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The Relationship Between Pilot Experience and Aviation Safety Attitudes

Isabella Piasecki, Steven Le Gall, and Dr. Brooke Wheeler

ABSTRACT

Using survey methodologies, 149 people were asked about their safety attitudes, which showed a weak, statistically significant, positive relationship between flight hours and safety attitude score ($r = .31$).

BACKGROUND

Accident rates for general-aviation pilots rise early in their post-certification careers, peak, then fall with more flying experience to a baseline, non-zero value (Knecht, 2013). Although designed as a measure of engagement in risky behaviors that do not result in accidents, Hunter's (1995) Aviation Safety Attitude Scale (ASAS) has been used as a proxy for actual accident involvement in studies of risk-taking and hazardous attitudes.

This research studied the relationship between a pilot's level of experience and their attitudes towards safety issues, which can allow for a more efficient and well-tailored approach to safety education.

RESEARCH QUESTION

What is the relationship between pilot experience and pilot attitudes towards safety issues (as measured by Hunter's (1995) ASAS)?

METHODS

The IRB exemption was approved (22-100). Participants from a collegiate Part 141 flight training program were surveyed using Hunter's (1995) ASAS. Demographics were collected, including the ground course students were enrolled in.

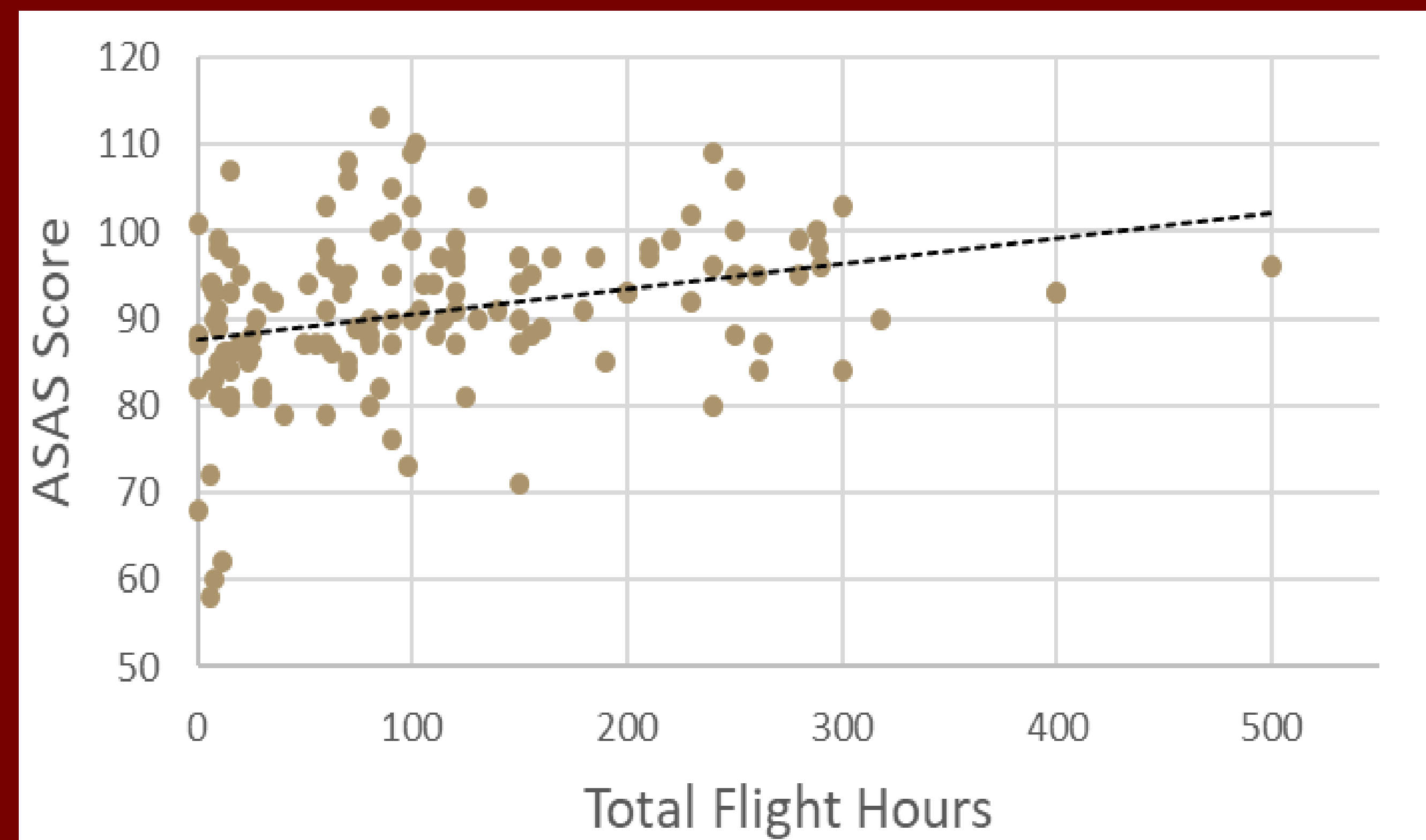
Pearson's r correlation was used to determine the relationship between experience and safety attitudes. Inferential statistics were completed in R Studio.

