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Utilizing Guided Simulation in Conjunction with Digital Learning Tools in Air Traffic Control Training

Allison Little

Embry-Riddle Aeronautical University

Benjamin Cook

Embry-Riddle Aeronautical University

Holly Hughes

Embry-Riddle Aeronautical University

Kyle Wilkerson

Embry-Riddle Aeronautical University

Jacqueline Luedtke

Embry-Riddle Aeronautical University, jackie.luedtke@erau.edu

See next page for additional authors

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Authors

Allison Little, Benjamin Cook, Holly Hughes, Kyle Wilkerson, Jacqueline Luedtke, and Jennah Perry

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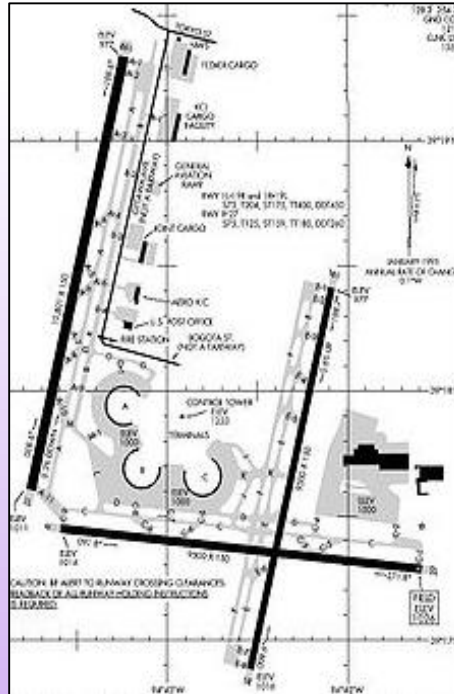


*Little, A.M., Cook; Benjamin D.C.; Hughes, H.; & Wilkerson, K.
Luedtke, J.R.; Perry, J.*



Abstract

- For students in an air traffic control discipline, simulated training time is limited to in-class time and is divided among the entire class. Students are required to advance and obtain knowledge, skills, and abilities in the lab because there is almost no way to practice at home. All students learn at different rates as well as through different learning styles. Swivl is a digital learning/capture tool designed to enhance student learning by allowing students to refer back to the individual classroom lab training session via an online portal.
- Swivl is currently being used in two ATC Lab courses. There are two technological deficiencies that have arisen: (1) Swivl (in the Terminal Radar Approach Control and En-Route Radar environments) lacks the ability to record what is being said over the frequencies. (2) Swivl does not have the ability to focus on the radar scope targets. As a result, the students' captures have a deficiency in visual clarity. However, the nature of the tower simulator *does* allow for better visual acuity and effective communication exchange within the Swivl capture.



AT Class	Ineffective with Swivl problems	Effective with Swivl problems
305	✓	
401	✓	
405	✓	
406	✓	
315		✓
415		✓

Conclusions

Swivl proved to be ineffective in the en route and terminal radar approach environments. At Embry-Riddle this includes classes such as AT-305, 401, 405 and 406. The audio and focus problems were not total set backs for student progress, however without technical fixes we will no longer have a use for Swivl in these classes. In the tower simulated environments (such as AT-315 and 415) Swivl was much more effective. Students have been able to review in-class scenarios with more visual acuity. The nature of tower simulation allows for fewer necessary audio transmissions, which means that the audio problem we had in the other classes isn't as big of a problem in these classes.

Next Steps

- Currently Professor Perry as well as the ATC lab assistants are researching electronic sources that could enhance Swivl's ability to be a leading digital learning tool in air traffic control simulation.
- Future research will include looking for a way to integrate two audio sources into the same review session. It is important for ATC training that the student can review what is happening in the scenario as well as instructor feedback.
- Additional research will focus on a program that sharpens the video image. While the audio is the most important aspect of the training, it would help to be able to better identify what call signs are what radar targets on the scope.

Links

- www.metacraft.com/Products/SimScope
- www.metacraft.com/Products/SimTarget
- www.metacraft.com/Products/SimVox
- www.swivl.com



Watch this demo video to see how Swivl works!

