Motorcycle Rider Training and Perceptions of Skill

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Abstract
It has been argued that driver training can inadvertently result in novice driver overconfidence which may be counterproductive to the safety goals of training. A similar concern can be expressed in regard to novice motorcycle rider training. Overconfidence is posited to generate from trainees' overestimation of their own skill levels following training, potentially contributing to risk taking once unsupervised in the traffic environment. The challenge for training practitioners is therefore to foster and reinforce skill development whilst limiting inflated trainee perceptions of their riding abilities. The aim of this paper was to examine motorcycle rider trainee (N = 244) perceived skill levels immediately before and after a pre-licence training course to gauge whether increases in confidence occurred. It was found that perceptions of skill significantly increased following training for both male and female riders. At the end of training mean scores for self-rated skill were found to be above average, suggesting a possible overconfidence effect. In addition, there was a significant increase in self-rated safe riding among both males and females. Further research is required to determine whether the increases in perceived safe riding may also reflect overconfidence or act as a protective mechanism.

Keywords: motorcycle training, overconfidence, unrealistic optimism

Introduction

Driver and rider training are commonly perceived by the public as a panacea to many road safety problems, particularly in regard to novice driver/rider crash involvement. Whilst intuitively appealing this perception is unfortunately not well supported by empirical research, with past reviews suggesting little or no benefit from formal training and educational programs in terms of crash reduction for drivers or motorcyclists (Christie, 2001; Haworth & Mulvihill, 2005; Mayhew, Simpson, & Robinson, 2002; Watson et al., 1996). There are a range of potential shortcomings that may account for the apparent lack of efficacy of training programs. These include issues such as program content and delivery methods, the influence of the licensing system (where applicable), and evaluation deficiencies (e.g. self-selection bias, lack of statistical power, and exposure differences such as distance travelled). However, overconfidence following training may also potentially impact on subsequent crash involvement (Gregersen, 1996; Hatfield & Job, 2001). Accordingly, this paper examines motorcycle rider trainee perceived skill levels immediately before and after a pre-licence training course to gauge whether overconfidence may have resulted.

Concern has been expressed regarding the possible effects of overconfidence following training for novice drivers. For example, the Queensland Parliamentary Travelsafe Committee (2003) argued that the resultant acquisition of vehicle handling skills during training may instil a sense of overconfidence in novice drivers, thereby fostering riskier behaviours on the road once unsupervised. Such overconfidence has been posited to contribute to increased crash rates found for participants following driver skid-pan training focussing on advanced driving skills (Gregersen, 1996; Katila, Keskinen, Hatakka, 1996). Based on these findings it could be expected that motorcycle rider training participants would also be susceptible to the effects of overconfidence. The challenge for training practitioners is therefore to foster and reinforce skill development whilst limiting inflated trainee perceptions of their riding abilities. However, this delicate balance is difficult to achieve in practice.

The psychological construct of *Unrealistic Optimism* refers to the inert tendency for humans to over-rate their own abilities and chances of positive outcomes compared to those of other people. That is, the majority of people generally tend to rate themselves as 'above average' compared to their peers when, by definition, an equal proportion of people must actually be 'below average' in objective terms relative to the same population. This effect has been found across a broad range of human behaviours, for example, the risk of unwanted pregnancy (Aucote & Gold, 2005), harm from cigarette smoking (Weinstein, Marcus, & Moser, 2005), and the risk of injury from skydiving (Moen & Rundmo, 2005). Weinstein (1989) described several theories used to explain optimism bias and asserted that the most plausible explanation is that unrealistic optimism serves to maintain healthy self esteem. That is, people like to

consider that they are better than others or less susceptible to harm in order to maintain their sense of competence and self-worth. In this sense unrealistic optimism (or self-enhancement bias) can be seen as adaptive and therefore resistant to change.

Unrealistic optimism is also often found when measuring self-reported driving skill, with a general overconfidence existing in many Western cultures, particularly for young males (Harré & Sibley, 2007; Sűmer, Özkan, & Lujunen, 2006). However, only limited evidence is available regarding how overconfidence may be overcome within the realm of road safety. McKenna and Albery (2001) examined possible unrealistic optimism among drivers who had been hospitalised following a road crash. They found more realistic assessments of risk among the crashed group than for a comparison group of drivers who had not crashed. They asserted that a de-biasing effect occurs through personal experience. Whilst this is reasonable to expect, Sheehan et al (2008) found that recently hospitalised drivers and riders still exhibited mild unrealistic optimism regarding their driving/riding abilities, confirming the robustness of this phenomenon.

