The Young and the Reckless: Message (In)Effectiveness about the Physical Consequences of Motor-Vehicle Accidents for Young Inexperienced Drivers

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Abstract

Many marketing communication strategies focus on the physical consequences of accidents to change young and inexperienced drivers' management of risk and to curb their overrepresentation in fatalities. To assess this approach, we consider a framework of risk with two elements (uncertainty and consequences). We argue that drivers are uncertain about accidents occurring, and that young inexperienced drivers inappropriately cognitively manage this uncertainty by distorting their views on self-risk relative to drivers whom are more experienced or in their own peer group. We present evidence supporting this. We also consider, and find evidence to support the view, that young less experienced drivers are primarily concerned with physical consequences of risky driving behaviour relative to other consequences. It is concluded that the message has "gotten through" to such drivers about this consequence as a result of existing campaigns. Future research should now examine whether a change in theme may bring about further reductions in vehicle accidents among these drivers.

Introduction and Background

Many governments have used marketing strategies to inform young and inexperienced drivers about driving risks (Donovan, Jalleh and Henley, 1999). Communications that aim to curb young driver fatalities primarily focus on the physical consequences of accidents. To do so, the transmitted message comprises two parts, communicating that (a) poor driving behaviour is likely to lead to an accident; and (b) drivers may consequently sustain serious injuries. This message, along with a range of other road safety strategies, may be an underlying cause of decreases in road fatalities. For example, in Australia, driver deaths per 100,000 among 17-25 year olds have fallen from just over 20 in 1980 to fewer than 10 in 2004 (ATSB, 2004).

Young less experienced drivers, however, are over-represented in road accidents. For example, in New South Wales, people under 26 comprise of only 15% of driver licences, but are involved in 36% of road fatalities (RTA, 2007). This raises two concerns; namely, it is unclear (1) whether messages are being effective such that the risk of driving is adequately perceived by these drivers; and (2) if the physical consequence message is adequately perceived whether its emphasis in communications has reached a plateau in effectiveness. Given (2), those managing driver safety may need to emphasise alternative consequences of accidents (e.g., psychological). This paper aims to address these concerns and offer theoretical and empirical insights into how to promote the safety of young less experienced drivers.

Risky Driving Among the Young and Inexperienced: A Problem of Considerable Merit

Motor vehicle accidents are a major economic burden on governments and the insurance industry. For example, to date, NSW compulsory insurance has cost A$6.2 billion (MAA, 2006, p.95). These accidents lead to the injury and death of thousands each year and have an

enormous psychological impact on many people (Richter *et al.*, 2006). Accidents result in considerable demands being placed on institutions and individuals that support those affected by motor accidents, with services ranging from rehabilitation to counselling. Numerous strategies have been implemented to reduce vehicle accidents and resulting injuries, with young inexperienced drivers receiving considerable attention in these (Fleiter *et al*., 2006).

The attention to young less experienced drivers by governments and businesses is warranted. Young less experienced drivers, relative to other groups, have more accidents, particularly single car accidents (Gislason *et al*., 1997; Mayhew *et al*., 2003; RTA, 2007), and accidents resulting in serious injuries or fatalities (Braver and Trempel, 2004). In general, they present greater risks to themselves, others and property (Brown *et al*., 2006; Gislason *et al*., 1997). To illustrate, in NSW, 17 year olds with level 1 provisional (P1) licences are about four times more likely to be in a fatal crash than drivers aged 26 or older (RTA, 2007). Communicating these risks to young less experienced drivers is a primary concern for many governments.

Defining and Communicating Driver Risk (Uncertainty and Consequences)

We focus on perceived risk to understand drivers' assessments of their own, and others, driving behaviour. Numerous ways to define risk and uncertainty exist (Argote, 1982). For our purposes, work by Stone and Grønhaug (1993) offers considerable insight into describing perceived risk and its two components: uncertainty and consequences. The authors describe the first dimension of risk, **uncertainty**, as the degree to which individuals expect that negative outcomes will occur. The second dimension of risk, **consequences**, refers to the losses that may result from a negative outcome. In our research context, the negative outcomes are those associated with motor-vehicle accidents. We now consider how drivers attempt to manage these two elements of risk, uncertainty and consequences.

