References

1. Victorian Government. Young driver safety and graduated licensing: Discussion paper. Victoria: VicRoads, 2005.

2. Insurance Institute for Highway Safety. If you drive while phoning you're far more likely to get into a crash in which you'll be injured. Status Report 2005; 40(6).

3. ROSPA. The risk of using a mobile phone while driving . Birmingham, 2001.

4. The George Institute for International Health. Drivers Ignore The Risk Of Mobile Phone Use. ScienceDaily, 2006. Viewed 10 July 2011. http://www.sciencedaily.com/releases/2006/12/061211124129.htm

5. McEvoy SP, Stevenson MR, McCartt AT, Woodward M, Haworth C, Palamara P, Cercarelli R.Role of mobile phones in motor vehicle crashes resulting in hospital attendance: a case-crossover study. BMJ 2005; 331(7514)

6. Thulin H, Gustafsson S. Mobile phone use while driving: Conclusions from four investigations. Swedish National Road and Transport Research Institute, 2004.

7. Virginia Tech Transportation Institute. New data from Virginia Tech Transportation Institute provides insight into cell phone use and driving distraction. Virginia Polytechnic Institute and State University, 2009. Viewed 10 July 2011. http://www.vtnews.vt.edu/articles/2009/07/2009-571.html

8. Road Safety Committee. Inquiry into driver distraction. Parliament of Victoria, 2006.

9. AAMI. Young drivers: Annual road safety index. Australia: AAMI, 2008.

10. Monaghan R. Mobile Safety, a technology guide for parents, 2008. Viewed 12 September 2011. http://www.schools.nsw.edu.au/media/downloads/schoolsweb/news/technology/mobiles.pdf

11. Reilly T. Are kids becoming phone addicts? The Age, 2009. Viewed 12 September 2011. http://www.theage.com.au/news/technology/are-kids-becoming-phone-addicts/2009/04/25/1240684317712.html

12. Microsoft. Young Adults Revealed: The lives and motivations of 21st century youth, 2008. Viewed 12 September 2011. http://advertising.microsoft.com/wwdocs/user/en-us/researchlibrary/researchreport/Young-Adults-Revealed.pdf

13. Microsoft Advertising. Reach Your Target Audience - Young Adults. Viewed 12 September 2011. http://advertising.microsoft.com/ad-network/audience/young-adults

14. Australian Communications and Media Authority. Trends in media use by children and young people. Australian Government, 2010.

15. Tehan, P. Personal communication, 22 August 2009.

16. SWAT Marketing. CityGT: iPhone Game Research. 2009.

The importance of fear reduction in fear-based road safety advertising appeals

by Jennifer Algie, Senior Lecturer, School of Management and Marketing, Centre for Socially Responsible Marketing, Faculty of Commerce, University of Wollongong

Abstract

Road safety advertisers need to include fear reduction in fear-based advertisements to improve road safety behavioural outcomes. When designing advertisements containing relief components to reinforce safe driving attitudes and practices, there should be greater emphasis on formative research, such as pre-testing advertising concepts to ensure the correct advertising execution is achieved. Defining and selecting target audiences on current attitudes and behaviours, such as offenders (brand loyals), conformers (other brand loyals) and vacillators (switchers), is recommended. Finally, moving beyond the simplistic categorization of fear-based advertising according to 'levels' of fear to a new focus on 'patterns' of fear, which requires the inclusion of a 'fear reduction' mechanism, should increase the effectiveness of road safety advertising.

Keywords

Fear-based appeals, Fear pattern, Fear reduction, Road safety advertising, Road safety campaigns

Introduction

This article moves away from the traditional notion of 'levels' of fear and instead advocates a focus on 'patterns' of fear within fear-based advertising appeals. A pattern of fear is the sequence of fear arousal and 'fear reduction', if any, that is felt by the viewing audience when exposed to a fear-based advertisement. This new focus allows the importance of fear reduction[1] when designing fear-based road safety advertising appeals to be emphasised.

There is contention in both academic and practitioner fields on the appropriate way to design fear-based appeals to dissuade drivers from dangerous driving behaviours such as speeding, drink-driving and driving while fatigued. Academic literature, which is not limited to the area of road safety but includes other social or health behaviours, has mainly discussed research on levels of fear or threat [3-5].There has also been a tendency to simplistically categorise fear-based advertising appeals into either fear (shock) or non-fear based appeals. These could be major reasons for the lack of advancement in theories in this field.

