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Terrorism in Australia: A Psychometric Study into the Western Australian Public Perception of Terrorism

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Abstract
Terrorism is not a new concept, as historically terrorist organisations have used the threat of violence or actual violence to generate fear in individuals, organisations and governments alike. Fear is a weapon and is used to gain political, ideological or religious objectives. Past terrorist attacks have raised concerns around the world, as governments ensured that their anti-terrorism security strategies are adequate. Domestically, Australia upgraded its capacity to respond to terrorism events through security enhancements across many areas and with new initiatives such as the 2002 public counter terrorism campaign.

Nevertheless, there has been restricted research into how terrorist events have impacted on the Australian public from a psychometric risk perception perspective. The study used the psychometric risk perception theory, applied to 340 participants, as a benchmark to compare the perception of terrorism risk using its two dimensions of dread and familiarity to risk.

The study presented terrorism within a spatial psychometric risk map and found that when compared to other risks, terrorism ranked second highest in terms of dread risk and mid-range in terms of familiarity to risk. Recommendations include the ongoing need to understand public risk perception and directed benefit of public awareness safety campaigns. It is only through such understanding that decision-makers can implement effective safety and security reforms that will benefit both industry and the general community.

Keywords: Public, terrorism, risk, psychometric, dread, media, campaigns

INTRODUCTION
On 11th September 2001 (9/11) nineteen terrorists hijacked four commercial passenger aircraft and flew them into the World Trade Centre (WTC), the Pentagon and (only due to interference from passengers onboard), into the ground in Shanksville, Pennsylvania. According to the 9/11 Commission Report (2004, pp. 7-14) the final death toll in the WTC was 2996 people, 125 in the Pentagon and a further 44 people died when the aircraft crashed in Shanksville (Federal Bureau of Investigation, 2003).

The resulting deaths of this event represented people from 80 different countries, including 10 Australians (Spektor, 2004). This terrorism event was thrust into the media and public spotlight on a scale never witnessed before in modern history, resulting in ramifications in Australia at both a domestic and an international level. Australia’s strong political, military, economic and social ties to the USA led to the invocation of the Australia, New Zealand and United States Security Treaty (ANZUS). The treaty was primarily designed as a military pact between America, Australia and New Zealand, where each country would come to the aid of another if they were attacked by a foreign power (Nelson, 2006).

TERRORISM IN AUSTRALIA
Terrorism on home soil is almost unknown in Australia’s recent history. The most well known incident occurred on 13th February 1978, when a bomb was set off during the Commonwealth Heads of Government Meeting (CHOGM) at the Hilton Hotel, Sydney, killing two people. In response to this attack, the Australian Federal Police (AFP) set up the Australian Bomb Data Centre (ABDC) (Australian Federal Police, 2007a). According to the AFP, the charter of the ABDC (2007) is to "collect, collate, interpret and disseminate data gathered from within Australia and overseas, concerning explosives and incendiaries, whether commercial, military or improvised… The centre is concerned both with criminals who use explosives for their own benefit and with those who use explosives and bombs for politically motivated violence.”
Unfortunately, for National Security reasons, much of this data is restricted to national and overseas law enforcement agencies. Nevertheless, in its unclassified 2007 Annual Report, the ABDC states that it considers hoaxes and bombing attacks as crimes and therefore does not distinguish between criminal attacks and terrorism. The threat from these bomb related incidents are significant, as there have been many bomb related target locations where the general public has been at risk (Australian Federal Police, 2007b, p. 9).

**STUDY OBJECTIVES**

The study had three objectives, namely to examine how recent terrorist events have impacted on the Australian public; to analyse how the public’s psychometric risk perception of terrorism contrasts with other pre-measured risks; and to investigate the efficacy of past Australian government anti-terrorism campaigns according to the Western Australian public.

**PUBLIC PERCEPTION AND TERRORISM**

Analysis of the public perceptions of risk can be traced back to the 1960s (Bauer 1960, Slovic, 1962). The risk of terrorism is not a new phenomenon and various groups throughout history have used violence or the threat of violence to gain political, ideological or religious gains. In modern times it can argued that terrorism came to world attention through the 9/11 attacks, highlighting the vulnerability of ordinary members of the general public. This issue is important to note, as Slovic states that the “public perceptions of risk have been found to determine the priorities and legislative agendas of regulatory bodies” (1997a, p. 22).

