VINCI

Virtual Reality is one of the greatest communication and knowledge transfer tools ever invented. VINCI creates tools to lower the complexity, knowledge, and cost needed to create and manage Virtual Reality simulations. Through our innovations, we will enable a new generation of thinkers, creators, and instructors to create their own.

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U.S. Army Case Study

101st Airborne Division

VINCI's Codex VR Platform is a comprehensive training tool with realistic 3D simulations, analytics, and a content creator built specifically with trainers in mind. This case study examines how the 101st Airborne Division was able to achieve amazing results by using Codex.

Background

The 101st Airborne Division is the only helicopter borne air assault division of the United States Army. Today, the Division is one of the most deployed and famed divisions in the U.S Army, with a distinguished combat record spanning from World War II to the War in Afghanistan.

Essential to the success of the 101st Airborne Division is the unit's air assault school where new trainees are instructed on mobile sling load operations. Sling load operations are the practice of securing heavy equipment to the underbelly of a helicopter thus allowing the 101st Airborne Division to enable logistical operations. This process of rigging the equipment is highly complex, and during Air Assault School, results in a large percentage of students failing the course particularly due to the A-22 cargo bag.

In order to improve pass rates the 101st Airborne Division has partnered with Vinci VR to develop a virtual reality and mobile training platform.

10%

Trainees achieved great results at 10% of the cost of physical simulators.

Problem

While attending Air Assault School, trainees are required to successfully inspect 5 sling loads. The A-22 cargo bag inspection is highly complex and has resulted in an unacceptably high failure rate having a direct and significant financial impact on the organization. In addition to having hundreds of parts, successfully inspecting the A-22 cargo bag for deficiencies requires specific hand movements and a step by step memorization of the inspection sequence.

Assault instructors attributed the high failure rate to two primary causes. Historically used textbooks failed to effectively teach the inspection sequence and students were only afforded one hands-on real equipment training prior to the official hands-on test. Not enough hands-on practice and realistic exposure to defects = high fail rate.

CODEX

End-to-End Virtual Reality Training Platform

01 Create

Creating and modifying VR simulations is as easy as a creating a Power Point. Instructors can personalize training, create procedures, and ensure VR training is updated with changing Operating Procedures.

02 Simulate

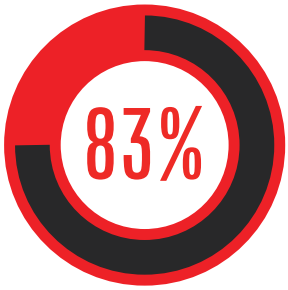
Students are immersed in a detailed 3D environment enabling realistic hands-on training. Scale up training repetitions and select from a range of different training modes like guided walkthroughs and other scenarios.

03 Analyze

Codex analytics enables instructors to Live Stream multiple VR views to a monitoring station, record student performance data, replay video and identify trends in classes with data visualizations.

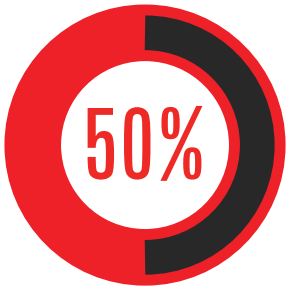
04 Optimize

Once you have gained insight, you can optimze your training programs by tracking student's interactions, gaze focus, and mistakes to identify trends that work.



Improved Performance

Codex helped students improve their total performance by 83% compared to previous training methods.



Improved Confidence

Training with Vinci VR gives users confidence. Over 50% of trainees were ready to operate real aircraft.

Solutions

To realize a cost effective and innovative solution, the 101st Airborne Division, in partnership with Natick Labs, decided to explore modernizing training methods. After considering options from leading training providers, the organization decided that Vinci VR's CODEX platform provided the best solution. Vinci was tasked with developing an A-22 training simulation on both the HTC Vive and mobile device.

The virtual Vive simulation allows students to interact with an identical virtual twin of the bag customized with interactive features of the bag allowing trainees to practice essential hand movements. The Vive headset was incorporated into classroom training increasing the number of both individuals trained and training repetitions per individual.

In order to compliment the Vive virtual reality training Vinci also developed a mobile application that provided trainees with a 3D model of the A-22. This three dimensional model allowed trainees to review step by step the process of inspecting the A-22 sling load while observing a scaled version of the cargo bag. Trainees were able to correctly identify all required defects such as suspension webbing, hooks, straps and friction points. This platform in combination with VINCI's virtual reality simulator, further enhanced training time at a low cost to the 101st Airborne Division.

Cursory data has shown students with virtual reality simulation training experience to have significantly higher pass rates than students without. Official data is still being evaluated by the United States Army Research Laboratory and will be available in the near future.