The Effectiveness of Threat-only messages versus Threat-and-Efficacy Messages in Anti-Speeding Advertisements

Jennifer Thornton (Presenter) and John R. Rossiter
School of Management and Marketing
University of Wollongong
jenni@uow.edu.au
Ph: +61 2 4221 4292
Fax: +61 2 4221 4154

Jennifer Thornton is a Lecturer with the School of Management and Marketing at the University of Wollongong, Australia. Jenny's current research area involves analysing the effectiveness of threat appeals in the context of road safety advertising. The research presented in this paper was funded by a Youth Road Safety Research Grant from the Motor Accidents Authority (MAA) of NSW.

Abstract

This study investigates whether road safety authorities should take a new approach in road safety advertisements. Threat appeal advertisements that also demonstrate or advise drivers *how* to drive safely could be more effective than those ads that stimulate only feelings of fear, shock or grief (Witte and Allen 2000). In this study, we compare the effectiveness of threat-only TV commercials with the same commercials to which an efficacy recommendation to reduce driving speed has been added. An advertising experiment was undertaken to test four pairs of anti-speeding TV advertisements, and a control TV advertisement unrelated to road safety. Each pair of anti-speeding TV advertisements consisted of a High Threat/Low Efficacy version and a High Threat/High Efficacy version. The respondents in the test were 17 to 28 year-old drivers from southern Sydney and Wollongong. The respondents (N =180 total; n = 20 per ad), were quota sampled to provide subgroups of young male speeders, and nonspeeders, and young female speeders and nonspeeders. The dependent measure was the AVST10, which is a test that involves getting drivers to view 10 video scenes of a person driving a vehicle in real driving situations. After each driving scene, drivers are asked to estimate the speed that they themselves would use in that situation. Analysis of variance was used to examine differences between the effectiveness of the anti-speeding ads on the AVST10 by gender and speeder classification. The results of the advertising experiment indicated that the High Threat/High Efficacy ads produced lower (better) AVST10 speed scores than High Threat/Low Efficacy messages. The largest effect of these High Threat/High Efficacy messages in reducing speed is for the high-risk road user group of young male speeders. However, for the total sample, this result was obtained only directionally and was not statistically significant.

Introduction

The vast majority of road safety advertisements focus on threat appeals to motivate their audiences to drive safely (Henley and Donovan 1999). However, many health and safety researchers suggest that threat messages should be accompanied by behaviour recommendations (implicit or explicit) for overcoming the danger or threat

presented in the advertisement, thus enhancing the audience member's feeling of efficacy regarding the recommended safe behaviour (Witte and Allen 2000; Mooren and Frape 1996; Allison 1991; Strecher, DeVellis, Becker, and Rosenstock 1986; Becker 1974). Efficacy is comprised of two components – response efficacy and self-efficacy. Response efficacy is defined as the "perceived contingency between the performance of the recommended response and the reduction of the depicted threat" (Beck and Frankel 1981, p.212). Self-efficacy is closely related to the target audience's feelings of being able to control a situation by being able to perform the recommended behaviour (Keller, 1999), that is, a "person's perceived ability to perform the recommended action successfully" (Beck and Frankel 1981, p.212).

Threat-only (fear based) anti-speeding advertisements leave the viewer feeling very strongly aroused and so give the viewer no time to think of ways of overcoming the proposed threat (Janis 1967). Also, the arousal could, in the short term, carry over and exacerbate the unsafe behaviour, such as speeding (Zillmann 1999). Threat-only ads are based on the principle of punishment, that is, if you perform the bad behaviour you will be punished by experiencing the negative consequences of those actions. Job (1988, p.164) notes that "a major disadvantage of punishment as a procedure is that it does not provide direction to a healthier behaviour, whereas reinforcement produces strengthening of specific behaviours". Punishment is like saying "'no, don't do that', without suggesting what could be done in its place" (Job 1988, p.164). A threat-only ad neither contains response efficacy messages nor does it develop self-efficacy, as felt by the viewer.