A comprehensive review of previous research in this domain has been undertaken by Lewis, Watson, Tay and White and the main conclusion drawn from this evaluation was that 'further research is required to determine the optimum way to utilise fear in road safety advertising' [6]. This observation is used as the starting point of the discussion presented in this article. A new way of thinking when designing an effective fear-based road safety advertising appeal is now put forward.

Fear patterning theory

The fear patterning theory suggests that it is not the absolute amount of fear (fear arousal only) that drives attitude change and/or behaviour change, but the pattern of fear and then relief (fear reduction) felt by the audience that will determine the effectiveness of an advertisement. The fear pattern theory builds on the fear-as-acquired-drive (drive reduction) model [7] that was one of the earlier major theories of how fear appeals work, based on the assumption that it is fear reduction that makes such an appeal effective.

A discussion of the mechanism of fear reduction within road safety advertising can be found in Rossiter and Thornton's [8] and Algie and Rossiter's [9] papers. These articles explain that the overwhelming majority of previous studies have focused upon the effect of fear 'arousal', but do not properly investigate the effect of fear 'reduction'. The effect of 'fear-relief' patterns advertisements versus 'fear-only' patterns has been tested [10]. The relief messages used in the advertisements investigated in Thornton's research produced fear reduction that was associated with lower (improved) speed-choice scores measured by a simulation of actual driving behaviour [11].

Fear arousal versus fear reduction

Figure 1 provides a description of what could typically be included in a fear-only pattern or fear arousal advertisement.

Fear	The advertisement would show a driver who was speeding, and as a result lost control of his car, drove off the road and smashed his car into a light-pole and killing himself, with viewers being shown the graphic image of a dead body.

Figure 1. Example of a fear-only pattern anti-speeding advertisement

Figure 2 provides a description of what could be included in a fear-relief pattern or fear reduction advertisement.

Fear	The advertisement would show a driver who was speeding, and as a result lost control of his car, drove off the road and smashed his car into a light-pole and killing himself, with viewers being shown the graphic image of a dead body.
Relief	The advertisement then showed a rewind of the situation presented in the first part of the advertisement, followed by visuals of the same driver alive again and driving along the same stretch of road, not speeding, and then arriving safely at his destination, perhaps joyously greeted by a loved one.

Figure 2. Example of a fear-relief pattern anti-speeding advertisement

If you are designing a fear-based road safety advertisement you must consider the mechanism of fear reduction to optimise positive behaviour change. The new approach put forward here is to think in terms of reinforcement strategies, as shown in Figure 3, when designing road safety advertising appeals.
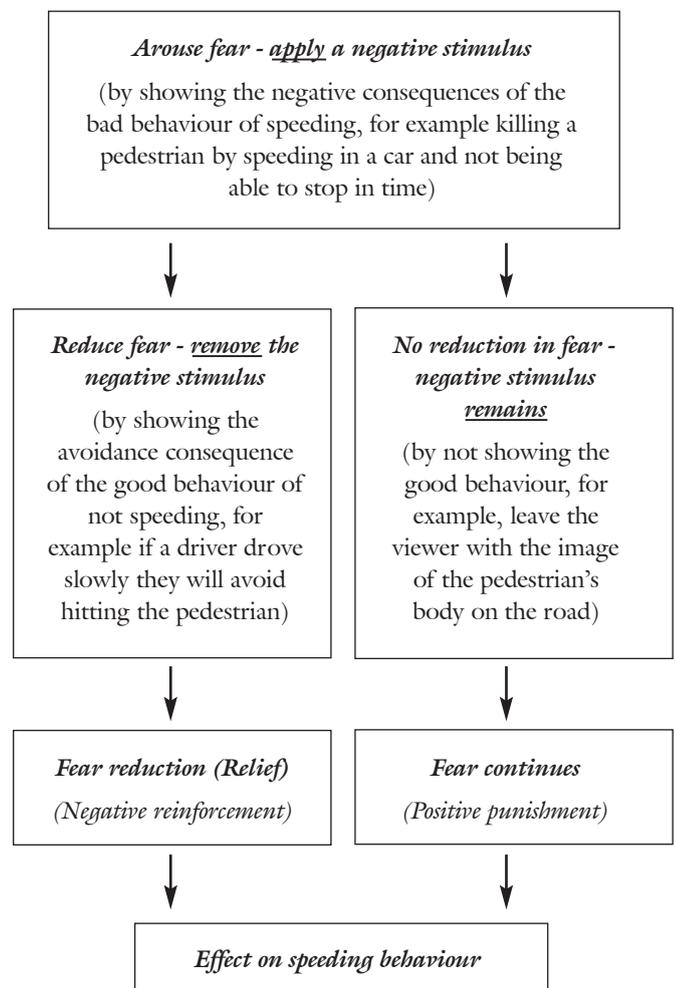