The aftermath of 9/11 and other more recent attacks gave important insights into how people perceived, evaluated and responded to such risks. In an effort to prevent any similar attacks, governments around the world introduced new anti-terrorism legislation, border security controls, anti-terrorism treaties, public awareness campaigns and immigration restrictions (Attorney Generals Department, 2007). It could be argued that some of these measures, such as taking one’s shoes off at airport security or manicure scissors being confiscated were an over-reaction to the level of threat posed. However, these measures were designed to both protect and reassure the public in a time of heighten stress. The public’s perception of risk plays a critical role in their behaviour and response to real or perceived threats, and it is for this reason that public perception plays such a large role in social research (Slovic & Weber, 2002; Jenkin, 2006).

Human perception of risk is very complex and cannot be viewed in a vacuum. Cousins and Brunt (2002) used keyword searches in four different national media to illustrate how the media used sensationalist methods (emotive, judgemental and descriptive words) when reporting on terrorism. Although these methods were used to sell more newspapers, it was the style and duration of these reports that led to the public’s perception of their security being reduced and their levels of fear being heightened overtime, accounting for the decline of tourists travelling to Israel, Sri Lanka and Egypt in 1997 (Cousins & Brunt, 2002; Slovic, 2002; Howie, 2005).

Sjöberg (2004) conducted research into the public perceptions of terrorism among 294 Swedish participants using the Psychometric risk model, finding that dread remained high. Terrorism, in comparison to personal or criminal risk, received a higher risk rating. Among participants, there was also a positive perceived belief in the competence of terrorist’s organisations’ capacity to carry out threats. Many of the participants also held strong views that terrorists were confused or misinformed about events in the modern world. Women and older participants also gave larger risk ratings than younger males; however, it was noted that these gender based results were often inconclusive which may affect overall gender specific findings (Sjöberg, 2004).

Investigation into similar Australian studies into public perceptions of terrorism yielded little results. One study by Howie (2005) was based on a survey of the public perceptions to the threat of terrorism in Melbourne’s central business district. Significantly, the author argued that Australians did not perceive terrorism in the same way as other countries that have experienced a recent attack. Interestingly, this facet of Howie’s research (2005) was also apparent in the study when participants were asked to take part. Many of the participants thought that the issue of terrorism was something that did not occur within Australia, but was instead something which occurred “over there”.

Aly et al (2007) focused on developing a fear scale, derived from the Gordon and Riger (1979) fear of rape scale. The scale was used to gauge the perceived safety of Australian Muslims, as compared to the broader community, based on media and political terrorism discourse. Significantly they found that post 9/11, participants experienced both heightened levels of fear and thus changed their behavioural patterns such as avoiding public transport because of this increased level of risk perception. Aly et al (2007) believed that one reason for these heightened levels of fear was a perception among members of the Muslim community that they were both viewed and portrayed in a negative light in the popular media. The researchers also found that like most fear of crime surveys, there were notable differences in feelings of fear among people of different gender, social class and educational backgrounds.
There are many definitions of terrorism; however, the study used a definition based on the Australian Federal Government’s Criminal Code, namely that a “terrorist act is defined under Australian law as an act or threat, intended to advance a political, ideological or religious cause by coercing or intimidating an Australian or foreign government or the public, by causing serious harm to people or property, creating a serious risk to the health and safety to the public, or by seriously disrupting trade, critical infrastructure or electronic systems” (Commonwealth Criminal Code Act 1995, pp. 119-120). Whereas a ‘terrorist incident’ is “a combination of circumstances or conditions which may lead to or result from a terrorist act, and which require preventative and/or responsive action” (Commonwealth Criminal Code Act 1995, pp. 119-120). Although statistically terrorist attacks are small in number and the chance of being involved in a successful attack is relatively small, terrorism is a current and ongoing threat to the Australian public. This trend is unlikely to dissipate, given Australia’s continued and sustained diplomatic, economic and military support to our allies in fighting the “war on terror”.

