Research shows black box could increase safety, efficiency of collegiate flight training

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Flight operations quality assurance, or FOQA, the system contained in an aircraft's black box, could improve the safety of collegiate flight training programs in the future, according to research conducted by J.D. Swinney, one of the first two graduates of Kansas State University Salina's professional Master of Technology degree program.

"FOQA has been proven to enhance commercial aviation safety, allowing airlines to objectively monitor how aircraft are being operated," Swinney said. "We can apply those same concepts to general aviation, where FOQA is mostly absent, and more specifically, to collegiate training programs."

Swinney, Holton, Ind., surveyed subject matter experts on both flight operations quality assurance and general aviation flight instruction from around the country to determine what data collected by the systems should be analyzed by safety managers, instructors and students to increase flight training safety and efficiency.

"If FOQA was standard in a training fleet, the safety manager could track noncompliance with procedures specific to a particular flight training program, whether accidental or deliberate," Swinney said. "The recorded flight data could also be beneficial to a flight instructor when debriefing a training flight session with a student pilot. It allows the instructor to construct either a virtual model of the flight or a graphic of the aircraft's track across the ground during a certain maneuver, helping to objectively explain the success or failure of the maneuver. The better

students understand what they did during a flight, the more able they are to replicate or change those behaviors, making training faster and more efficient."

The biggest barrier to implementing these systems for pilot training in collegiate aviation currently is technology, Swinney said.

"The difficulty in using a FOQA program and recorded flight data to analyze a flight is the speed with which the information must be retrieved from the recording device in the aircraft," Swinney said. "Also, the data recording and analysis system has to be compatible with the software used to display the display the information in a graphic format for student debriefs."

Kansas State University Salina's professional Master of Technology degree is designed to enable professionals in diverse technology fields to thrive in rapidly changing work environments. As a professional program, the degree provides advanced skills and knowledge in the areas of communication, leadership, project management and teamwork, while providing opportunities for students to customize programs with a concentrated study in the broad areas of aeronautical technology, engineering technology and technology management.

Provided by Kansas State University

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