Figure 3. Flowchart of instrumental conditioning processes caused by anti-speeding advertising

The processes of positive punishment and negative reinforcement applied to road safety advertising are depicted in Figure 3. The flow-diagram process demonstrates that an advertisement that arouses fear by scaring the viewer (that is, a negative stimulus is applied), and then provides relief by explaining or showing the correct behaviour and its harm-avoiding consequences (such as, 'if you drive slowly you will be safe') thus reducing the viewer's fear (ie 'removes' the negative stimulus), would be considered a negative reinforcement approach in contrast to positive punishment. Drive theory assumes that 'the reduction of emotional tension operates as a reinforcement of the reassuring recommendation' [12]. The relationship between instrumental conditioning and the drive-reduction model is evident in Job's recommendation that 'if fear must be used, it should be used in a manner that allows fear-offset reinforcement to follow an appropriate response' [13].

Loss of licence (negative punishment, or 'non-reward') or bonus licence points (positive reinforcement or 'reward') are legislative methods for changing behaviour, requiring detection and intervention by government authorities.

Table 1. Applying Rossiter and Bellman's Brand Loyalty Segmentation to Behavioural and Attitudinal Segmentation in Road Safety Advertising or Social MARCOMs Campaigns

Commercial marketing application	*Brand Loyals*	*Other-Brand Loyals*	*Favourable Brand Switchers*
(segmentation by brand loyalty)	(consumers loyal to your brand and currently purchasers of your brand)	(consumers loyal to a competitor's brand and not currently purchasers of your brand)	(consumers who like your brand and occasionally purchase your brand)
Social marketing application	*Offenders*	*Conformers*	*Vacillators*
(segmentation by attitude and behaviour)	(citizens loyal to the 'bad' behaviour)	(citizens already doing the 'good' behaviour)	(citizens who engage in the 'bad' behaviour occasionally or are contemplating the 'bad' behaviour)

Road safety advertising attempts to encourage behaviour change voluntarily without the need for government intervention. Therefore, only two of the possible four approaches to encouraging safe driving behaviour can be accomplished by advertising alone— fear-only (positive punishment or 'punishment') and fear-relief (negative reinforcement or 'escape/avoidance'). Note also that both approaches aim to reduce speeding behaviour rather than to positively reinforce the good behaviour of driving safely, given that most target audiences for road safety practitioners are at-risk segments, that is, drivers who are regular speeders, such as young male drivers. Rossiter and Bellman use the terminology 'offenders', 'vacillators' and 'conformers' to describe potential target audiences for social marketing campaigns [14]. Most road safety campaigns are targeted towards 'offenders'.

Target audience classification

Defining and selecting target audiences based on their attitudes and behaviours towards the particular driving practice (such as mobile phone use, drink driving or speeding) is considered to be more relevant (and far preferable) than relying on demographics and psychographics to guide campaign choices. Table 1 applies the Rossiter and Bellman Brand Loyalty [14] perspective to target audiences in social marketing.

Recommended sequence of fear and relief

In the fear appeal literature there has been minimal attention given to the specific issue of fear reduction; however, there has been agreement on the optimal sequence of fear and relief stimuli that should be used in fear appeal communications [15-16]. Job [13], for example, stipulated similar points to other researchers in regard to certain conditions to increase the effectiveness of a fear appeal. First, fear should be evoked before the desired behaviour is offered. Second, the event should be likely (relevance). Third, the desired behaviour should be offered. Fourth, the level of fear should be in line with the capacity of the desired behaviour to reduce the fear. Fifth, the fear offset should occur as a reinforcer for the desired behaviour.

