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# The role of supervisors in ensuring learner driver compliance with road laws: An application of Akers' Social Learning Theory

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## Abstract

This paper uses Akers' social learning theory as a framework to explore the extent to which supervisors encourage their learner drivers' to comply with road laws. The sample consisted of 552 individuals from Queensland and New South Wales who had supervised a learner driver in the 12 months prior to completing the online survey. The results suggest that Akers' social learning theory variables provide additional explanation over and above socio-demographic variables and perceptions of risk associated with driving. This suggests that there may be benefits in providing additional support to parents and other supervisors of learner drivers.

## Background

Young drivers experience the highest crash rates when compared with all other age groups of drivers (Bates, Davey, Watson, King, & Armstrong, 2014; Elvik, 2010; Williams, 2003). Graduated driver licensing (GDL) systems which incorporate learner, provisional and open phases mitigate this risk for new drivers (Bates, Allen, et al., 2014; Steadman, Bush, Thygerson, & Barnes, 2014). Both Queensland and New South Wales, as well as other Australian states, use a GDL process for new drivers to enter the licensing system (Faulks & Irwin, 2009; Senserrick, 2009).

The involvement of parents in the learner phase is vital for the success of GDL systems (Brookland, Begg, Langley, & Ameratunga, 2014; Williams & Shults, 2010), with this support necessary in order for most learner drivers to accumulate sufficient driving experience (Harrison, 2004; Jacobsohn, Garcia-Espana, Durbin, Erkoboni, & Winston, 2012). Additionally, novices may develop driving attributes by watching their parents driving, both before and during the learning to drive process (Bianchi & Summala, 2004). Survey based research suggests that mothers tend to provide more hours of supervised practice when compared with fathers (Bates, Watson, & King, 2013). However, while parents appear to be the primary providers of supervised hours of practice, others such as siblings also play an important role in the supervision of learner drivers (Bates, Watson, & King, 2014b).

While theories such as deterrence theory (e.g. Allen, Murphy, & Bates, 2015; Bates, Darvell, & Watson, 2015, online first), procedural justice (e.g. Bates, Allen, & Watson, 2016) and the theory of planned behaviour (e.g. Cestac, Paran, & Delhomme, 2011; Gauld, Lewis, & White, 2014) have been used to explore young driver behaviour and driver licensing, most GDL research is still atheoretical in focus. Akers' social learning theory is one theory that could be applied to GDL.

This theory combines social learning principles with elements of Sutherland's differential association theory (1947) and Skinner's operant conditioning theory (Burgess & Akers, 1966). A meta-analysis by Pratt et al. (2010) concluded that the empirical evidence for Akers' social learning theory compared to other criminological models is strong. This model, or aspects of this model, have been used to explain a number of behaviours including adolescent drinking and drug use behaviour (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979; Oostveen, Knibbe, & De Vries, 1996), adolescent smoking (Akers & Lee, 1996), domestic and intimate partner violence (Cochran, Maskaly, Jones, & Sellers, 2015; Wareham, Boots, & Chavez, 2009) and computer crime (Morris & Blackburn, 2009).

According to Akers' theory, there are four factors that influence behaviour: differential association, differential reinforcement, imitation and personal attitudes (Akers & Lee, 1996; Wareham et al., 2009). Differential association refers to interaction, both direct and indirect, with individuals such as friends and family and organisations. These individuals and groups provide patterns of reinforcement, normative definitions and exposure to models (Akers, 1985; Hwang & Akers, 2003) explaining why people behave in a similar way to those with which they associate. There are two aspects to differential association: behavioural and normative (Capece & Akers, 1995; Cochran et al., 2015). The behavioural dimension refers to the amount of association an individual has with the other individuals and organisations while the normative dimension refers to the overall shared climate or perceptions found within the groups towards the shared behaviours (Capece & Akers, 1995).

