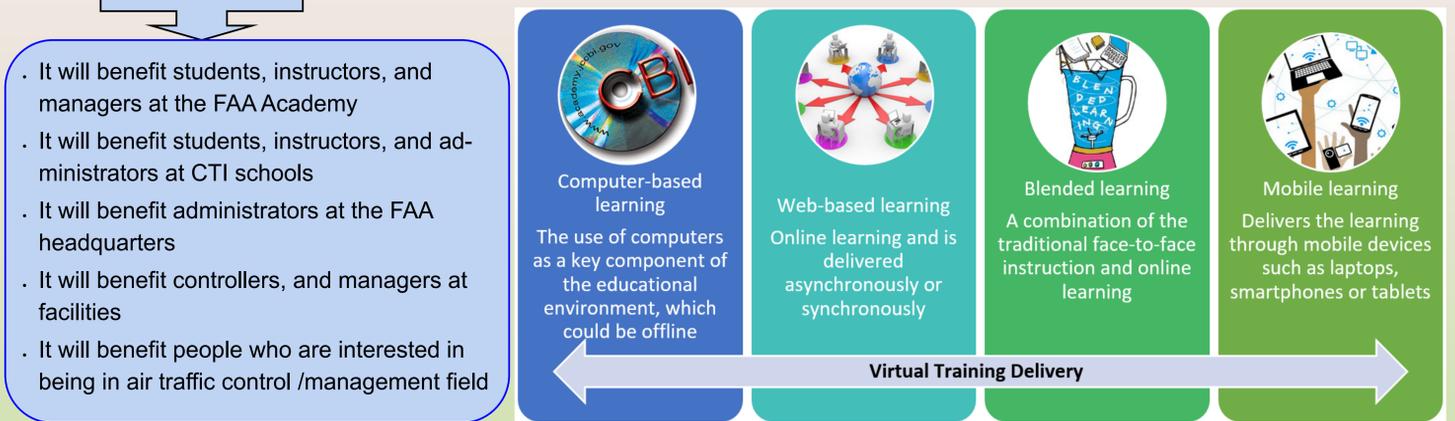
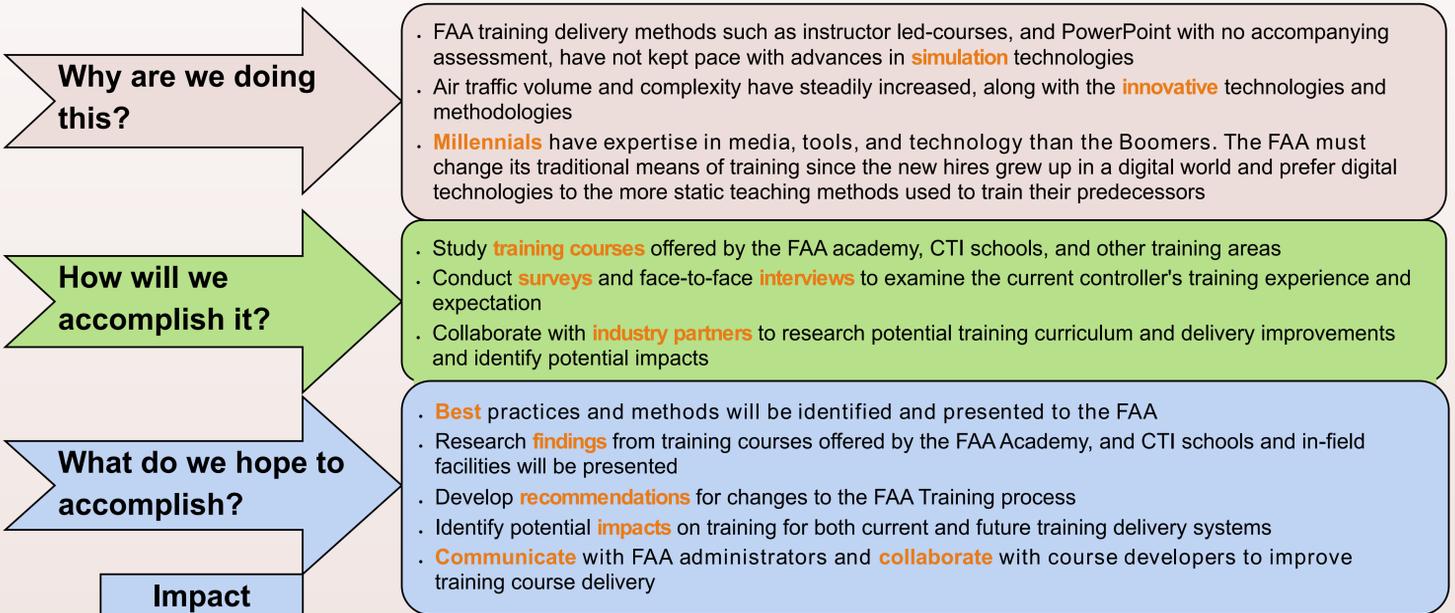
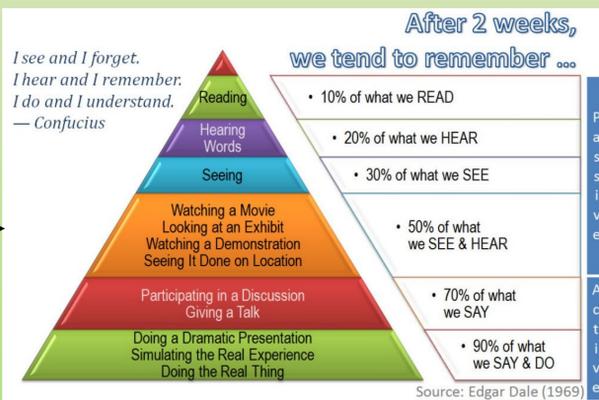