Threat-then-efficacy advertisements, on the other hand, demonstrate *how* (which is an implicit behaviour recommendation) to drive at or below the speed limit and often provide reasons *why* (which is an explicit behaviour recommendation) the driver should reduce their speed. The optimal sequence of stimuli within a threat appeal ad involves *first,* a threat is made to the viewing audience, that is if they undertake a 'bad' behaviour it might result in 'bad' consequences, for example, in the context of an anti-speeding road safety advertisement viewers would be shown a driver in a car who is excessively speeding, loses control of the car and creates a collision with oncoming traffic, killing all parties involved; and *second*, the threat is then shown to be avoided by adhering to the 'good' behaviour, for example, driving at or below the speed limit. This proposed sequence for promoting acceptance of a recommended behaviour is closely associated with instrumental conditioning, with this link being made by Job (1988, p.165) who recommended that "if fear must be used, it should be used in a manner which allows fear offset reinforcement to follow an appropriate response". In the case of advertising, the learning takes place by modelling, which is a form of observational learning. Cognitive learning theory supports that viewers will learn from information provided to them, for example, they will process an explanation of differences in stopping distances within an anti-speeding ad. Both of these mechanisms (modelling and cognitive learning) represent efficacy components in the ad.

As an alternative to the commonly used anti-speeding threat appeal ad, which devotes a disproportionate amount of time in the ad to creating a fearful situation, road safety authorities should consider including more significant response efficacy messages in threat appeal ads by delivering a message that shows or explains that accidents are more likely to be avoided by reducing speed. Furthermore, threat

appeal ads should devote increased ad time to enhancing the self-efficacy of viewers (and not simply shocking viewers), by demonstrating that it is easy to slow down and promoting the fact that the viewer is able to change their behaviour, either by an implicit message, involving a demonstration of the better behaviour, or through an explicit message that directly instructs the viewer that they can slow down. This approach to designing road safety ads has not been employed sufficiently. Additionally it has not been widely tested, particularly in terms of controlled advertising experiments.

Research Objective

The specific objective of this research is to compare the effectiveness of threat-only (High Threat/Low Efficacy) and threat-then-efficacy (High Threat/High Efficacy) anti-speeding ads for encouraging young drivers, male and female, speeders and nonspeeders, to reduce their driving speed.

Method

An advertising experiment was undertaken to test the four pairs of anti-speeding TV advertisements (plus one non road-safety advertisement), that use equally high threat but differ in terms of levels of efficacy (low and high), using the Australian Video Speed Test (AVST) as an outcome measure (dependent variable).

Recruitment of participants

Participants for the study were recruited via mall-intercept, with passersby being approached and screened for their eligibility for the experiment. The potential participants were offered the incentive of movie voucher, valued at AUS$13. Non-drivers were screened out.

Pre-questionnaire

A pre-questionnaire was administered prior to the experiment, and contained questions regarding years of driving experience, driving record, age, and gender. The pre-questionnaire also included measures of self-reported speeding behaviour in regard to travelling on the freeway, on residential roads, and driving fast in general. These measures were developed by West, French, Kemp and Elander (1993) and used in Horswill and McKenna's (1999) study. Participants were asked to indicate, on 6-point scale (with 1 = "never or very infrequently", 2 = "infrequently", 3 = "quite infrequently", 4 = "quite frequently", 5 = "frequently" and, 6 = "very frequently or always"), if they: broke the freeway speed limit and exceeded the speed limit in residential areas; and drove fast in general.

Experimental design

The experiment involved eight experimental groups and one control group. Each group comprised 20 participants, total N=180. Only younger drivers between 17 and 28 years of age participated in the experiment to minimise the heterogeneity of audience characteristics (Quinn, Meenaghan, and Brannick 1992). Allocation to

experimental conditions was random with equalized quotas per group for gender (10 males and 10 females per group). Additionally, within the gender, quotas for habitual speeders (n=5) and nonspeeders (n=5) were imposed. The speeder classification was based on the residential-area speeding question in the pre-questionnaire, whereby participants who answered 1 to 3 on the scale were classified as nonspeeders, and participants who answered 4 to 6 were classified as speeders. The residential area scale of speed choice was chosen for the quota sampling exercise as the anti-speeding ads were all targeting speeding in residential areas (that is, 50km/hr and 60km/hr speed zones).