The fear-as-acquired drive model posits that the fear-arousing component of the message should precede the recommendation that produces fear reduction. For example, Hovland et al. [7] denote the following rules when designing fear-arousing appeals (and for the purpose of this article the elements that should be considered when designing fear-based road safety advertisements). First, are content cues (C) that are the threat stimulus or stimuli intended to evoke perceptions of susceptibility and severity; second is the emotional reaction (E), that is the experienced emotion of fear if the threat is successful; and third is the reassuring recommendation (R) to adopt the desired attitude or behaviour.

Content cues → Emotional reaction → Recommendation
(threat stimuli)   (fear)

Figure 4. Hovland et al.'s recommended sequence

There is also considerable agreement among previous researchers who have investigated fear appeals on the need for reassuring messages to overcome the threat [17-19]. Witte and Allen undertook a meta-analysis of fear appeal research, analysing over 100 studies; they concluded that, on average, more fear is better but only given that efficacious messages are matched to the level of threat used in the message. For example, when using a high threat appeal, a high efficacy message will produce the greatest behavioural change [20]. Witte believed that 'a failure to account for efficacy appears to have contributed to diverse fear appeal findings'. It is also possible that a failure to measure fear reduction within studies is a reason for contradictory findings in this field. Efficacy components within a fear-based appeal produce relief; however the mechanism underpinning the fear pattern theory is a behavioural learning theory of instrumental conditioning, whereas the models that include efficacy are based on cognitive learning. Tay believes that anti-speeding campaigns 'suffer from low response efficacy' as the 'only coping strategy available calls for the viewers not to speed' [21]. Whereas another road safety problem-behaviour such as drink driving has several coping strategies, such as not drinking, catching a taxi or nominating a designated driver. Thus if anti-speeding campaigners are designing an advertisement and attempting to adhere to Witte's recommendation of the need for high efficacy in high threat

Table 2. The steps involved when designing fear-relief communications

Author	Job [13]	La Tour and Zahra [22]	Rogers [2]
Step 1	Evoke fear	Create a fearful situation	Increase magnitude of noxiousness (severity) and the conditional probability (susceptibility) of the event occurring if there is no behaviour change
Step 2	Offer desired behaviour	Solution is provided as a means of fear reduction	The availability and effectivenes of coping responses, s to reduce or eliminate the noxious stimuli
Conditions	Event should be likely; level of fear should be matched by desired behaviour to reduce fear	Danger is depicted as serious enough to warrant attention	-

communications, they would be deterred from using a fear-based appeal. However, the fear pattern theory relies upon the mechanism of fear reduction (relief) which is not entirely dependent on efficacy messages or extensive coping strategies.

The suggested format of stimuli to be used in a fear-based appeal is: first, the 'creation of a fearful situation, that activates risk and vulnerability'; second, the 'danger is depicted as serious enough to warrant attention'; and finally 'a solution is provided as a means of fear reduction' [22]. Table 2 summarises a sample of researchers' opinions of the general guidelines and considerations required when designing fear appeal messages.

Despite this recommended formula, many road safety advertisers do not develop advertisements that produce fear reduction, but rather leave the viewer feeling extremely tense at the end of the advertisement.

Reviewing past anti-speeding advertising

Road safety behaviours for many drivers are based on the negative motivation of avoiding a potential problem (for further information see Rossiter and Percy's motivations named 'problem avoidance' and 'problem solution'[23]). For example, in regard to speeding and drink driving, drivers want to avoid the problem of penalties, physical injuries and/or social disapproval. This is one of the reasons why much of the road safety advertising in Australia and New Zealand uses fear-based advertising appeals. For example, cars are shown careering off roads and smashing into trees or light poles and killing drivers and passengers.