McKenna and Myers (1997) found that unrealistic optimism in regard to driving risk could be reduced by manipulating young drivers' perceptions of personal accountability. For the experimental group this was achieved by stipulating that their driving skills would be assessed in a simulator following their self-ratings and comparisons made. Therefore, the awareness of being objectively assessed resulted in reduced illusory self-perceptions of driving skill compared to a control group requiring self-ratings only, without the threat of objective assessment. Hatfield and Job (2001) reported lower optimism bias regarding road-related events for participants in a driver training intervention compared to a waiting list control group. The intervention explicitly provided information regarding the risk of optimism bias then involved participants in personal reflection on past events and the possibility of their involvement in future negative events. They found that by eliciting a more realistic view of past events, optimism bias for future events was reduced. This suggests that it is not only personal experience that may influence unrealistic optimism as stated by McKenna and Albery (2001), but the way in which these are reflected upon and rationalised that may be a key factor. Unfortunately, novices typically have a limited store of personal riding experiences on which to reflect.

'Insight' training is a term often used to describe programs that aim to create a more realistic perception among participants of risky behaviours in the driving environment. Rather than teaching drivers how to control a vehicle in difficult driving situations, insight training focuses on calibrating participants' perceptions of their own skill with objective reality (i.e. increasing self-awareness of one's own driving abilities and limitations). Gregersen (1996) found that insight training resulted in closer alignment between young drivers' self-reported driving skill and instructor ratings when compared to a group receiving skills-based skid pan training. Senserrick and Swinburne (2001) evaluated the Skilled Drivers / AAMI insight training program for young drivers in Australia. Whilst they found that insight training had some positive influence on driver road safety attitudes, behaviours, and risk perceptions there was no attempt to assess it's efficacy in terms of crash reduction due to the relatively small number of course participants (N=220). As such, more evidence is required regarding the possible crash benefits of insight training. However, a range of additional factors may be targeted during insight training that could possibly enhance the value of this approach. Moen and Rundmo (2005) stated that unrealistic optimism is often related to the personality factors of sensation seeking (increasing optimism) and anxiety (creating caution), as well as false illusions of control and lower attitudes towards safety. Sűmer et al. (2006) also asserted that more positive attitudes towards safety may buffer the negative effects of overconfidence arising from unrealistic perceptions of skill. Hence, training may target some of these additional factors in an endeavour to reduce overconfidence.

The current study investigates perceptions of skill and possible overconfidence for motorcycle rider trainees that undertook a standard pre-licence training course. No manipulation of unrealistic optimism/overconfidence was conducted in this study as the cohort mentioned here primarily served as a historical control group for a latter intervention (currently in progress). Consistent with the literature it was hypothesised that an unrealistic self-perception of riding skill compared to others would be present at the commencement of training (H1). Additionally, it was hypothesised that an increase in perceived skill would be found as a function of training, thereby rendering trainees susceptible to the effects of overconfidence (H2).

Method

This study reports on 244 motorcycle rider trainees (221 male, 23 female) who completed a voluntary pre-licence training course in the State of Queensland, Australia. Participants ranged in age from 17 to 65 years (M = 33 years). Each participant completed the self-report Rider Training Questionnaire immediately before (Time 1) and immediately after their training (Time 2). Confidentiality of data was assured with all completed questionnaires sealed in envelopes for collection by the research team. Written questionnaire instructions as well as a video explaining the research (viewed prior to questionnaire completion) emphasised that participant responses would not affect their likelihood of obtaining a licence, thereby aiming to minimise response bias. The questionnaire included a range of information pertaining to motorcycle safety, however this paper specifically focuses on responses to two of the questionnaire items: 1) "how skilful a rider are you" (perceived skill) and; 2) "how safe a rider are you" (perceived safe riding). Both of these questions were rated on a 5-point scale scored from 1 (well below average) to 5 (well above average). Whilst a more comprehensive measure of riding skill was considered desirable, due to the overall length of the questionnaire this was not feasible (see limitations section for a discussion).