RESULTS

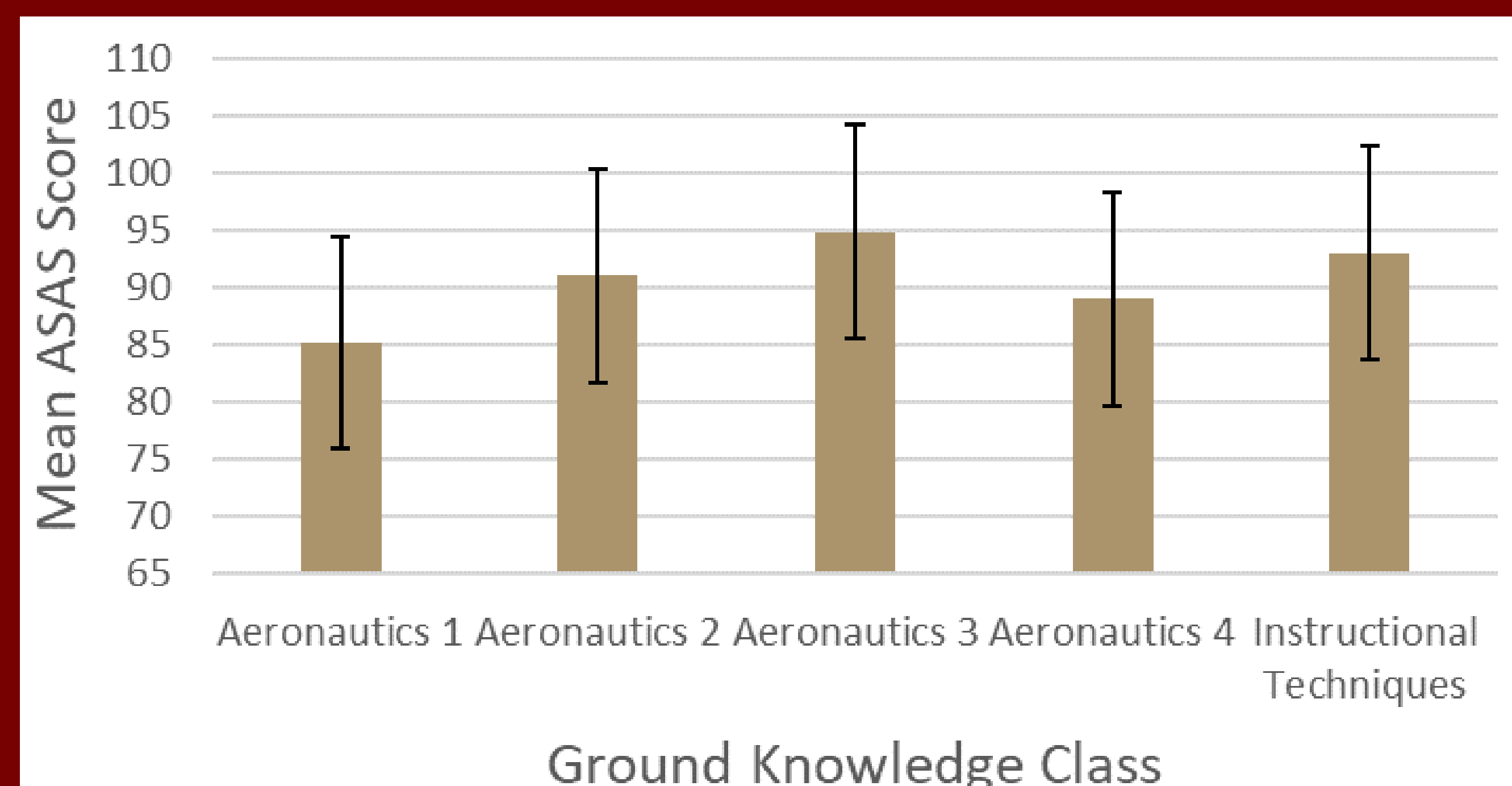
140 responses were analyzed, with an average age of 20.11 years ($SD = 2.6$) and an average of 109 hours ($SD = 99$). Aviation Safety Attitude Scale scores averaged 90.8 ($SD = 9.3$). ASAS scores could range from 27 to 135.

Cronbach's alpha showed an internal consistency of .71, which is acceptable. The Pearson's product moment correlation was statistically significant and positive, but weak, $r = .31$ ($p = .0002$).

Flight Hours vs. Aviation Safety Attitude Scale Score



Ground Knowledge Course vs. Mean ASAS Score



DISCUSSION

The relationship between flight hours and the ASAS scores suggests a correlation between pilot flight experience and safety. The attitudes shown by pilots with lower experience levels could lead to riskier flying.

The lowest ASAS scores within the sample were provided by participants with a small number of flight hours (at the start of training) and participants with more than 300 flight hours (through most of their collegiate training). However, lower ASAS scores were not widely present among students currently in training.

This suggests that safety training is not only important to low time pilots, but that it should also be emphasized in higher time pilots-in-training as they get further away from initial training. This may also support Knecht's (2013) discovery regarding a high accident rate for pilots during post-certification.

FUTURE RESEARCH

Research should determine whether there is a more accurate predictor of safety attitudes among pilots. Research should be done to determine the difference in the relationship between the given sample and a wider population, including part 61 pilots or a larger geographic region.

REFERENCES

- Hunter, D. R. (1995). *Airman Research Questionnaire: Methodology and Overall Results* (DOT/FAA/AM-95/27; p. 69).
- Knecht, W. R. (2013). The "killing zone" revisited: Serial nonlinearities predict general aviation accident rates from pilot total flight hours. *Accident Analysis & Prevention*, 60, 50–56.