Selection and construction of advertisements

Initially, a large set of anti-speeding TV commercials were collected from road safety authorities around Australia (Roads and Traffic Authority, New South Wales; Transport Accident Commission, Victoria; Queensland Department of Transport; Western Australian Office of Road Safety; and the Tasmanian Road Safety Authority). The NSW RTA commercials were eventually eliminated from consideration for the advertising experiment because the experiment was to be conducted in NSW.

From the remaining set of out-of-State anti-speeding TV advertisements, four advertisements were chosen based upon their *common theme* of speeding in local streets and hitting pedestrians as a result of speeding. It was not possible to find low-threat anti-speeding ads that used the same consequences (hitting a pedestrian). Most of the low-level threat appeals are in ads that stress other consequences, such as loss of license or demerit points. All of the ads, therefore, were High Threat ads.

To manipulate the efficacy factor in the ads, an adaptation of each of the four original ads was developed. For those ads that were initially Low Efficacy, in that they did not show or verbally emphasize slower driving, additional instructions and visual footage were added to create High Efficacy versions of the ads. For those ads that were initially High Efficacy, the visual depiction of slower driving and the accompanying verbal message to slow down were edited out to create Low Efficacy versions of the ads. Testing a greater number of ads, as opposed to testing only one pair of ads, reduces the chance that any difference in effect found between threat-only and threat-then-efficacy ads are isolated to a particular ad. Thus reporting the findings for each separate ad is undertaken.

Description of stimuli

- “Pizza-High Efficacy” (an unedited ad) shows a pedestrian being hit by a speeding car, then a surgeon commenting on how speed caused the fatal injuries, followed by a second sequence of visuals reenacting in slow motion the pedestrian’s body being hit by the car, concluding with a further recommendation by the surgeon to reduce speed, while at the same time a scenario is shown of a car travelling below the speed limit and avoiding hitting a pedestrian.
- “Pizza-Low Efficacy” (an edited ad) does not contain the major efficacy message in the previous ad, that is, the surgeon’s second recommendation and the visual of the car driving slower and avoiding the pedestrian is

removed. The ad now ends with the pedestrian's body on the road, with just a brief audio and visual tag line "Speed kills".

- "Pram-High Efficacy" (an unedited ad) shows three different speeding scenarios: a driver is shown avoiding; frightening; then hitting a pedestrian who is pushing a pram. The voice-over commentary in the ad provides an explanation of the different consequences of faster and slower speeds and gives an explicit behavioural recommendation to slow down.
- "Pram-Low Efficacy" (an edited ad) does not contain efficacy messages about stopping distances, that is, the final part of the ad has been substituted with only a visual of a smashed windscreen and the brief visual tag line "Speed kills".
- "Trike-High Efficacy" (an edited ad) begins innocently with youngsters riding tricycles on a driveway and ends with one of the children riding onto the road and being run over and killed by a speeding motorist. The original ad has been extended to include efficacy components. There has been audio added which explains stopping distances as well as providing an explicit behavioural recommendation to slow down. The visuals from the beginning of the ad have been replayed to show the children safely riding on their tricycles again.
- "Trike-Low Efficacy" (an unedited ad) contains the beginning section of the counterpart ad, however it ends with one of the children riding onto the road and being run over and killed by a speeding motorist, and a brief tag line about speed reduction.
- "4WD-High Efficacy" (an edited ad) shows a young mother who is running late picking her child up from school and is speeding recklessly, and hits and kills another person's child. This ad has been extended to include efficacy components. There has been audio added which explains the dangers of speeding and recommends not speeding, along with visuals from the first part of the ad showing the child victim playing again on the driveway.
- "4WD (Four-Wheel-Drive)-Low Efficacy" (an unedited ad) does not show the final part of the counterpart ad, ending with a scene of the dead child, grieving mother and horrified driver, with a brief tag line about speed reduction.
- A control advertisement was chosen for the experiment that would produce low arousal and would not be related to cars and driving. It was believed that other social marketing commercials, such as anti-smoking ad or anti-drink-driving, would contain a threat, and therefore would not be neutral. An ad for an everyday household product, a dishwashing detergent, was chosen instead. The control ad is "Dawn", an advertisement for Dawn dishwashing detergent, that consists of a discussion between two women who are shopping and comparing Dawn with a store-brand detergent. The control group is controlling for possible testing effects and also provides a benchmark of speed-choice for drivers who had not seen either a threat-only or threat-then-efficacy anti-speeding ad.