There is a large selection of fear-based anti-speeding advertisements in Australia available for analysis because fear appeals have been the dominant approach in this country [24]. Advertisements from road safety authorities were content analysed [10] and from this sample of advertisements the following results were determined. In the year 2000, Western Australia had 31 different executions of road safety advertisements, 25 of which were fear appeals, that is, 80% of

the road safety advertisements contained some degree of threat to the viewing audience. Similarly, at the same time, the state of Victoria produced 44 road safety advertisements, 32 of which were fear appeals (73%). New South Wales aired 11 advertisements, nine of which were fear appeals (81%). Queensland had eight advertisements, seven of which were fear appeals (88%). Tasmania had only five advertising executions, but four of these were fear appeals (80%) and South Australia had 16 advertisements, 11 of which were fear appeals (69%). Additionally, many of the advertisements that were aired at the time of the legislative change in residential speed zones (from 60km/h to 50km/h) were also fear based. The majority of this entire set of ads was fear-only advertisements.

While there may have been a diminution in the percentage of fear-based appeals in road safety advertising over the past ten years, there is still a tendency to use this type of appeal due to the attention-getting ability that this appeal delivers. The recent New South Wales Roads and Traffic Authority 'Pinkie' campaign was considered a novel approach to persuading the high-risk segment of young male drivers, but it is still based on a social threat, that of social disapproval (versus the typical physical threat used in road safety advertising).

Increasing formative research in campaign development

At present a significant percentage of research dollars is devoted to post-campaign tracking surveys. An increased allocation of research resources and expenditure to the pre-test stage is recommended. First, undertaking research to thoroughly identify and understand the target audience for the campaign (refer to Table 1), and then developing several concepts for pre-testing. Kotler and Lee [25] recommend testing concept statements that describe the theme of an advertisement (instead of using story boards) as respondents can use the quality of the visual stimuli (which are typically in the initial stages of production) to assess likely effectiveness of the ad versus providing opinions on the underlying message of the ad and whether or not they would be

receptive to the appeal. Kotler and Lee provide a guide for pre-testing concepts (shown in Table 3). A key point from this list of questions is that the researcher never asks whether the respondent simply likes or dislikes the ad, as likeability of the ad should not be used to gauge what is or is not a potentially effective road safety campaign.

Table 3. Recommended Pre-testing Questions [25]

What is the main message you get from this ad?

What else are they trying to say?

What do you think they want you to know?

What do you think they want you to believe or think?

What action do you think they want you to take? Note: If the respondent doesn't mention the desired action say, 'Actually, the main purpose of this ad is to persuade you and people like you to….'

How likely do you think it is this ad will influence you to take this action?

What about this ad works well for that purpose?

What doesn't work well for that purpose?

How does the ad make you feel about (doing this behaviour)?

Where is the place to reach you with this message/ad? Where would you most likely notice it and pay attention to it? Where are you when you make decisions about (this behaviour)?

Hoekstra and Wegman [26] reinforce Kotler and Lee's position that pre-testing of campaign messages should be focused on what the campaign is trying to accomplish in regard to behavioural change versus only determining the emotions aroused by a proposed ad ('careful pre-testing is in order, not just in terms of how people experienced the imagery, but rather of what most road safety campaigns are actually trying to accomplish, namely, a change for the better in terms of behaviour or behavioural intentions') [26]. However, the research findings in Dillard et al.'s [27] study whereby the affects of surprise, fear and sadness encouraged message acceptance, and puzzlement and anger discouraged message acceptance, would also suggest that evoking the right emotion is also critical to the effect of an advertisement. Thus, when pre-testing an advertising concept containing fear and relief components, further pre-testing questions should be included to determine how the respondent will feel at the end of the ad. Creating an advertisement that has viewers feeling relief at the end of the ad should be a key consideration when designing a fear-relief advertisement.

Other research which reinforces the importance of devoting greater research (and production) expenditure on testing concepts in the early stages of campaign development is Donovan, Jalleh and Henley's examination of whether expensive advertisements were more or less effective than ads with smaller budgets. It was determined that while big production budget ads produced good results, less expensive ads with the right message could be equally effective [28].

One further research issue concerns *how* to determine the pattern of fear within an advertisement. Thornton's research [10] which specifically examined the effect of fear arousal and reduction used both continuous response measurement (an electronic dial – similar to the 'worm' used during political debates but with tense and relief anchors) and psychophysiological recording of viewers' skin conductance responses during the entire advertisement. Continuous response measurement (CRM) overcomes previous static measurement issues, such as those identified by Tay and Watson [29] in their study on the effect of a threat-only message versus threat plus strategies (coping strategies) to reduce the intention of driving when fatigued. The researchers undertaking this study concluded their static survey instrument 'was not able to differentiate between the levels of fear aroused and reduced, and most likely, measured mainly the level fear aroused'.

