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Aircrew Personality and the Impact of Crew Resource Management Training on Hazardous Attitudes

A thesis presented in partial fulfilment of the requirements for the degree of Master of Arts in Psychology At Massey University, Albany, New Zealand

Carolyn Freeman 2005
Abstract

It has been established that poor non-technical skills, such as crew communication and coordination, in aircrew, are antecedents to accidents and incidents in aviation. Crew Resource Management (CRM) training has developed over the last 20 years in response to the need to educate crews in resource management, decision-making, situational awareness and other human factors related topics. This current study sought to evaluate the CRM training currently administered by the Royal New Zealand Air Force (RNZAF). Evaluation was made on three of Kirkpatrick’s levels; reaction, learning and behaviour. Personality as a mediator in the relationship of CRM attitudes to behaviour was also investigated. Finally personality differences in the sample were identified. Results showed that the RNZAF CRM training was perceived by aircrew as useful and 100% of trainees felt this training should be offered to all aircrew. At the learning level of evaluation the results revealed a positive attitude change in one scale of the Cockpit Management Attitudes Questionnaire - ‘Recognition of Stressors’. The personality trait Agreeableness was found to mediate the relationship between attitudes and behaviour post CRM training. Agreeableness and Conscientiousness also explained 25% of the variance in scores of CRM behaviours. Finally it was established that pilots display higher levels of Instrumentality and lower levels of Neuroticism than non-pilot aircrew. Officers display higher levels of Extroversion and lower levels of Expressivity than Non Commissioned Officers. The results are discussed in terms of their implication for future RNZAF research and training. Limitations of the current study and areas for future research are presented.
Acknowledgements

Firstly I have to give credit to all the Officers of the Royal New Zealand Air Force who took time out of their very busy schedules to support, encourage and participate in my research. I would like to mention FLTLT Delwyn Neill, FLTLT Lisa D’Oliveira, FLTLT Jen Atkinson and SQNLDR Ian Saville who indulged my need for data collection on their CRM Courses. I would also like to thank SQNLDR Emma Davis and SQNLDR Jason Milne who provided guidance through the RNZAF organisational system, and kept the ball rolling at times when I thought it was deflated.

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As I read through the acknowledgment sections of other theses, I note one sure consistency. A person that seems to pop up in each person’s life and provide the support encouragement and financial aid required to get through to the end. My life was no exception, once again the award for thesis helper extraordinaire goes to: the ever present, ever underrated but greatly appreciated Mum.

So many things went wrong with this thesis, but here it is in completion – it all just seemed to work out – how? By the grace of God.

‘So let us come boldly to the throne of our gracious God, there we will receive his mercy, and we will find grace to help us when we need it.’ Heb 4 v 16.
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Glossary

Aircrew Roles, Abbreviations and Descriptions:

**AEOP**
Air Electronics Operator: Operates the radio and radar stations on a P3-K Orion.

**ALM**
Air Load Master: Responsible for loading and unloading of cargo and passengers from the C-130 Hercules. Also responsible for all international customs and MAF type requirements.

**AOM**
Air Ordnanceman: Responsible for all weapons, search stores and air droppable packages on the P3-K Orion. Also carries out photography and video during flight.

**HCM**
Helicopter Crewman: Manages the cargo area of the helicopter, loading cargo, supervising passengers, operating rescue hoist and machine gun. Helicopter crewmen also give the pilots a verbal picture of what is going on in the back and all around the outside of the aircraft.

**NAV**
Navigator/ Tactical Coordinator: Responsible for mission planning, interpreting tactics and procedures and completing post flight mission reporting. Also involved in route and fuel planning.

**AIRENG**
Air Engineer: Responsible for the mechanical side of the aircraft while it is airborne. Manages fuel, power settings and any emergency and minor repairs while on deployment.
### Aviation Abbreviations and Terms:

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<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tr>
<td>CAA</td>
<td>Civil Aviation Authority: Government organisation that regulates the aviation industry and air traffic within New Zealand.</td>
</tr>
<tr>
<td>FAA</td>
<td>Federal Aviation Authority: Federal Government authority that regulates aviation in the U.S.A.</td>
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<td>LOFT</td>
<td>Line Oriented Flight Training: Training programme set in a high fidelity aircraft simulator that allows an entire aircraft to fly a simulated flight (Helmreich &amp; Foushee, 1993).</td>
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<tr>
<td>Go Around</td>
<td>A go around is the process of converting the approach into a departure i.e. apply full or climb power, clean up the aircraft configuration (gear up, flaps -climb/up) and fly away and either join the visual circuit, or position for another approach.</td>
</tr>
<tr>
<td>NCO</td>
<td>Non Commissioned Officer, from rank of corporal to Master Air Crewman.</td>
</tr>
<tr>
<td>Squadron</td>
<td>Unit or division of an Air Force.</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedures: a mandatory way of accomplishing a task.</td>
</tr>
<tr>
<td>Sortie</td>
<td>Operational flight made by a military aircraft.</td>
</tr>
<tr>
<td>Situational Awareness</td>
<td>Situational awareness is the accurate perception of the factors and conditions affecting the aircraft and the flight crew (Williams, 1998).</td>
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