Ad-testing procedure

Each experimental group saw one of the eight anti-speeding ads, and the control group saw the detergent ad. Each ad was played twice to ensure the participants understood its message. It is quite normal when testing broadcast commercials to play them twice; whereas print ads are exposed only once, with ad-lib exposure time.

It is estimated that two "forced" exposures, as in this experiment, is equivalent to about six on-air exposures (Rossiter and Percy 1997).

Dependent variable
After the second exposure to the ad, the AVST10 was immediately administered via a questionnaire. The AVST10 involves getting drivers to view video scenes (1 practice and 10 test scenes) of a person driving a vehicle in real driving situations. After each scene, drivers are asked to estimate how much faster or slower, if at all, that they would drive in the same situation (in kms/hr). For example, if the viewer felt they would want to drive 10 kms/hr faster in a certain driving situation, they would indicate +10 on the space provided. The AVST10 is an average of the 10-test scene scores.

The AVST10 has demonstrated very good known-groups validity in that the AVST10 scores correlated significantly with self-reported habitual speeding ($r = .52$, $p = .01$). The AVST10 also demonstrated high internal-consistency reliability (coefficient alpha = .83). The AVST10 is a valid and reliable test of drivers' speed choice across a range of realistic driving situations (see Thornton and Rossiter 2003).

Post-questionnaire items
Participants were then asked to rate the perceived severity, susceptibility, response efficacy and self-efficacy of the messages within the ad. Additionally, separate ratings were made of perceived relatedness to the driver, the situation, and the victim in the ad.

Results

Description of the sample
The average age of participants in the sample was 21 years, with ages ranging from 17 to 28 years. Average driving experience was 3.7 years, with 71% of participants being regular (driving every day of the week) drivers. From the sample, 21% had incurred at least one or more speeding fines and 54% still held a Provisional Licence.

Using analysis of variance, it was found that the eight experimental ad groups and the control ad group comprised participants with homogenous demographic characteristics and driving histories.

Comparison of Threat-only, Threat-and-Efficacy and Control Ads
Analysis of variance was used to examine differences between the mean speed scores on the AVST10 following exposure to the respective experimental ads and the control ad. This involved making the following comparisons: High Efficacy vs. Low Efficacy, Control vs. High Efficacy and Control vs. Low Efficacy.

<u>Individual ads: total sample</u>
AVST10 results for the individual ads in their High Efficacy vs. Low Efficacy pairs, for the total sample of young drivers, are shown in Table 1. Firstly, the Control ad resulted in an average driving speed increase of +5.4kms/hr. All of the anti-speeding

TV ads produced lower average speeds, although none of them produced statistically significant speed reduction at $p < .05$, 2-tailed.

Three of the four ad pairs, the exception being the "Trike" ad pair, showed the predicted directional relationship, based on total average speed scores, between the High Efficacy versus Low Efficacy versions with the High Efficacy versions tending to result in lower speed scores than their Low Efficacy versions. However, none of the pairwise differences for the individual ads were statistically significant, even at the 1-tailed (directional) $p< .05$ level.

