

CAE TraxAcademy



Overview

One of the key preoccupations of military organizations around the world is the efficient and effective production of pilots. The profound pilot shortage is one of the key challenges facing global militaries, and most are exploring new and innovative training methodologies designed to address the pilot production process. With over 70 years of experience in training and simulation, CAE is leveraging developments in technology, digital learning tools, data analytics and courseware to enable integrated and immersive training for faster, better, and more effective pilot throughput. The CAE Trax Academy is a student-centric, self-paced training system leveraging multiple interconnected elements and tools as part of a mobile-assisted, closed-loop adaptive learning system. This comprehensive and integrated training system is designed to optimize the student pilot's journey from undergraduate pilot training to earning wings.

Learn – The initial phase of the training continuum

Using state-of-the-art training media including a mobile app, high-fidelity cross-platform courseware and virtual reality (VR)-enhanced modules for a visually immersive experience, students **Learn** the training procedure. The curriculum delivers academic understanding of a training task or procedure, organized via the CAE Trax Academy mobile app. The student can monitor their status against learning goals to review activity and results. They can access courseware, manage their schedule, see comparative progression, book resources and more.

Computer-based-training (CBT) modules introduce the subject matter in step-by-step detail. Narrated videos model the ideal actions and reactions as the student progresses through the procedure. Once the basic concepts are mastered, the student receives further instruction via high-fidelity virtual reality (VR)-enhanced content which immerses the student into the scenario and builds situational familiarization to strengthen transferrable skills.



Learn — Practice — Perform



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Practice – Putting what was learned into action

The next phase of the CAE Trax Academy sees students **Practice** in the CAE Sprint Virtual Reality (VR) trainer with physical controls, a virtual coach and CAE Rise (Real-time insights and standardized evaluations) performance assessment. The student starts this phase familiar with the cockpit environment and understands the sequence of events. Procedures are practiced in the CAE Sprint VR trainer utilizing the CAE Medallion image generator, which delivers a higher-fidelity and more realistic virtual environment than traditional VR trainers.

Visual immersion is enabled via a VR headset with high-resolution out-the-window visuals and 20/20 visual acuity to read the instrument panel. Flight controls – joystick, throttle, and rudder pedals, combined with physical cues boosted by haptics and seat vibration – integrate to create a highly realistic immersive virtual environment in a high-fidelity, affordable yet sophisticated VR flight training device with a small footprint.

Student progress is supported by a virtual coach providing immediate, actionable intervention and CAE Rise performance assessment to measure achievement in mastering the training task.



Perform – Demonstrating proficiency

The final stage of the student's journey is to show their ability to synthesize what they have learned and practiced in the two previous stages. Accompanied by an instructor, the student would **Perform** the procedure during a validation with instructor on a high-fidelity flight training device or simulator.

Instructor evaluation is supported by CAE Rise to validate the success of the student's progress and readiness.

CAE Rise is also used to aggregate individual student results into data for the entire class, allowing instructors and administrators to monitor trends, identify gaps and leverage opportunities for continuous improvement.



CAE Sprint VR Training Device for Self-Paced Learning

- High-fidelity, small footprint, immersive virtual environment
- CAE Medallion image generator
- VR headset for out-the-window visuals and instrument panel legibility
- Haptics for physical feedback
- Physical (USB) controls: force-feedback joystick, throttle, rudders
- CAE Rise virtual coach for ongoing intervention and correction
- CAE Rise objective assessment for grading and performance

CAE Rise

CAE Rise is a standard feature of the CAE Trax Academy and continuously supports all phases of the training continuum. It enables real-time coaching; objective assessment; and performance coaching, including the data analytics and predictive analysis necessary for continuous improvement.

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