The competency-based training course was delivered by a single organisation specialising in motorcycle training and assessment. The course included a classroom theory session addressing basic vehicle controls, braking, countersteering, and to a limited extent rider behaviour and hazard perception. However, the overall course was primarily skills-based. All riders met the rider licensing competencies required by the State of Queensland under the Q-Ride system (see Queensland Transport, 2008) upon completion of the course. However, due to the nature of competency-based training and assessment, actual training duration varied between participants as required (minimum 6 hours).

Results

Descriptive statistics are shown for the variables of interest in Table 1. Scores above '3' (average) indicate possible unrealistic optimism. In addition to self-reported perceived riding skill, self-reported perceived safe riding is also reported. Mean perceived skill scores for both males and females before training were found to be below '3' (rated average compared to others), indicating no optimism bias. In contrast, perceived skill mean scores for both males and females after training were above '3', indicating unrealistic optimism regarding participants own riding abilities within the sample. In addition, a higher than average self-rating of safe riding was found for male and female participants both before and after training. This suggests either a degree of unrealistic optimism amongst participants *or* a possible self-selection bias regarding safety motivation (above that of other riders in general) that influenced this group to undertake training.

Table 1. *Descriptive Statistics for Male and Female Participants Before and After Training*

	***M* Age**	***n***	**Time 1**		**Time 2**		***p* value**
			M	*SD*	*M*	*SD*	
Males	33						
Perceived skill		221	2.89	.77	3.17	.72	$p<.001$
Perceived Safe riding		218	3.55	.74	3.67	.70	$p<.05$
Females	32						
Perceived skill		23	2.22	.90	3.22	.67	$p<.001$
Perceived Safe riding		22	3.18	.85	3.73	.83	$p<.01$

Paired samples t-tests (repeated measures) were performed using SPSS statistical software to ascertain differences between Time 1 and Time 2. As shown in Table 1 a significant increase in perceived skill between Time 1 and Time 2 was found for both males ($t(220) = -5.46$, $p<.001$) and females ($t(22) = -5.30$, $p<.001$) suggesting a possible overconfidence effect from training.

As a point of interest paired sample t-tests were also performed regarding self-reported perceived safe riding. A significant increase in perceived safe riding was also found between Time 1 and Time 2 for males ($t(218) = -2.15$, $p<.05$) and females ($t(21) = -2.98$, $p<.01$).

Discussion

The findings fail to support the first hypothesis regarding optimism bias for riding skill before training. On the whole, participants rated their skill levels as slightly below average when compared to others before training. This was more pronounced for females. Previous research suggests that optimism bias is a pervasive and robust phenomenon for driving (Harré & Sibley, 2007; Sűmer, et al, 2006; Waylen, Horswill, Alexander, & McKenna, 2004), however this has primarily focussed on novice drivers. It is possible that this lack of effect may reflect differences between novice driver and novice rider populations. For example, there is an increasing trend for people to take up motorcycling later in life (Haworth, Mulvihill & Rowden, 2006). The current study sample (mean age 33yrs) reflects this age disparity between novice drivers (who are typically younger) and novice riders, and is representative of Q-Ride trainees in Queensland as found in previous research (Watson et al., 2003). It is therefore unknown if the findings at the start of training reflect a more realistic appreciation of riding skills by participants due to their collective life experience. Another possible explanation for the lack of optimism bias prior to training is that trainees felt more anxious and less in control than normal before training due to the situation of knowing that their riding skills would actually be assessed by the instructors during the course (refer McKenna and Myers, 1997). Both anxiety and the illusion of control have been found to correlate with unrealistic optimism (see Moen & Rundmo, 2005). Additionally, it is possible that the findings for perceived skill at Time 1 reflect a self-selection bias for people choosing to undertake training through Q-Ride as previous research by Watson et al. (2003) found Q-Ride licensees rated their riding skills lower than riders obtaining their licence through Q-Safe (an alternative testing regime for licensing in Queensland).