Table 1 - Experimental groups' and control group's AVST10 average scores for individual ads: total sample

AD GROUP	+/– Δ IN AVG KMS/HR	STD DEVN KMS/HR
Control	5.4 *(n=20)*	6.4
Pizza - High Efficacy	2.0 *(n=20)*	1.7
Pizza- Low Efficacy	3.0 *(n=20)*	4.0
Trike - High Efficacy	3.3 *(n=20)*	2.9
Trike - Low Efficacy	3.1 *(n=20)*	4.2
Pram - High Efficacy	3.7 *(n=20)*	5.3
Pram - Low Efficacy	4.5 *(n=20)*	6.1
4WD - High Efficacy	2.7 *(n=20)*	2.6
4WD - Low Efficacy	4.0 *(n=20)*	6.5

<u>High Efficacy vs. Low Efficacy ads: total sample</u>

The High Efficacy ads overall and the Low Efficacy ads overall vs. the Control ad were tested next. Additionally, a comparison, using analysis of variance, was made between the High Efficacy and Low Efficacy ads. Table 2 details the results of this comparison which is based on a larger sample size per ad type (that is, n = 80 for the experimental groups).

Table 2– High Efficacy ad vs. Low Efficacy ad experimental groups' and control group's AVST10 average scores: total sample

AD GROUP	+/– Δ IN AVG KMS/HR	STD DEVN KMS/HR
Control	5.4* (*n=20*)	6.4
High Efficacy	2.9* (*n=80*)	3.4
Low Efficacy	3.6 (*n=80*)	5.2

* = statistically significant difference

In comparison with the Control group's speed score of +5.4kms/hr, the High Efficacy ads (grouped together) resulted in a significantly lower speed score of +2.9kms/hr (F=5.83, p =.02, 2-tailed). However, the speed scores for the High Efficacy ads and Low Efficacy ads did not differ significantly (F = 1.07, p = .15, 1-tailed).

High Efficacy vs. Low Efficacy ads: males vs. females

Table 3 shows the effect of the High Efficacy ads overall and Low Efficacy ads overall by gender (compared to the control group by gender). The Control group contained 10 males and 10 females, and the Experimental groups per ad type contained 40 males and 40 females. As expected, in all conditions, females had lower speed scores than males (F = 21.53, p = .000). For females (young female drivers), the effects of the High Efficacy ads and Low Efficacy ads were not significantly different (F=.10, p= .37, 1-tailed). For males (young male drivers), however, the speed scores for the High Efficacy ads were significantly lower than for the Low Efficacy ads (F=2.67, p = .05, 1-tailed). For males, the speed scores of the High Efficacy ads were also lower than the Control ad (F = 6.20, p = .02, 2-tailed). Among young male drivers, the High Efficacy ads produced an average speed reduction, compared with the Control ad, of 4.1kms/hr.

Table 3 – High Efficacy ad vs. Low Efficacy ad experimental groups' and control group's AVST10 average scores: females vs. males

AD GROUP	FEMALES +/– Δ IN AVG KMS/HR	MALES +/– Δ IN AVG KMS/HR
Control	2.4 (*n=10*)	8.5* (*n=20*)
High Efficacy	1.5 (*n=40*)	4.4* (*n=40*)
Low Efficacy	1.2 (*n=40*)	6.0* (*n=40*)

* = statistically significant differences

High Efficacy vs. Low Efficacy ads: nonspeeders vs. speeders

Table 4 shows the effect of High Efficacy ads overall and Low Efficacy ads overall by classification of the drivers as a nonspeeders or speeders. For nonspeeders, the effects of the High Efficacy ads and Low Efficacy ads were not statistically significantly different (F = .07, p = .40, 1-tailed). Also, for speeders, this comparison was not significant (F-=1.29, p=.13, 1-tailed). However, for speeders, the High Efficacy ads overall resulted in significantly lower speed scores than the Control ad (F=4.08, p=.049, 2-tailed). The speed reduction was 3.5kms/hr.