There is a tendency for *all* drivers to feel that they effectively manage their personal risk by reducing the **(un)certainty** of an accident. Drawing on Bettman's (1973) work, we posit that this arises from drivers' abilities to (i) handle inherent hazards presented as a result of their own driving; and, (ii) being *unable* to handle inherent hazards presented as a result of <u>other</u> drivers and the driving environment. For example, drivers can 'handle' the hazards posed by their speeding, by slowing down. Alternatively, drivers may *cognitively* manage risk by convincing themselves that they are superior drivers relative to others. Both strategies can reduce *perceived* risk. Of course, cognitive approaches to risk management are objectively risky. It is on this premise that many communication strategies are implemented to improve risk management and ask drivers to refrain from cognitive (mis)management. In contrast, the hazard posed by *other* drivers (e.g., others speeding) *cannot* be handled beyond drivers' own basic defensive driving strategies. Predominantly the marketing of better driving to avoid accidents tends to focus on what risk behaviour drivers *can* control rather than what they *cannot* control and these strategies are therefore consistent with Bettman's (1973) view.

Drivers' perceived abilities to handle (own inherent) hazards, while being unable to handle the hazards of others, may result in self-perceptions that they are *less* risky drivers compared to others. This perception is in contrast to the desired outcome of current communications to convince drivers otherwise. In turn, we pose the following measure of success for marketing communications aimed at reducing young driver fatalities through risk management; namely, if present marketing communication strategies are effective in communicating objective risk, young less experienced drivers' assessment of their own perceived risk should be greater than

older drivers assessment of their own risk. This leads to the following:
H1: Young less experienced drivers' self-perceived risk is greater than older more experienced drivers' self-perceived risk.

H1 provides a *weak* prescription on the level of perceived driving risk that these drivers *should* hold following successful marketing communications; we now offer a much stronger test. We propose that not only should young less experienced drivers assess their risk so that it is greater than that of older experienced drivers, but young less experienced drivers that are correctly affected by marketing should assess their own driving as being risky *relative* to other young less experienced drivers. That is, successful marketing should result in young less experienced drivers worrying about their risk on the road *more* than they worry about other drivers, including those with similar driving experience. This leads to the following:
H2: Young less experienced drivers perceive their own risk to be greater than that of other young less experienced drivers.

Accidents can result in several **consequences**, the second element of risk in Stone and Grønhaug's (1993) framework. Most marketing, especially that in NSW, has focused on physical consequences, including injury or death; there has been seldom discussion about non-physical consequences that a driver may experience, or fear experiencing, as the result of an accident. To address this we consider the work by Jacoby and Kaplan (1972) who conceptualise perceived risk as a multi-dimensional construct (see also Mitchell, 1999). They consider six types of perceived risk and in Table 1 we demonstrate how these can manifest themselves as outcomes or *consequences* in the context of motor-vehicle accidents.

Table 1: Examples of Jacoby and Kaplan's (1972) Perceived Risk Construct in Driving Context

Type of Risk	Example of Consequences in Driving Context
Financial	Monetary costs such as repairing vehicles, medical bills, increased insurance premiums, etc.
Performance	Changes in vehicle performance such as poorer fuel consumption or rust from panel exposure.
Physical	Injury or physical side effects such as death or loss of a limb.
Psychological	Feeling worse off including such things as guilt or increased anxiety while driving.
Social	Being held in less esteem by friends, family, colleagues, etc.
Time	Wasting time to resolve issues such as insurance, seeing to vehicle repairs, etc.

Often highly confronting and shocking images convey messages to drivers about the physical consequences of accidents (Donovan, Jalleh and Henley, 1999). In conjunction with other strategies, there has been success in reducing the number of accidents among young drivers, but this number remains disproportionately high (ATSB, 2004). One explanation is that young drivers are becoming less sensitive to this message, resulting in it being less effective at altering behaviour. This raises the question of whether the physical consequences message is still reaching young drivers, and if it is, might an alternative message prove more influential?

If marketing strategies are effective in communicating the physical consequences of an accident, we would expect these consequences to be of most concern to drivers when assessing the risk associated with their driving. This gives rise to the hypothesis:
H3: The physical consequences of an accident are of most concern to young less experienced drivers, relative to other consequences.

The disproportionate representation of young less experienced drivers in vehicle accidents suggests that present strategies are becoming less effective requiring the examination of (a) whether messages are being effective, such that young drivers perceive driving risks

accurately; and (b) whether the physical consequence message has reached among young drivers. Drawing on our conceptual framework, we now examine these two concerns empirically, and we use our results to evaluate present marketing strategies.

Methodology

We used an online survey to ask drivers about perceptions of driving risk and behaviour. They indicated perceptions of risk for various driver groups (including themselves) on a three-item 11-point likert scale, adapted from Campbell and Goodstein (2001). This scale ranged from 1='Not at all (risky; concerning; worrying)' to 11='Extremely (risky; concerning; worrying)', and centre-anchored by the description 'moderately'. An overall measure of risk for each respondent was generated using the average response. Concern for consequences of accidents was determined by providing a short description of each and having respondents rank these.