THE PSYCHOMETRIC PARADIGM

The psychometric paradigm is essentially a cognitive map of social risk perception (Figure 1), which is broken down into two axis of Dread Risk (Factor 1) and Familiar Risk (Factor 2). Dread risk is a gradation of measurement along the horizontal axis, which “reflects the degree to which a risk is understood and the degree to which it evokes a feeling of dread” (Slovic, 1992, p. 121). Therefore, risks further to the right of the scale have a higher degree of dread than those to the left of the scale. For example, the map indicates that smoking cigarettes has a lower dread risk in society than the risk/s of nuclear weapons.

![Psychometric paradigm: spatial locality of 81 hazards](Revised from Slovic & Weber, 2002, p. 11)

Familiar risks are represented along the vertical axis of the psychometric risk paradigm and indicates the public knowledge with these risks. Therefore, familiar risks such as motorcycle riding and elevators are found on the lower part of the axis and as a result, garners a lower societal risk perception. Whereas unfamiliar risks, such as lead-paint and medical x-rays, appear higher up the axis demonstrating that the general public perceive these activities or technologies as posing a higher degree of risk to their health and safety (Slovic, 1997, p. 235). By combining dread and familiar based risk characteristics, the public’s risk perception of hazards may be mapped. An example is bicycles, which has a familiar and low dread rating with the general public, whereas radioactive waste is considered an unfamiliar risk, with a high dread based factor rating. This social risk understanding can be used by policy makers to ensure high dread-based risks carry increased legislation requirements and safety controls to reduce the public’s potential to exposure.
**STUDY METHOD**

The study focused on the impact of a long-term anti-terrorism campaign on the general public and examined the social and security repercussions of the 9/11 and other recent attacks. An understanding of these issues was sought through a literature review, other current research and the study’s own 340 participant Likert survey of the general public.

**Target population and instrument**

The study used a two stage approach, comprising of a pilot and main study. The pilot study’s target population consisted of 30 members of the general community, who visited “Lakeside Joondalup Shopping City”. The main study involved 340 people, carried out at the “Centro Warwick Shopping Centre”. Commercial venues were chosen as they can accommodate large numbers of the general public, an approach that ensured randomness of the survey and access to the wider community. Sampling design was based on probability sampling methodology, a technique that selects people at random from the wider population. Therefore, the laws of mathematical probability can be applied to ensure the accuracy of the sample is maintained (Thyer, 2001; Dooley, 2001; Cohen et al 2000; Singleton & Straits 1999). A five-point Likert scale response survey was devised to measure the public’s psychometric risk perceptions of terrorism.

**Study controls**

The study’s controls were taken from Slovic’s (1987) psychometric study, where 81 technologies and activities were measured to gain an understanding of how the American public perceived such risks. Slovic’s aim was to “aid policy makers by improving communication between them and the public, by directing educational efforts, and by predicting public responses to new technologies (genetic engineering), events, (safety records or accidents) and new risk management strategies (warning labels, regulations, substitute products)” (Slovic, 1987, p. 281).

One of the reliability mechanisms used in the study was equivalence forms reliability measurement. This method used the results of comparable studies to validate the reliability of research instruments used in the study. Equivalence measurement works on the assumption that if the current study’s instrument (survey) yields similar results to previous comparable studies, then the study’s research instrument can be said to be reliable (Cohen, et al., 2000). This study used Slovic’s (1987) research for guidance and equivalence reliability, where four out of Slovic’s 81 activities and technologies were used as the study’s controls. Each activity/technology was taken from one quadrant of Slovic’s psychometric paradigm. These controls were microwave ovens, coal burning (pollution), appliance fires and commercial aviation.