Table 4- High Efficacy ad vs. Low Efficacy ad experimental groups' and control group's AVST10 average scores: nonspeeders vs. speeders

AD GROUP	NONSPEEDERS +/– Δ IN AVG KMS/HR	SPEEDERS +/– Δ IN AVG KMS/HR
Control	3.2 (*n=10*)	7.6* (*n=10*)
High Efficacy	1.7 (*n=40*)	4.1* (*n=40*)
Low Efficacy	1.9 (*n=40*)	5.3 (*n=40*)

High Efficacy vs. Low Efficacy ads: female nonspeeders vs. female speeders

Although the subgroup sample sizes for the comparison are rather small, especially for the Control ad, it is evident from Table 5 that neither the High Efficacy ads overall nor the Low Efficacy ads overall had any effect on young female nonspeeders or young female speeders. Young females classified as speeders (by a median split on the self-report measure of residential speeding) chose a low speed in the Control ad condition and neither the High Efficacy ads (F =.98, p =.33, 2-tailed) or the No efficacy ads (F= .00, p = .97, 2-tailed) reduced their speed significantly.

Table 5 - High Efficacy ad vs. Low Efficacy ad experimental groups' and control group's AVST10 average scores: female nonspeeders vs. female speeders

AD GROUP	FEMALE NON SPEEDERS +/– Δ IN AVG KMS/HR	FEMALE SPEEDERS +/– Δ IN AVG KMS/HR
Control	2.1 *(n=5)*	2.6 *(n=5)*
High Efficacy	0.9 *(n=20)*	2.0 *(n=20)*
Low Efficacy	–0.2 *(n=20)*	2.7 *(n=20)*

High Efficacy vs. Low Efficacy ads: male nonspeeders vs. male speeders

Despite the small subgroup sample sizes, especially for the Control ad, the results In Table 6 indicate that the High Efficacy ads overall tended to produce lower driving speeds than the Low Efficacy ads for both young male nonspeeders and young male speeders, although in neither case was the difference statistically significant. However, for young male speeders, the efficacy ads overall did produce a significant reduction in speed in comparison with the Control ad (F=6.30, p= .02, 2-tailed). The estimated reduction in speed was 6.5kms/hr.

Table 6- High Efficacy ad vs. Low Efficacy ad experimental groups' and control group's AVST10 average scores: male nonspeeders vs. male speeders

AD GROUP	MALE NON SPEEDERS +/– Δ IN AVG KMS/HR	MALE SPEEDERS +/– Δ IN AVG KMS/HR
Control	4.3 *(n=5)*	12.6* *(n=5)*
High Efficacy	2.6 *(n=20)*	6.1* *(n=20)*
Low Efficacy	4.0 *(n=20)*	8.0 *(n=20)*

* = statistically significant difference

Discussion

The experiment provided some evidence that the High Threat/High Efficacy ads were more likely to reduce drivers' relative speed than were the High Threat/Low Efficacy ads, although both types of anti-speeding ads produced lower speed-choice scores than the Control ad. Analysis of the effects of the ads on subgroups of young drivers revealed that whereas the type of anti-speeding ad had little effect on young female

drivers, the versions with High Efficacy significantly (versus the Control ad) reduced the driving speed of young male drivers (in particular, young male speeders). Future research, using a larger sample, could examine whether the directional effects for High Threat/High Efficacy ads found in this study hold for the total population of drivers.

The experiment demonstrated only the short-term, almost immediate effects of anti-speeding ads on speed choice. We do not know how long the desired behavioural effect (choice of lower driving speed) would last following real-world advertising exposure and a longer interval before the subsequent automobile driving opportunity. In other studies, arousal effects have been shown to persist for up to several hours, though our approach actually relies on de-arousal (the efficacy recommendation at the end) *following* high arousal (the initial threat, producing fear). We would expect the state of de-arousal to last longer. Future studies that focus on the effect of arousal (see Thayer's Model in La Tour and Zahra, 1989) in threat appeal road safety ads are needed.