In contrast, the findings that perceived riding skill significantly increased from Time 1 to Time 2 support the second hypothesis. Mean perceived skill scores were marginally above '3' for both male and female riders, indicating that by the end of training participants felt their skill levels had increased, and more importantly, were now perceived as slightly above average compared to other riders. Hence, it is possible that overconfidence may have resulted from this training program for some riders. However, consideration of the statistical significance of the findings of this current study must be balanced with their practical significance. Whilst a statistically significant change in perceived skill was found for trainees, the final mean scores were not excessively high for either males or females. It could therefore be argued that the risk of overconfidence in this cohort is marginal and that the increase in perceived skill may merely reflect a level of confidence that is desirable for trainees to face the challenges of the traffic environment. Furthermore, it is logical to expect that actual riding skills would be increased as a result of training. However, the balance of research has shown that trained riders are no safer than untrained riders in terms of crash involvement (for a review see Haworth & Mulvihill, 2005). Based on these findings it is difficult to reconcile why increased skills do not result in increased safety unless another mechanism is involved.

In their study of optimism bias for the Australian Transport Safety Bureau, Hatfield and Job (2001) asserted that increased confidence is likely to result from traditional driver training programs, increasing potential crash risk. The paradox exists between increased skills (performance) and how this may motivate active risk taking (behaviour). If a driver/rider is tempted to push the limits of their driving/riding ability because they falsely believe their newly acquired skills are superior, then this places them in an increasingly vulnerable situation. Hence, whilst skill development is undeniably a necessary part of safe motorcycling, it is not sufficient in its own right to protect riders against injury unless accompanied by a realistic appreciation of the associated risks.

In the current study higher than average values for perceived safe riding were also found in addition to the findings for perceived skill. Interestingly, this effect was found for both male and female riders before training, with an additional significant increase for male and female participants by the end of training. Mean scores were found to be consistently higher for perceived safe riding compared to perceived riding skill. These findings indicate that some riders might be at increased risk due to a false sense of their ability to ride safely. However, it is possible that responses reflect participant *motivation* to ride safely rather than their perceived *ability* to ride safely per sĕ. Watson et al. (2003) found that individuals that chose to undertake formal training were more safety conscious than those who did not. Additionally, the rider training organisation assisting with this study actively promotes rider safety and may attract a greater proportion of riders who are safety oriented. Therefore, it is plausible that participants' self-

perceptions of safe riding compared to other riders in general are actually valid, although this is unknown without objective measures over time such as crash involvement. Sűmer et al (2006) asked drivers to rate their own ability on a range of driving behaviours that distinguished safety skills from driving skills and found that those participants who rated themselves as high in driving skills such as "managing the car through a skid" were most at risk of crash involvement unless they were also found to be high in safety skills such as "keeping a sufficient following distance". Therefore, inflated scores for perceived safe riding may actually buffer potential overconfidence from inflated perceived riding skill. This relationship requires further investigation.

Limitations

The study was subject to several limitations. Firstly, it relied on self-report data and whilst endeavours were made to limit possible response biases there is always a possibility that social desirability and recency (immediately following training) influenced responses. Participants may have felt compelled to inflate their ratings of perceived skill and safe riding at the end of training to be consistent with their perceived aims of the course (i.e. to improve skills). Secondly, due to practical time constraints and the overall length of the Rider Training Questionnaire only single global items regarding perceived riding skill and perceived safe riding were utilised. Multiple items investigating specific aspects of skill and safety may have enhanced validity. These questions possibly also elicited varied meaning from participants regarding the reference group when considering "average" (refer Gold, 2007 for a review). Thirdly, no objective ratings were collected regarding actual riding skill (beyond licensing competencies) for individuals or comparison groups. Instructor ratings of skill were originally planned for the study as a comparative measure. However, unfortunately the competency-based training framework in which the research was undertaken precluded such measures being taken since only those trainees assessed as competent formally completed the course (and Time 2 measures). These limitations reflect the constraints of applied research within an industry based setting.

Conclusion

Motorcyclists are one of the most vulnerable groups of road users. However, relatively less is known about the effects of motorcycle rider training than driver training. This study provides evidence of increased confidence in riding skill by riders as a result of licence training, possibly offset by a related increase in perceived safe riding ability. More broad-scale research across various training organisations using more refined measures is required to establish how prevalent this effect is. Unfortunately, it remains unknown at what level an increase in confidence represents overconfidence to the degree that it contributes to increased risk taking. Nonetheless, it is imperative that rider training practitioners are aware of this issue and that techniques are developed to assist them to limit overly inflating the confidence of novice riders.

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