

An Integrated Approach To Combine Computer-Based Training (CBT) And Immersive Training (ImT) For Mechanical Assembly

ABSTRACT: There is currently a vital need to improve effectiveness and efficiency of training technologies used in industry – especially in the areas of assembly, disassembly, maintenance, installation, and troubleshooting. Current training techniques vary from paper-based (books, manuals) to computer-based (presentations, web pages, on-line help, etc.) to immersive (VR-based) systems. This paper presents an integrated approach to combine Computer- Based Training (CBT) and Immersive Training (ImT). We coin this approach iTrain, integrated Training. iTrain consists of CBT, ImT, and a learning management tool. The goal is to enable transformational change of training through the creation of a new generation training ensemble. In this paper, the methodology, approaches, and algorithms for such integrated training systems are presented. A CBT application that allows interactive training using traditional computer tools (keyboard and mouse) and an ImT application have been integrated using this methodology. These applications are integrated with the Sharable Content Object Reference Model (SCORM) so that the training can be managed, tracked, and evaluated in an effective and efficient. A unified approach has been designed to manage common data such as model name, and model ID. A database has been designed and implemented for access from CBT, ImT, and LMS. This prototype integrated training system is presented and discussed in this paper.