TITLE: Unmanned Aerial System (UAS) Selection: Validating the Performance Based Measurement (PBM) Battery

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SYNOPSIS: The high number of Unmanned Aerial System (UAS) mishaps associated with human error (i.e., over 50% [Thompson, Tvaryanas, & Constable, 2005; Schmidt & Parker, 1995; Williams, 2004]) has sparked interest in methods that can mitigate these safety issues. One strategy that has proven successful for manned aviation is the implementation of standardized validated selection tools. For example, research on the Navy's Aviation Selection Test Battery (ASTB) indicates that applicants with higher ASTB scores have improved safety and performance compared to those who score lower on the ASTB (Grubb & Phillips, 2011). In addition to promoting safety and mitigating mishaps, the ASTB has yielded an estimated savings of over $30 million a year by improving the quality of training accessions, reducing the flight hours needed to meet wing requirements, and lowering trainee attrition (Naval Aerospace Medical Institute, 2011). Providing a similar tool validated for UAS platforms could provide equivalent safety and savings by supporting the selection of those individuals who are most likely to succeed in training. While manned aviation has capitalized on these benefits by validating numerous selection tools (e.g., Performance Based Measurement [PBM]), the only validated test for unmanned aviation (Computer Based Performance Test [CBPT]) was developed for the legacy system Pioneer. Although the CBPT proved to be highly predictive in 2003), the test is now technologically antiquated as it runs on an outdated operating system. Moreover, the platform relevance and applicability to current UAS technologies further limits the utility of the CBPT, as a successful test must be validated and updated to reflect the new skill sets needed to operate emerging UAS technologies. While no test currently meets this requirement, the domains measured by the Performance Based Measurement (PBM) selection battery (developed for manned aviation) significantly overlap with those measured by the CBPT, making the PBM a prime candidate for establishing validity for the UAS population. As such, this presentation will describe content validation results from the first study, in a series of validation studies, investigating the utility of the PBM for the UAS community.

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