Self-assessments of Decision Making Under Stress in a Flight Operations Center Simulation

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Abstract

Past research has demonstrated individuals’ lack the ability to accurately self-assess their competencies in comparison to external assessments (Davis et al., 2006). Other research has explored various factors that contribute to individuals being able to adequately predict their performance on a task, such as self-concept, prior task experience, and actual task performance (Davis, Fedor, Parsons, & Herold, 2000). The aim of this research is to examine the impact of participation in a flight operations center simulation on individuals’ self-perceptions of their ability to make decisions under stress. Prior to and after participating in three simulations, where teams of senior aerospace students work together to operate a virtual airline, the students will be administered a scale that assesses self-perceptions of decision making under stress. The goal of this project is to explore potential change in self-assessments of decision making under stress after being placed in a high-fidelity simulation experience. This experience may provide individuals with a more accurate picture of their ability to make decisions under stress, which could align future self-assessments and objective measures of performance, as well as aid in designing and using high-fidelity training to prepare individuals for success upon entering the workforce.
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Certain occupations demand that individuals have the ability to carry out tasks and make decisions under stressful conditions. Prior to entering the workforce, individuals may not have a realistic understanding of their ability to make decisions under stress. Past research has demonstrated weak to no relationships between self-assessments and external assessments of competence for experienced incumbents (e.g., Davis et al., 2006). Research exploring whether individuals’ self-perceptions of an ability change after participating in a job simulation may provide an avenue for aligning self-assessments with actual performance. The overall goal of the current research is to explore the impact of participating in a high-stress flight operations center simulation on self-perceptions of the ability to make decisions under stress.

Students will participate in three flight operations center simulations. During each simulation, a team comprised of 10 senior aerospace students must work together to operate a virtual airline. The teams face both standard and unique problems to solve which require creative solutions and necessitate communication and adaptability in order to return to normal operations and ensure patrons’ safety. This naturalistic setting creates a unique opportunity to assess decision-making performance in a realistic environment with authentic, stress-inducing problems to solve.

For this study, prior to participating in the flight operations simulations, students will be administered a scale that assesses self-perceptions’ of the ability to make decisions under stress. The students will then receive the scale twice more: once after they receive feedback on their first simulation performance and once more after they receive feedback on their final simulation performance. At the time of the first administration of the decision making under stress (DMUS) scale, the students will also receive a scale assessing self-perceptions of the personal fear of invalidity, or the fear of making a mistake in the face of a decision (Thompson, Naccarato, Parker, & Moskowitz, 2001). Three administrations of the DMUS scale will allow the researchers to perform a repeated measures ANCOVA, examining mean differences in individuals’ self-rated DMUS scores across three timepoints with personal fear of invalidity serving as a covariate in the analysis (anticipated $N = 60$).

The analysis will also include a comparison of change in self-perceptions of DMUS among student pilots and non-pilots. Given the nature of flying and the number of flight hours pilots must accrue, it is thought that pilots’ exposure to stress-inducing situations during flight training will translate into greater accuracy in self-perceptions of their ability to make decisions under stress, as compared to students trained in aviation administration or meteorology who have not yet experienced stress in the workplace (Davis, Fedor, Parsons, & Herold, 2000).

The results of this research may provide insight into how a realistic job experience can influence individuals’ understanding of their own capabilities, as well as insight into how high-fidelity training for high-stress occupations can be designed and used to prepare individuals for success.