# Culture in helicopter pilots: Case for using the Implicit Association Test

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#### **SUMMARY**

Culture relates to shared norms, values and practices associated with one's nation, organisation or profession. While being a key input factor contributing to team performance and mission accomplishment, culture is often overlooked. The current paper summarises previous findings on the influence of professional culture (military- vs. civilian-trained) in helicopter pilots and proposes using of the Implicit Association Test as a behavioural measure of reported risk-taking behaviours.

#### **KEYWORDS**

Culture, helicopter pilots, safety

#### Approach

Previous research has underlined the importance of culture as an input factor for successful mission accomplishment (Helmreich, 2000) and overall safety of task at hand (e.g., flight or surgery; Helmreich & Merritt, 1998). However, most of the research in the field is several decades old, and few advances have been made (see Reader et al., 2015, and their work on the influence of national culture on organisational culture for some recent work). Professional culture (based on job role and training background, forming a sense of community) has received especially little empirical attention, despite the prevalence of military-trained and civilian-trained pilots working together in civilian jobs (e.g., off-shore transport, search and rescue, etc.). To our knowledge there has been no research examining how the differently-trained pilots work together and whether there are any differences in their skills, safety-related behaviours or task approach.

To address this gap in the literature we interviewed helicopter pilots with different backgrounds, to evaluate perceptions of potential cultural variations in flight tasks. The findings (Kaminska et al., 2020) indicated that helicopter pilots considered there to be a marked difference in how civilianand military-trained pilots approach flights. Most helicopter pilots highlighted the difference as being 'getting the job done' attitude of ex-military pilots versus the 'safety over efficiency' approach of their civilian-trained colleagues. That is, military-trained pilots try to find workarounds (within the rules) that would lead to a successful task completion (i.e., flying from A to B), while civilian-trained pilots are more likely to favour safety and rules over a 'creative' solution. While being an anecdotally common observation, it was empirically confirmed in both the interviews (Kaminska et al., 2020) and our subsequent mixed-methods survey (*manuscript in preparation*).

However, our research to date has relied on self-report and face-to-face interviews which can suffer from a number of limitations. Thus far, our research has only examined attitudes and perceptions, which could be different from actual behaviours in the cockpit. Additionally, social desirability bias and recall bias are important to consider as pilots know that safety is very highly valued in aviation and might not want to discuss/admit to any hazardous events. Thus, for our next steps we propose using the Implicit Association Test (IAT) to examine the role of culture in implicit risk perception.

The IAT is a sorting task that measures implicit associations between two target concepts and two attributes. The IAT has been shown to be a reliable and valid measure of various implicit attitudes and has been shown to not be influenced by context, participants' motivational state or conscious distortion (Pauley et al., 2008). It has also been shown to be reliable and valid even when conducted online using online survey software (Carpenter et al., 2019), thus, making it an accessible and convenient tool to use when working with helicopter pilots around the world.

Previous research has used the IAT to study risk perception. Pauley et al. (2008) found that there was a relationship between the pilots' (general aviation) implicit perceptions and previous involvement in hazardous aeronautical events – the more weather-related hazardous events the pilots had been involved in, the less they associated implicit risk with adverse weather (Study 1) and the less implicitly anxious they were toward adverse weather (Study 2). Thus, the authors showed that there is a relationship between pilots' implicit associations and real-world behaviours.

Our pool of participants (helicopter pilots primarily working in fields offshore transport, search and rescue, and air ambulance) are unlikely to exhibit risk-taking behaviours (as measured by a self-report scale) due to the heavily regulated frameworks in which they operate. However, the IAT might give us a unique insight into whether weather-related risk perception differs amongst different professional (and potentially national – sample-dependent) cultures. Given the more 'creative' flight approach discussed in our interview study, we predict that military-trained pilots might exhibit a weaker implicit association between adverse weather and risk than civilian-trained pilots, indicating potentially lower risk perception.

The current research takes an original approach to the evaluation of professional culture effects on pilot risk perception and would make a sizeable contribution to the under-researched field of professional culture. It could be used to provide evidence-based crew resource management training solutions to organisations with a diverse pool of pilots to better understanding and teamwork.

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