University undergraduates sent invitations prepared by the researchers to ten respondents each as part of their major assignment. Students were told to invite individuals from NSW, where considerable marketing efforts at communicating the physical consequences of accidents have been undertaken. The survey instrument also prompted respondents not to participate if not residing in NSW. There was an incentive for students to ensure the accuracy of the data being collected as the data was needed for their assignment. No specific demographic groups were specified for data collection, although it was recommended that students attempt to maximise sample diversity. A total of 1245 responses were obtained. Sixty six percent of respondents were under the age of 26, although 45.6% were fully licensed drivers. Although there was a sample bias towards younger less experienced drivers as a result of the snowball sampling method, a sufficient sample of older drivers was obtained for comparisons. This preliminary sample is sufficient for this analysis although further data is still being gathered. Due to the inconsistency in defining the age of younger less experienced drivers in the literature, we assume Provisional 1 and 2 (P1 and P2) licence drivers represent these drivers; and, assume full licence drivers represent older experienced drivers. This provides a strong indicator for the difference in age, as those with a full licence are significantly older than drivers with a provisional licence (see Table 2), and this also reflects the differences in experience desired.

Table 2: Summary Statistics by Level of Drivers Licence

		Age				Self-Perceived Risk			
	N	Mean	Std Err	95% CI Lower	95% CI Upper	Mean	Std Err	95% CI Lower	95% CI Upper
Provisional 1	192	19.75	0.24	19.28	20.22	4.19	0.19	3.80	4.57
Provisional 2	316	20.60	0.26	20.10	21.10	4.05	0.14	3.77	4.34
Full License	562	35.37	0.54	34.32	36.42	4.99	0.15	4.70	5.29
Total	1070	28.21	0.38	27.47	28.95	4.57	0.10	4.38	4.76

Results

To test H1, we compared the self-assessed perceived driving risk of less experienced and younger (P1 and P2) drivers to full licence drivers (see Table 2). Using univariate ANOVA, the results reveal significant differences in mean perceptions of risk among driving groups ($F=10.784$; $p=.000$). Furthermore, paired contrasts indicate both P1 ($t=-3.067$; $p=.002$) and P2 ($t=-4.252$; $p=.000$) drivers are significantly different in their self perceptions of risk to fully licensed drivers. In turn, we reject H1: P1 and P2 drivers perceive themselves as having

significantly *less* risk relative to fully licensed drivers. We note that the two provisional licence groups are not significantly different in their perceptions (t=.465; p=.642).

To test H2, we computed the difference between (i) provisional drivers perceived level of risk and (ii) provisional drivers' perceptions about the driving risk of those with similar levels of experience. Using a paired-sample t-test, the average difference (i-ii) in perceived risk was negative and significantly different (t=-7.429; p=.0000; 490 d.f.). This does not support H2.

To test H3, we examined the six consequences of driving accidents by calculating for each the mean proportion of provisional drivers in the sample (n=508) ranking a consequence as most concerning. We compared the mean proportion of physical consequence ranking to each other consequence using multiple independent samples t-tests. The proportional means of each consequence being ranked 'most concerning' were: physical (51.4%); financial (16.4%); psychological (13.0%); social (10.2%); time (5.2%); and, performance (3.8%). The proportion of provisional drivers ranking physical consequence as most concerning was significant relative to those of all other consequences (p=.0000). In turn, we cannot reject H3.

Discussion: Changing the Message Being Sent to Young Inexperienced Drivers

If young inexperienced drivers were correctly influenced by communications about driver safety, their perceptions of driving risk would be objectively accurate – they would perceive themselves as poorer rather than better drivers. Unfortunately, we find no empirical support for this; the young and less experienced P1 and P2 drivers assess their driving risk as lower than the older more experienced fully licensed drivers (H1), and believe their risk is much lower relative to drivers with similar experience (H2). It appears young less experienced drivers have difficulty understanding that they are riskier drivers, as objectively seen through their overrepresentation in accidents (RTA, 2007). We find young less experienced drivers *are* most concerned with the physical consequences of an accident (H3). This suggests that the marketing strategies undertaken in NSW to highlight these consequences are "getting through"– driving is physically dangerous – yet young inexperienced drivers still mismanage this risk and remain overrepresented in accidents in NSW and other regions.

