Leading the Convoy: What Happens When They Know What They're Doing?

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Automation vs. Human Reliance Background

- Humans often receive information from human or automated advisors in complex decision-making tasks
- Little work has examined what factors influence how humans prioritize and trust information from automation and human sources when both are available AND directly conflict

One Related Study

- Lyons and Stokes (2012) found that humans rely on human sources less than automated sources in high risk situations than in low risk situations
- Concerns with Lyons & Stokes (2012): uneven manipulation that disadvantaged the human source

Our Study

Research Questions

1. How do military and civilian samples differ in how they rely on human and automated information sources?
2. Do situational factors – like risk and workload – affect military and civilian samples differently?

- Decision Making Task
- Participants must select a route for their military convoy from three possible options. An automated tool provides a map that contains information regarding past IED explosions and insurgent activity to illustrate one optimal route choice. The human provides information that conflicts with the map and recommends a different route.

Method

126 Undergraduate participants

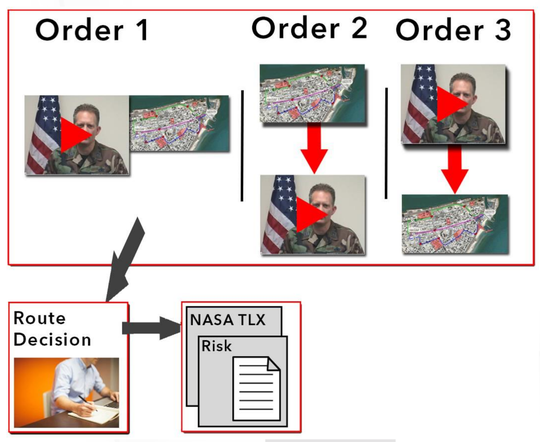
- Mean age: 19 years old
- 66 males and 60 females

29 Military participants

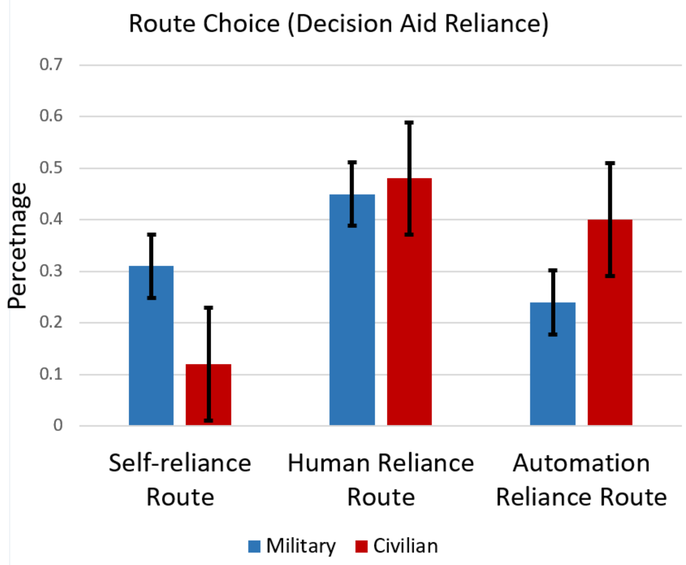
- Mean age: 38 years old
- 28 males, 1 female
- 80% had experience leading convoys

Experiment

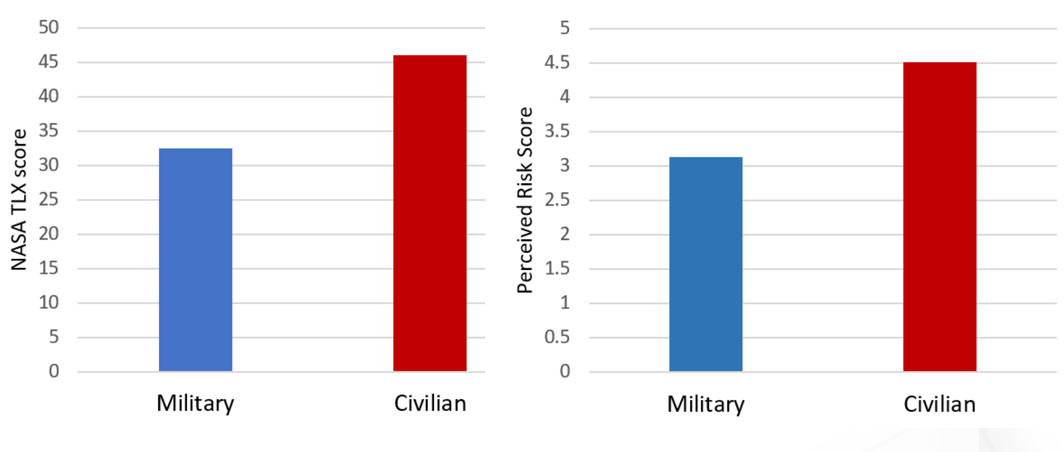
- Information presentation order: 3 conditions (see below)
- Self-report assessments of workload (NASA TLX) and perceived risk



Results



- Significantly more self-reliance in military sample
- Trend shows more automation reliance in civilian sample



- Military and undergraduate samples were significantly different in perceptions of risk and workload

Take Aways

- Members of the military sample showed more self-reliance than the undergraduate sample members
- Similar reliance on human aid across samples
- A trend shows less reliance on automation in military sample compared to civilian sample
- Military participants experienced less workload and perceived risk than the civilian sample

Current & Future Directions

- Generalize results to other military branches and training levels
- Manipulate characteristics of the human and automated decision aid
- Experimentally manipulate situational variables, like workload and risk

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