Ethical considerations when developing mass media campaigns

Hastings, Stead and Webb raise concerns regarding the ethical implications and negative by-products or unintended outcomes of fear-based appeals [30]. Many of the criticisms directed at the use of fear in social marketing campaigns could be linked to the use of unresolved fear in many campaigns. Therefore, while Hastings et al have some valid arguments in their discussion of this topic, the use of fear-based advertising, if constructed and tested correctly can result in positive outcomes on behaviour change, and therefore fear-based ads that include fear reduction should not be avoided.

Zillmann and Weaver believe that high fear imagery may actually increase the undesirable behaviour [31]. The arousal in fear-only advertisements could, in the short term, carry over and exacerbate an unsafe behaviour, such as speeding. For example, habitual speeders may see high fear advertisements and actually amplify their behaviour, just as Hull's learning theory [32] says that a drive, such as fear, will amplify the dominant response and will actually increase the tendency to speed if the target audience already have the habit of speeding. This again points to the need to carefully design road safety advertisements that end with relief messages that reduce any fear arousal created in the first section of the ad.

Research efforts need to be directed towards addressing newly emerging unsafe driving behaviours, such as the effect of GPS on driving attention and reaction times [33], and how to best position this behaviour in regard to other risky driving behaviours. For example, many people in the driving population have negative attitudes towards the behaviour of driving under the influence (DUI) of alcohol, yet they do not hold the same views towards other risky driving behaviours, such as speeding and mobile phone use when driving, which can equally increase the risk of road crashes [34-35]. How best

to use research findings such as 'the impairments associated with cell (mobile) phone drivers may be as great as those commonly observed with intoxicated drivers'[35] has major ethical implications. By drawing such parallels in mass media campaigns, there may be gains in attitudes and behaviour for reductions in speed and mobile phone use but this may be to the detriment of the DUI cause.

Drivers who regularly speed or use their mobile phone when driving, and who have not experienced a road crash as a result of these behaviours, could then discredit the risks presented in DUI campaigns. For example, a driver may think 'I can "safely" speed or "safely" use my phone when driving, so if the risks are the same, perhaps I can "safely" drive after a few (too many) drinks'. Elder et al's [36] systematic review of mass media campaigns concluded that mass media campaigns are effective in reducing alcohol-impaired driving and alcohol-related crashes, and have a greater effect when given the condition of high visibility enforcement. However, Tay finds that alcohol ads alone can change road safety behaviour [21], yet anti-speeding campaigns do require enforcement support for there to be an effect. This distinction lends support to there being a difference in the perceptions of drivers regarding these risky driving behaviours.

Areas for further research

A potential unintended effect of the use of mass media to address risky driving behaviours that only represent a small percentage of road safety crashes - such as drug-driving or driver fatigue - needs empirical investigation.Mass media campaigns could possibly have the effect of creating a perception that the risky behaviour is widespread. For example, if a television campaign is aired highlighting the risks of drug-driving it may lead viewers to feel that many people in the community must be drug-driving as the road safety authority has chosen to address the problem on such a large scale. This can make the behaviour seem more 'normal' and therefore acceptable, which a citizen may then use to justify engagement in the behaviour. Attempts at the prevention of such behaviours are still required but ways to minimise this potential effect needs further investigation.

Hastings et al suggest that other emotions (than fear) should be explored [30]. This call for widening the scope of appeals in social marketing has been addressed by some authors. For example, Lewis et al [37] undertook qualitative research in the form of focus groups to examine positive appeals in road safety advertising, such as humour. Stead et al applied the Theory of Planned Behaviour in the development of 'Foolsspeed', a Scottish road safety campaign, and found through their formative research that credibility represented by 'the depiction of realistic, non-extreme driving events and empathy with the daily pressures experienced by drivers, such as congestion and hassle' was perceived as an effective appeal [38].

