

CREATING AN ADAPTIVE AND DISTRIBUTED COMPETENCY-BASED LEARNING ENVIRONMENT TO DEVELOP THE NEXT GENERATION OF AVIATION SAFETY INSPECTORS (CMD008)

Principal Investigator: Dr. Todd P. Hubbard,
University of Oklahoma
Industry Partner: Blackboard -- David Palmer,
Thom Lutkenhouse, and Karen Yoshino



HOW DO WE CREATE A MORE FLEXIBLE LEARNING ENVIRONMENT?

Transform the entire training environment

- Move from CBE Level 1 to CBE Level 3
- Create a mobile environment for learners
- Choose the right Learning Management System

Allow participants the flexibility to engage with trainers outside the FAA network

- Distributed learning
- Adaptive learning across all Smart Devices

GOALS AND OBJECTIVES

Goal 1: Transform current training courses into competencies.

- Objective 1.1: Translate training objectives to competencies for each course.
- Objective 1.2: Group competencies into logical groups (e.g. deicing, weight and balance, Part 141).

Goal 2: Relate competencies to job tasks by geographical region.

- Objective 2.1: Create logical connections between competency and "most likely to occur" status by region.
- Objective 2.2: Establish training priorities.

COMPETENCY-BASED EDUCATION, WHAT IS IT?

CBE Level 1

Curriculum and programs are built around specific competencies with authentic assessment. Courses are delivered in a traditional format although curriculum is competency-based.

CBE Level 2

Curriculum and programs are built around specific competencies with authentic assessment. Some components of delivery allow for flexibility, such as start dates and support for learning. Instruction is still confined to a traditional term, however.

CBE Level 3

Curriculum and programs are built around specific competencies with authentic assessment. Delivery allows for flexibility, and start dates are free from the traditional academic term (non-term) and assessment is direct. Students complete programs based on their needs.

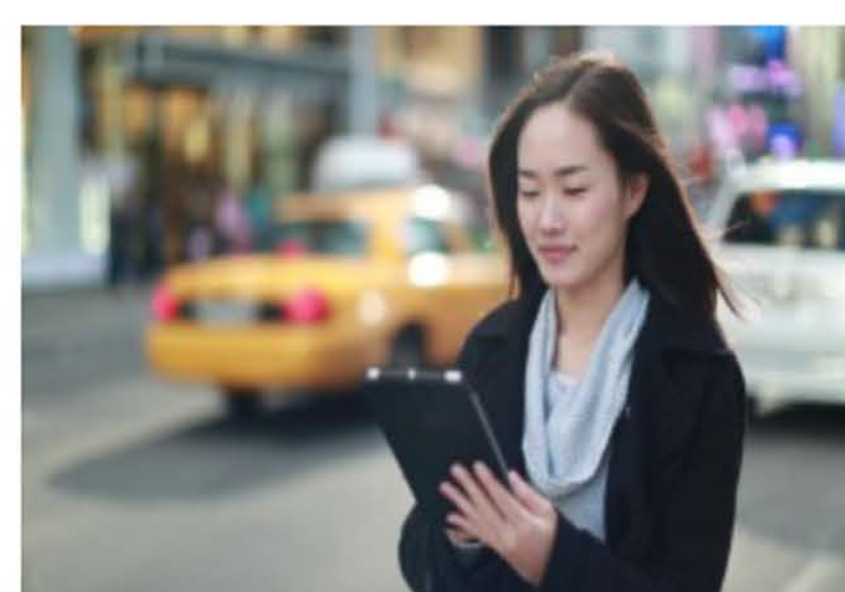
Figure 1. Continuum for Competency-Based Education

Tracy, Rhonda (2016). Is there a continuum for competency-based education? *Applied and Experiential Learning*. Retrieved from <https://evollution.com/programming/applied-and-experiential-learning/is-there-a-continuum-for-competency-based-education/>

WHAT WOULD A MOBILE AND DISTRIBUTED LEARNING ENVIRONMENT LOOK LIKE?

TRAINING IS APP-DRIVEN

All levels of training, from manager of training to the trainee, are plugged into the same FAA Training Competency Program through a dedicated App. When signing in for the first time, the App will ask the participant to identify whether she or he manages training or is a trainee/participant.



PARTICIPANTS ARE NOTIFIED OF TRAINING VIA ANY SMART DEVICES

Mobile and distributed learning environments are accessible by any Smart device. The App notifies the employee of needs for initial or recurrent training. And then the employee completes the training when and where they are, rather than traveling to a specific training site.

If an employee has already achieved a competency, recurrent training starts with a quiz test. If required, any weak area on the test will result in an immediate review, followed by a test that focuses only on the weak areas. Weak areas are de-identified and then sent as notices to all those with the same competency.



TRAINING MANAGEMENT

When training is successfully accomplished, the facility map shows when others in a competency have reviewed the weak areas. The App allows all members of a competency to communicate with others in that competency. All weak areas or notices are also visible to instructors, who can in future training, identify those same weaknesses and explain how best to overcome those weaknesses.

WHAT WOULD THAT LOOK LIKE IN THE DE-ICING MANAGEMENT/EVALUATION COMPETENCY?

Using Augmented Reality Smart glasses, the Aviation Safety Inspector will be able to monitor de-icing operations, communicate with others in the same competency, and connect to the experts for special troubleshooting tips with the stroke of her or his hand in the virtual workspace.



Meanwhile, other experts in the system can view the operation from their Smart device, and perhaps lend their assistance from any location. The real time video feed, with audio, keeps everyone in the network connected and available. No inspector will ever be truly alone when completing their assigned tasks.



Even if a member of the competency group is on travel, she or he will be able to access live or recorded events at any facility. Whether using data or WiFi, everyone will be connected to as much of the day to day routine as required. This system makes things safer, more efficient, and more reliable.

NEXT STEPS: WHERE TO FROM HERE?

- Conform all training to Level 3 Competency Based Education
- Redesign courses to reduce knowledge elements and increase more opportunities for non-located team involvement
- Create a universal App for FAA training for off-network training
- Employ a Learning Management System that allows for off-network completion of training courses
- Differentiate between technician in the field and expert in the office tasks and responsibilities