Also ads using High Efficacy alone (no fear) should be tested because it is theoretically possible that the High Threat/High Efficacy ads worked because of that factor (with fear or arousal playing no part in the process). Straight High Efficacy ads might work as they explicitly model the desired behaviour. Given the motivating and attention-getting power of threat appeals, we don't expect ads with an absence of fear– that is, just efficacy alone – to be more effective than High Threat/High Efficacy ads, but this possibility needs to be tested in a further study.

Conclusion

The AVST10 was used to test four pairs of TV advertisements that targeted drivers' speeding behaviour. From the results of this study, we suggest that Australian road safety authorities consider including more efficacy components in threat appeal ads. This involves demonstrating and/or explaining to viewers that they *can* slow down. The High Threat/High Efficacy ads in this study were slightly more effective with the primary audience of young male drivers and did not show any detrimental effect on young female drivers.

Acknowledgements

The development and validation of the AVST (of which this study was a part of) was funded by the Motor Accidents Authority (MAA) of NSW.

Keywords

Road safety; threat appeals; advertising; speeding; ad testing; research; video speed test

REFERENCES

Allison, K.R. (1991), "Theoretical Issues Concerning the Relationship Between Perceived Control and Preventive Health Behaviour", *Health Education Research*, Vol 6 (2), pp141-151.

Becker, Marshall, (1974), "The Health Belief Model and Personal Health Behaviour", *Health Education Monographs,* (Winter).

Henley, N., & Donovan, R. (1999). Threat appeal in social marketing: Death as special case. *International Journal of Non-Profit and Voluntary Sector Marketing*, 4 (4), 300-319.

Horswill, M.S. and McKenna, F.P (1999), "The development, validation and application of a video-based technique for measuring an everyday risk-taking behavior: Drivers' speed choice", *Journal of Applied Psychology*, 84(6), pp. 977-985.

Janis, I. L., (1967), "Effects of Fear Arousal on Attitude: Recent Developments in Theory and Experimental Research", *Advances in Expreimental Social Psychology*, Vol (4), pp 166-224.

Job, R.F. (1988), "Effective and Ineffective Use of Fear in Health Promotion Campaigns", *American Journal of Public Health*, 78(2), pp163-167.

Keller, P. (1999), "Converting the Unconverted: The Effect of Inclination and Opportunity To Discount Health Related Fear Appeals", *Journal of Applied Psychology*, 84(3), pp.403-415.

La Tour, M. and Zahra, S. (1989), "Fear Appeals As Advertising Strategy: Should They Be Used?" *The Journal of Consumer Marketing*, 6(2), pp61-70.

Mooren, Lori., and Frape, Gerald., (1996), *Lessons from Public Health and Environmental Campaigns,* 23 December.

Quinn, Valerie., Meenaghan,Tony., and Brannick, Teresa. (1992), "Fear Appeals: Segmentation is The Way To Go", *International Journal of Advertising*, 11(4), pp355-367.

Rossiter, J.R. and Percy, L., (1997). *Advertising Communications & Promotion Management*, 2nd Edition. New York, McGraw-Hill.

Strecher, Victor., DeVellis, Brenda., Becker, Marshall., and Rosenstock, Irwin., (1986), "The Role of Self-Efficacy in Achieving Health Behavior Change", *Health Education Quarterly*, 13 (1), pp. 73-91.

Thornton, Jennifer, and Rossiter, John.R., (2003), Development and Validation of an Australian Video Speed Test (AVST), *2003 Road Safety Research, Policing and Education Conference*, Sydney, Australia.

West, Robert., French, Davina., Kemp, D., and Elander., (1993), "Direct Observation of Driving, Self Reports of Driver Behaviour, and Accident Involvement", *Ergonomics*, 36 (5), pp557-567.

Witte and Allen (2000), "A Meta-Analysis of Fear Appeals: Implications for Effective Public Health Campaigns", Health Education and Behavior, 27 (5), pp591-615.

Zillmann, Dolf and Weaver, James B. (1999), “Effects of prolonged exposure to gratuitous media violence on provoked and unprovoked hostile behavior*”, Journal of Applied Social Psychology,* 29 (1), pp145-147.