Phillips, Ulleberg and Vaa recently reported the findings of their meta-analysis, comprising 67 road safety campaigns from 12 different countries, and found a weighted average effect of a 9% reduction in road crashes (and this reduction was greater for campaigns with a drink-driving theme = 18%) [39]. Similar to other studies, these researchers note that enforcement is beneficial to the outcome of a campaign. Phillips, Ulleberg and Vaa also mention that roadside media (billboards and variable/fixed message signs) improve road crash reduction statistics. Roadside safety reminders could be equated to point-of-sale material in a supermarket. Commercial marketers heavily rely upon these reminders to influence sales as 'being there at the point of decision making' is critical to brand choice. Greater use of campaign messages more proximal to the target behaviour (for example, to influence a driver's speed choice) could be more widely adopted and should be further investigated.

Hoekstra and Wegman's [26] article containing advice on improving road safety campaigns, recommends that mass media campaigns need enforcement and education to have an effect on reducing road crashes. They also tentatively state that local individualised campaigns have the greatest effect on reducing road crashes, but the meta-analysis findings on which they base this conclusion only contained a few campaigns of this type and therefore there is some uncertainty to this piece of advice. However, the potential of these 'local, personally directed' campaigns represents another area for further research.

Conclusion

It is advised that road safety authorities should avoid using fear-only pattern advertisements and start to include more effective relief (fear-reducing) components in their advertisements by making fear-relief pattern advertisements. For example, rather than creating an advertisement that ends with visuals of a car smashing into a telegraph pole, shocking the viewer and leaving them feeling tense (fear-only), the advertisement should end with viewers feeling relieved that the driver has avoided hitting the telegraph pole because the driver was not speeding. The fear pattern theory suggests that a sequence of fear then relief stimuli will be optimal in causing attitude and/or behaviour change.

Notes

[1]It is important to clarify that Tay's [1] reference to 'fear reduction strategies' is entirely different to the use of the term 'fear reduction' in this article. Tay equates the term 'fear reduction strategies' to what is typically known as 'fear control'. [2]

References

1. Tay R. Exploring the effects of a road safety advertising campaign on the perceptions and intentions of the target and non target audiences to drink and drive. Traffic Injury Prevention 2002; 3:195-200.
2. Rogers RW. A protection motivation theory of fear appeals and attitude change. Journal of Psychology: Interdisciplinary and Applied 1975; 91(1):93-114.

3. Janis IL. Effects of fear arousal on attitude change: recent developments in theory and experimental research. In L. Berkowitz (Ed.) Advances in Experimental Social Psychology 1967; 3:166-224, San Diego: CA Academic Press.

4. Keller P, Block A, Goldberg L. Increasing the persuasiveness of fear appeals: The effect of arousal and elaboration. Journal of Consumer Research 1996; 22:448-459.

5. La Tour M, Pitts RE. Using fear appeals in advertising for aids prevention in the college age Population. Journal of Health Care Marketing 1989; 9(3):5-14.

6. Lewis IM, Watson B, Tay R, White KM. The role of fear appeals in improving driver safety: a review of the effectiveness of fear-arousing (threat) appeals in road safety advertising. International Journal of Behavioural and Consultation Therapy 2007;3(2):203-222.

7. Hovland C, Janis I, Kelley H. Communication and Persuasion: Psychological Studies of Obvious Change. New Haven CT: Yale University Press, 1953.

8. Rossiter JR, Thornton JA. Fear-pattern analysis supports the fear-drive model for antispeeding road-safety TV ads. Psychology and Marketing 2004; 21(11):945-960.

9. Algie J, Rossiter JR. Fear patterns: A new approach to designing road safety advertisements. Journal of Prevention and Intervention in the Community 2010; 38(4):264-279.

10. Thornton JA. Fear patterns in anti-speeding ads: Effects on simulated driver-behaviour. PhD thesis. Wollongong, Australia: University of Wollongong, 2006.

11. Thornton J, Rossiter JR. Development and validation of an Australian video speed test (AVST). In Australasian Road Safety Research Policing and Education Conference. Sydney, Australia: Roads and Traffic Authority, 2003.

12. Janis IL, Feshbach S. Effects of fear-arousing communications. Journal of Abnormal and Social Psychology 1953; 48:78-92.

13. Job SRF. Effective and ineffective use of fear in health promotion campaigns, American Journal of Public Health 1988; 78(2):163-167.

14. Rossiter JR, Bellman S. Marketing communications: Theory and applications. Frenchs Forest NSW: Pearson Education Australia, 2005.