**ANALYSIS**

The main study was conducted with a population of 340 participants at Centro Warwick Shopping Centre. The reliability of the study was examined using Cronbach’s Alpha reliability measurement (Cohen, Manion, & Morrison, 2000), equivalence reliability methodology and peer review. Reliability analysis using Cronbach’s Co-efficient Alpha Test demonstrated a high reliable mean coefficient (α=0.7, S.D=0) for dread risk and a low to moderately reliable mean coefficient (α=0.38, S.D=0.84) for familiarity to risk. *Equivalence Forms Reliability Measurement* was used based on a comparison of Slovic’s (1987) psychometric study, which achieved a spatial quadrant match of 75%. In addition, Pearson’s product moment correlation coefficient and Gusset’s t-testing methodology was also used to determine the validity of the study. The validity of the main study was analysed using Pearson’s product moment correlation coefficient and achieved a moderate to strong linear strength rating for validity in the dread category and a weak linear strength rating for validity in the familiarity category.

Of the 340 people who took part in the study, 140 (47.1%) were male and 180 (52.9%) were female. Participants’ risk perception was examined using five different activities and technologies based on the dread and familiarity risk factors that underpinned the study. Analysis of the main survey using Gusset’s t-testing methodology found that there were two significant differences between the genders. The first of these was in the familiarity category of coal burning, which indicated that males are more familiar with coal burning risks than females [t (338) = -2.126, p=0.034] with a mean difference of 1.4601. The second significant result was in the dread category for terrorism [t (338) = 3.027, p=0.003] with a mean difference of 3.7000. The results indicated that females had signifcantly more dread regarding a successful terrorism act than their male counterparts. These results correlate with a number of studies (Fischhoff et al, 2003; Goodwin et al 2005).

In terms of dread, terrorism was the most feared risk (Mean=2.34, S.D=1.139), followed by coal burning (Mean=2.62, S.D=1.001), appliance fires (Mean=2.92, S.D=1.31), commercial aviation (Mean=3.15, S.D=1.016) and finally microwave ovens (Mean=3.54, S.D=1.031). The future effects category demonstrated that the public perceived coal burning (Mean=2.06, S.D=0.959) rather than terrorism (Mean=2.15, S.D=1.050), as a greater concern for future
generations. Finally in the government control category, terrorism (Mean=2.91, S.D=1.156) came second only to coal burning (Mean=2.39, S.D=.967) and indicated that the public thought that Australian Government was not doing enough to control this particular risk.

Frequency analysis indicated that 62% of participants were aware of these anti-terrorism campaigns. The next most concerning dread risk for the general public was appliance fires, followed by commercial aviation and microwave ovens. In terms of familiarity the study showed that appliance fires were the least familiar risk followed by terrorism, coal burning, commercial aviation and lastly microwave ovens.

Factor characteristic profiling was also conducted and used to graphically display how each activity or technology interrelated to each other. The study used factor characteristic data to profile each of the five activities or technologies into their respective dread and familiarity risk ratings. This approach allowed a comparison of the participant’s perceptions towards each activity or technological based risk. The effectiveness of Australia’s anti-terrorism awareness campaigns was also investigated, as this aspect was a key assumption within the study.

**Spatial factor representation**

The study used psychometric spatial factor representation (Figure 2) to examine the interrelationships between each of the variables that were used in the study. Spatial analysis representation was used to illustrate trends between all activities or technologies, based on dread and familiarity rankings. The study demonstrated that the risk of terrorism had a high dread rating (Mean=2.36) and a moderate familiarity rating (Mean=2.90) when compared against the other four control activities and technologies. The risk of terrorism occupied the same spatial quadrant (top right) as coal burning, with the public viewing the risk of coal burning as the most serious threat to their health and safety. Coal burning had both the highest dread rating (Mean=2.30) and the third highest familiarity rating (Mean=2.93) of the entire study. The result reflects a recent Lowly Institute annual poll that surveyed the Australian public opinion on foreign policy and global affairs. Climate change was the cause for the most concern, with 55% of those polled very worried about its effects, as compared to 38% of people who were concern about the threat to Australia from international terrorism (Lowly Institute for International Policy, 2007, p. 1).
The study indicated that the public’s risk perception of a terrorist act was lower than for the pilot study; however, overall this risk ranked the second highest in terms of dread and ranked midrange in terms of familiarity. This result may be due to Australia’s long term high profile anti-terrorism campaigns, verified from frequency analysis of the main survey that demonstrated that the public awareness of anti-terrorism campaigns in Australia was 62.4% (N=212 people). In terms of overall dread (Figure 2), the study demonstrated that coal burning is more of a concern to the general public. The coal burning risk was perceived a greater risk than was the risk of terrorism, next most concerning risks in view of the general public were appliance fires, commercial aviation and lastly microwave ovens.