Although aware of the physical consequences, poor risk assessment (including low concern) may be causing fatalities among young less experienced drivers. Even though the physical consequences message appears to have gotten through the overrepresentation of these drivers in crash statistics remains. This suggests this message may have obtained its maximum effect. It is therefore suggested that future research investigate the use of messages emphasising other consequences to see if further decreases are possible. One strategy of interest for future research may be to market consequences that drivers presently do not consider important. For example, asking passengers to apply peer pressure to highlight *social* consequences to drivers.

As young less experienced drivers have difficulty assessing their own risk; a strategy of promoting peer pressure and social consequences may lead to better risk assessments as it relies on people assessing others. Such a strategy is worth future investigation. It introduces a novel type of consequence that may gain more attention (Hirschman and Wallendorf, 1979). Fear appeals emphasising the physical consequences of negative behaviours (e.g. smoking), have been criticised for reasons of selective exposure (Wolburg, 2006) and this criticism may apply to communications about driving risk. The use of messages for *passengers* communicating the social consequences of risky driving could also address the research

finding that even tacit social support can *increase* risky driving behaviour (Fleiter *et al.*, 2006). Focus on other consequences may offer drivers knowledge beyond (the understood) physical consequences and give them new insights into the risks associated with driving.

References

Argote, L., 1982. Input uncertainty and organizational coordination in hospital emergency units. Administrative Science Quarterly 2, 420-434.

ATSB., 2004. Young people and road crashes. Australian Transport Safety Bureau. Australian Government December.

Bettman., J.R., 1973. Perceived risk and its components: A model and empirical test. Journal of Marketing Research 10, 184-190.

Braver, E.R., Trempel, R.E., 2004. Are older drivers actually at higher risk of involvement in collisions resulting in deaths or non-fatal injuries among their passengers and other road users? Injury Prevention 10 (1), 27-32.

Brown, R.L., Charters, M., Gunz, S., Haddow, N., 2006. Colliding interests - Age as an automobile insurance rating variable: Equitable rate-making or unfair discrimination? Journal of Business Ethics 72, 103-114.

Campbell, M.C., Goodstein, R.C., 2001. Consumer behavior as risk taking. In Hancock, R.S. (Ed.), Proceedings of the 43rd Conference of the American Marketing Association. Chicago: 389-398.

Donovan, R.J., Jalleh, G., Henley, N., 1999. Executing effective road safety advertising: are big production budgets necessary? Accident Analysis and Prevention 31, 243-252.

Fleiter, J., Watson, B., Lennon, A., Lewis, I., 2006. Significant others, who are they? – Examining the normative influences on speeding. Proceedings of the 2006 Australasian Road Safety Research Policing Education Conference, Gold Coast. Available from http://eprints.qut.edu.au, accessed 17 August 2007.

Gislason, T., Tómasson, K. , Reynisdóttir, H., Björnsson, J.K., Kristbjarnarson, H., 1997. Medical risk factors amongst drivers in single-car accidents. Journal of Internal Medicine 241, 213-219.

Hirschman, E., Wallendorf, M., 1979. Correlations among three indicators of stimulus variation. Advances in Consumer Research 6, 111-117.

Jacoby, Kaplan., 1972. The components of perceived risk. Proceedings of the Third Annual Conference of the Association for Consumer Research. Association for Consumer Research, 382-393.

MAA., 2006. Motor accidents authority of NSW 2005-2006 annual report. Motor Accidents Authority of NSW, Australia. Available from http://www.maa.nsw.gov.au, accessed 17 August 2007.

Mayhew, D.R., Simpson, H.M., Pak, A., 2003. Changes in collision rates among novice drivers during the first months of driving. Accident Analysis and Prevention 35, 683-691.

Mitchell, V., 1999. Consumer perceived risk: conceptualisations and models. European

Journal of Marketing 33 (1/2), 163-195.

Philip, P., Taillard, J., Sagaspe, P., Valtat, C., Sanchez-Ortuno, M., Moore, N., Charles, A., Bioulac, B., 2004. Age, performance and sleep deprivation. Journal of Sleep Research 13, 105-110.

Richter, E. D., Berman, T., Friedman, L., Ben-David, G., 2006. Speed, road injury, and public health. Annual Review of Public Health 27, 125-152.

RTA., 2007. Crashes involving young drivers. New South Wales Roads and Traffic Authority. New South Wales, Australia.

Stone, R.N., Grønhaug, K., 1993. Perceived risk: Further considerations for the marketing discipline. European Journal of Marketing 27 (3), 39-50.

Wolburg, J.M., 2006. College students' responses to antismoking messages: Denial, defiance, and other boomerang effects. Journal of Consumer Affairs 40 (2), 294-323.