# Best Practices and Best Methods of Virtual Training Delivery for Air Traffic Controllers

Project Investigator: Lulu Sun, Ph.D. Engineering Fundamentals Department  
 Undergraduate student researcher: Haley Dennis, Air Traffic Management Department  
 Embry-Riddle Aeronautical University, Daytona Beach, FL



## Why Virtual Training



## The FAA Academy classroom observations and course report summary

- The pass rate of the initial tower training course was **low**
- Traditional classrooms **without** learning management system
- Video quality is **poor**
- No** pre-tests and post-tests to understand their knowledge level
- Lack** of simulation practice time after class
- No** interactive animation/simulation/gaming involved in the student study
- No** automated grading system to standardize the performance assessment
- Some lesson pace was **not** appropriate

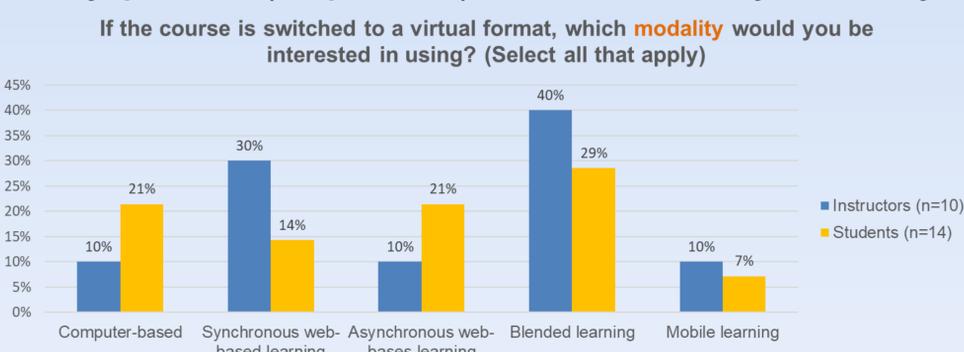
## Face-to-face student interviews at the FAA Academy (08/2017)

- More **time** in the simulation labs
- Current **videos** are outdated
- Pre-tests** and **post-tests** are needed
- Good instructor's style should be shared **virtually**
- More **teamwork** in class
- Millennials** can teach themselves virtually
- Blended learning** is preferred

## Interviews at the facilities (instructors, managers at DCA, and MCO towers)

- Do not take the instructor away completely, but just add additional **effective** resources
- Start with something **small** like a learning management system
- Focus on **key** areas that enhance controllers technical abilities
- Sharing senior controllers' experiences in a **virtual** format is desirable
- Team building activities are **important** for controller success
- Passing tests is important, but not indicative to the ultimate **success**
- Additional resources should be available to **passionate** students
- Stories such as the US Airways Hudson River landing and other ATC events need to be compiled and shared **virtually** with all, not in a single one or two classes
- Interactive** training materials should be accessible to the students
- Simulation labs at the FAA Academy are **outdated**. Software and hardware upgrades are needed
- Interactive** and **scenario** driven videos/animations are needed

## Student and instructor's perception of virtual training delivery were studied through online survey questions (35 questions) at the FAA Academy and Embry-Riddle Aeronautical University



## Recommended Solutions

- Learning management system (**LMS**)
- **Blended learning**
- Interactive screencasts with embedded **tiered** questions
- **Gamification** designed mobile learning
- **Pretest** and **posttest**. Incoming and outgoing assessment, online self-paced assessment
- **Virtual community**
- Interactive **simulation** with tracking feature and emphasize common **mistakes**
- More **active learning** in the class with virtual training
- Reduce lecture and extend simulation **practice** with virtual training