

Title: Strengthening Aviation Operations Through Training, Technology, and Emergency Response

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Background/Motivation:

- In my senior year of high school, I was able to experience what it was like to be an aviation technician and an air marshaller. I completed a simulation using a VR headset provided by my Career Internship Program teacher. This training allowed me to experience potential career options related to the aviation field.
- During my spring break (3/9/2026), I toured an air medical transport facility located in Canandaigua, NY. I learned about operations, the different occupations within the organization, and just how important their work is. I was able to see the simulator van where people train to become EMS personnel in the air. Time is critical when air medical transportation is used. Air medical transport plays a big role in the community when transporting patients needing immediate care to healthcare facilities.

Summary: Aviation operations rely on effective training to provide a safe and efficient environment that is increasingly complex. The aviation industry is constantly evolving and requires well-trained personnel to achieve operational efficiency in day-to-day operations. Emerging technologies may further enhance training practices and improve operational performance.

Purpose: This research examines how structured aviation training and emerging immersive technologies can improve operational readiness, with special attention to air medical transport operations.

Research Objective: This research will explore how new training practices can better improve operational readiness and real-life performance. It will focus on how training improves decision-making, coordination, emotional regulation (specifically for medical air transport), and safety in aviation operations. I will also be taking a deeper look into the role of specialized services such as air medical transport.

Methods/Technical Approach/Project Overview: This research will take on a qualitative research approach. It will include a literature review- in which I will look at research already done about aviation training practices and technologies. It will also include an observational insight (real-world context of operations from air medical transport facility tour). Lastly, there will be a technological analysis of immersive and dual-reality training- looking at the potential of its application in professional aviation environments.

Key Findings/Expected outcomes/Lessons learned/Impact: My research is projected to demonstrate the importance of structured training programs in the interest of operational preparedness. Specifically, in daily operations that make use of skills such as decision-making,

situational awareness, and coordination, these training procedures effectively improve and build more skills to enhance operations. Enhanced training with new technologies, built on the foundation of safety, will strengthen the ability of aviation professionals to better manage complicated operational environments and responsiveness. New training technologies will also provide realistic learning experiences to aviation education environments. Integrating these technologies (immersive and dual-reality training) can improve skill development and expose young people to the aviation industry in general. Finally, in a specialized field in aviation (air medical transport), structured training programs combined with new technologies are important to the future because rapid response and operational efficiency directly support emergency medical care in the community. Implementation of these new technologies can support operational training and potentially save lives in the future.