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Understanding Military Pilot Selection

Insights from Cognitive, Personality, and
Experimental studies in Sweden

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Abstract

This thesis investigates the critical issue of military pilot selection. To understand and optimize selection, much research has been conducted on factors predicting educational outcomes. While assessment testing remains central to selection and understanding pilots, studying ability requirements for pilot in modern-day educational and professional settings can help make sure that our understanding is up to date. This thesis includes both approaches through the two distinct but interconnected measures of (1) successful completion of Swedish military pilot education, and (2) the ability to perform effectively as a professional military pilot. By adopting this holistic approach and focusing on the historically underexamined Swedish military pilot education context, this work provides unique insights into selection criteria.

Studies I and II were conducted based on a data registry of assessment tests provided by the Swedish Armed Forces and examined the role of common predictors such as personality and cognition in completing the Swedish military pilot education. Using a qualitative, interview-based approach, Study III examined instead what qualities that active military pilot cadets themselves perceive as required for their profession. In a stress experiment in a laboratory setting, Study IV begun examinations on whether a unique type of stress that can occur in flight, startle, could deserve attention during selection.

It was found through Studies I and II that personality traits, as assessed by specialist psychologists, are associated with success in the Swedish military pilot education. In particular being energetic, professionally motivated, studious and having leadership potential. In addition, interview-based suitability judgements by senior pilots appear the strongest predictor of success in the Swedish system, while typically observed cognitive predictors did not appear related to success. Study III informed about professional demands for pilots and found through thematic analysis that Swedish pilot cadets value being a team player, having drive, being stress tolerant and being in good shape, in some overlap with Studies I and II. Startling events, carried out in a controlled laboratory environment in study IV, did negatively affect basic human performance – this was unrelated to individual personality and stress levels however, providing a first indication about this professional ability requirement for pilots.

Taken together, the thesis findings provide valuable insights for military pilot selection. A key takeaway is the importance of personality factors in predicting educational success within the Swedish system. Historically, personality has been considered less predictive than cognitive ability in pilot selection. The lack of predictive validity for traditionally emphasized cognitive measures may be attributed to a restriction of range, likely due to Swedens highly rigorous selection process. In this system, most candidates have demonstrated strong cognitive aptitude before entering training, reducing variability in those measures and maybe allowing for a shifting of focus to personality traits. The personality traits found significant for education have conceptual overlap with previous aviation research profiles based in the Five-Factor Model, and overlap with the professional demands identified by pilot cadets in study III. This highlights the potential importance of these variables, the requirement for further research.

Keywords

Selection, aviation, military aviation, pilot, cognition, personality, education completion

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