance, games that track stats and present performance data encourage users to improve, often using leaderboards. Leaderboards foster a sense of competition and achievement, driving users to enhance their skills quickly.

Another method could be multiplayer collaboration in VR, which allows teams to work together in a virtual environment to complete tasks, such as training crew to handle fire emergencies on board. Each user is assigned a role and must complete tasks based on these roles, emphasising teamwork, communication, and efficient execution. The data from these sessions can be reviewed to outline improvements in operations.

The advantage of this approach is that it not only reviews the tasks but also evaluates how users interact with each other. Conducting this in VR within an environment of the team's choosing, whether on a vessel or an oil rig, allows for complete immersion and provides a fun, enjoyable and impactful experience.

There is the potential to record vast amounts of information from a user's session in virtual reality, including navigation paths, objects they interacted with, areas they looked at, and the duration of their focus. Mintra is rapidly advancing in data extraction capabilities, to develop applications and be able to provide valuable feedback to the user and their team.

Jordans' background as a lecturer in game development and a lead project manager, makes him uniquely equipped to steer initiatives in immersive learning innovations for safety-critical industries. With a successful track record of integrating advanced technologies into practical learning solutions, Jordan excels in developing immersive learning environments. His work spans from virtual reality applications for automotive training to pioneering educational tools for management training, showcasing his ability to translate complex technologies into user-friendly educational tools. This expertise aligns with Mintra's mission to harness cutting-edge technology to enhance training effectiveness and user engagement in the maritime sector.

By adopting cutting-edge technologies and a forward-looking perspective, the maritime industry can ensure its workforce is better trained, more skilled, and ready to meet future challenges.



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