**INTERPRETATIONS**

The study was able to respond to the posed objectives, such as considering how past terrorist events have impacted on the Australian public, to present the psychometric measure of terrorism and to provide comment on the efficacy of current Australian government anti-terrorism campaigns.

**Impact of terrorism on the Australian public**

Although Australia has not had a successful terrorist act on its soil recently, government reports have shown that Australia, its citizens and its ministers have all been singled out in terrorist propaganda (Department of Foreign Affairs and Trade, 2004a, p. 66). Terrorism based risks such as water, food and chemical, biological, radiological and nuclear security are now the focus of government reforms and legislation. The Australian government has a more active role in the regional arena as well, to use its resources to prevent actualisation of a terrorist act. This issue may be considered...
The public psychometric risk perception of terrorism

Spatial analysis (Figure 2) demonstrated that the public’s perception of terrorism was the second highest risk in terms of dread and ranked midrange in terms of familiarity. The study also revealed that the dread level of coal burning was more of a concern to the general public than was terrorism. In terms of familiarity, the study showed that appliance fires were the least familiar risk followed by terrorism, coal burning, commercial aviation and lastly, microwave ovens.

The effectiveness of anti-terrorism campaigns

A 2007 Lowy Institute poll of 1003 Australians asked ‘How worried are you about potential threat of international terrorism from the outside world?’ with 68% were either very worried or fairly worried. The study’s factor characteristic profiling demonstrated that terrorism ranked highest of all the safety campaigns in the observability category (Mean=2.38, S.D=0.954), with 62% of the public agreeing that the ongoing anti-terrorism awareness campaigns had made them more aware of the risks. Conversely, 38% (N=129) of the public believe the Australian Government should be doing more to control the risks of a terrorist act, as compared to 34% (N=114) of participants who felt that the Australian federal government’s current initiatives were adequate for the time being.

The Australian public also felt the need for these types of anti-terrorism campaigns, which is reflected in their response rate to the federal government’s anti-terrorism hotline. Since its inception in December 2002, the National Security hotline has received over 93,000 calls, letters or emails from concerned members of the public (Attorney-General’s Department, 2008). Therefore the study indicates that ongoing Australian government anti-terrorism campaigns are
CONCLUSION

The study found that public’s perception of risk was critical when gauging risk. Aspects concerning the type, size and scale of the event, personal experience, media attention, expert understanding and the government’s response all played a defining role in how a person perceives a risk and thus how they will respond to a particular risk (Sjöberg, 2000a, 2000b). The impact of terrorism on the Australian public demonstrated that Australians are aware of terrorism risks. The study highlighted this aspect, as 30% (N=103) of Australians surveyed believed that they were at risk of being associated with an Australian based terrorist act. The study also found that gender based dread levels of risk were higher in women than they were in men, consistent with similar studies (Sjöberg, 2004; Howie, 2005; Whitten & Thompson, 2007; Philipps, 2007; Aly et al, 2007). This perceptual gender issue needs further examination to understand why women are more risk averse than men.

The contrast of the public’s psychometric risk perception of terrorism with other pre-measured risks was determined through psychometric spatial factor representation. The study found that coal burning (pollution) and not terrorism was the main concern of the Australian public; however, terrorism was still ranked the second highest risk in terms of dread and midrange in terms of familiarity (Figure 2). Overall, the study found that there was a general increase in awareness, dread and community concern amongst members of the general public regarding a terrorist act occurring in Australia. Nevertheless, the study found that 62% of participants were aware of Australian anti-terrorism campaigns. These results indicate that anti-terrorism campaigns have been both far reaching across both cultural and language barriers throughout Australia.

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