15. Dolinski D, and Nawrat R. 'Fear-then-relief' procedure for producing compliance: Beware when the danger is over. Journal of Experimental Social Psychology 1998; 34(1):27-51.

16. Skilbeck C, Tulips J, and Ley P. The effects of fear arousal, fear position, fear exposure, and sidedness on compliance with dietary instructions. European Journal of Social Psychology 1977; 7:221-239.

17. Beck K, Frankel A. A conceptualisation of threat communications and protective health behavior. Social Psychology Quarterly 1981; 44:204-217.

18. Chu, G. Fear arousal, efficacy, and imminency. Journal of Personality and Social Psychology 1966; 4:517-524.

19. Strecher V, DeVellis B, Becker M, Rosenstock I. The role of self-efficacy in achieving health behavior change. Health Education Quarterly 1986; 13(1):73-91.

20. Witte K. Putting the fear back into fear appeals: the extended parallel process model. Communication Monographs 1992; 59(4):329-350.

21. Tay R. The effectiveness of enforcement and publicity campaigns on serious crashes involving young male drivers: Are drink drinking and speeding similar? Accident Analysis and Prevention 2005; 37:922-929.

22. La Tour M, Zahra S. Fear appeals as advertising strategy: Should they be used? The Journal of Consumer Marketing 1989; 6(2):61-70.

23. Rossiter JR, Percy L. Advertising communications & promotion management. New York: McGraw-Hill, 1997.

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

25. Kotler P, Lee N. Social marketing: influencing behaviours for good. Thousand Oaks, California: SAGE Publications, 2008.

26. Hoekstra T, and Wegman F, Improving the effectiveness of road safety campaigns: Current and new practices. IATSS Research 2011; 34(2):80-86.

27. Dillard JP, Plotnick CA, Godbold LC, Freimuth VS, Edgar T. The multiple affective outcomes of AIDS PSAs: Fear appeals do more than scare people. Communication Research 1996; 23(1):44-72.

28. Donovan RJ, Jalleh G, Henley N. Executing effective road safety advertising: are big production budgets necessary? Accident Analysis and Prevention 1999; 31:243–252.

29. Tay R. Changing drivers' intention and behaviours using fear-based driver fatigue advertisements. Health Marketing Quarterly 2002; 19 (4):55 -68.

30. Hastings G, Stead M, Webb J. Fear appeals in social marketing: Strategic and ethical reasons for concern. Psychology and Marketing 2004; 21(11):961-986.

31. Zillmann D, Weaver JB. Effects of prolonged exposure to gratuitous media violence on provoked and unprovoked hostile behavior. Journal of Applied Social Psychology 1999; 29 (1):145-147.

32. Hull CL. Essentials of Behavior. New Haven, CT, US: Yale University Press,1951.

33. NRMA. NSW Drivers – you can listen but don't touch and try not to look.[cited 2011 Aug 31] Available from: http://www.nrma.com.au/about-us/media-releases/20100730.shtml

34. Kloedon C, Ponte, G, McLean J. Travelling speed and the risk of crash involvement: The South Australian experience. In National Speed and Road Safety Conference Proceedings: 23-24 August 2001.

35. Strayer D, Drews F, Crouch D. A comparison of the cell phone driver and the drunk driver. Human Factors 2006; 48(2):381-391.

36. Elder RW, Shults RA, Sleet DA, Nichols JL, Thompson RR, Rajab W. Effectiveness of mass media campaigns for reducing drinking and driving and alcohol-involve crashes – A systematic review. American Journal of Preventive Medicine 2004; 27(1):57-65.

37. Lewis IM, Watson B, White KM, Tay R. Promoting Public Health Messages: Should We Move Beyond Fear-Evoking Appeals in Road Safety? Qualitative Health Research 2007; 17(1):61-74.

38. Stead M, Tagg S, MacKintosh AM, Eadie D. Development and evaluation of a mass media theory of planned behaviour intervention to reduce speeding. Health Education Research 2005; 20(1):36-50.

39. Phillips RO, Ulleberg P, Vaa T. Meta-analysis of the effect of road safety campaigns on accidents. Accident Analysis & Prevention 2011; 43(3):1204-1218.