The positive and negative reinforcements that are linked to the current behaviour, as well as alternative behaviours, is known as differential reinforcement (Akers et al., 1979; Morris & Blackburn, 2009). Positive reinforcement is the provision of a pleasurable experience while negative reinforcement is the removal of a painful experience (Capece & Akers, 1995). Reinforcements can be internal, such as feeling stronger, as well as external, such as being provided a financial reward.

Imitation represents a means of learning through observation or modelling (Akers & Lee, 1996; Cochran et al., 2015). Imitation suggests that behaviours are a result of watching others who are important to the individual in some way engage in the behaviour. The perceived consequences of the behaviour are an important component of imitation. While modelling is important for the initial behaviour, as the behaviour continues it becomes less important (Akers et al., 1979). Models can come from social groups including parents and peers as well as through the media.

Personal attitudes (which are known as 'definitions' when the theory is applied outside road safety and psychology) are learnt through interactions with significant groups and include norms, attitudes and orientations. Personal attitudes can define a behaviour as positive or negative. They act as cues to behaviour that can be directly reinforced. If an individual defines an action as good or, at a minimum, justified, they are more likely to engage in that behaviour. They are less likely to engage in a behaviour that is defined as adverse. These definitions are known as positive, neutralising and negative respectively (Akers et al., 1979; Wareham et al., 2009).

Akers' social learning theory has been used in road safety research to examine unlicensed driving (Watson, 2004), speeding (Fleiter, 2010; Fleiter & Watson, 2005), hooning (Gee Kee, Steinhardt, & Palk, 2007), drink driving (Armstrong & Ryan, 2006) and drug driving (Armstrong, Wills, & Watson, 2005). It has also been used to examine the risky driving behaviour of young drivers (Scott-Parker, Hyde, Watson, & King, 2013; Scott-Parker, Watson, & King, 2009). Therefore, it appears that there is merit in using this theory to explore supervisory practices. Thus, this study aims to apply Akers' social learning theory to investigate the factors that encourage supervisors to support learner driver compliance with road laws.

## **Method**

The sample consisted of 552 individuals from Queensland and New South Wales who had supervised a learner driver in the past 12 months. They were recruited using a combination of convenience and snowballing techniques. Participants completed a 15 – 20 minute online survey between July 2009 and May 2010. At the conclusion of the survey, participants were able to provide their contact details in order to receive a \$20 shopping voucher. The study received approval from the QUT Human Research Ethics Committee. This study was part of a larger program of research examining the experiences of supervisors within GDL systems (Bates et al., 2013; Bates, Watson, & King, 2014a; Bates, Watson, et al., 2014b).

The survey asked participants to provide socio-demographic information such as gender, age, marital status, occupation and whether they lived in Queensland or New South Wales. Participants

were also asked to provide their assessment of the risk associated with driving for individuals at the start of the learner period and at the end of the learner period as this may have affected the level of support that they provide their learner driver. This was measured on a five point scale from ‘not very risky’ to ‘very risky’.

Several scales were created to measure the dimensions of Akers’ social learning theory. Differential association has two dimensions: the behavioural dimension and the normative dimension. The behavioural dimension of differential association was operationalised in terms of what other private supervisors known to participants did while supervising a learner on the road. The scale, which was created for this study, asked four questions about what other private supervisors including partners, relatives, friends and others do while supervising a learner on the road. This scale had a Cronbach’s alpha of .73. A second behavioural dimension of the differential association scale asked three questions about the behaviour of professional driving instructors in relation to ensuring that learners complied with the road rules (Cronbach’s alpha .82). The personal attitudes scale used within this study consisted of six items and had a Cronbach’s alpha of .77.

Differential reinforcement is the balance of anticipated rewards and punishments linked to current and alternative behaviours. These reinforcements can be extrinsic or intrinsic and they also include a non-social reinforcement element. Punishments were measured using a six item scale that had a Cronbach’s alpha of .86. Rewards were measured using a 12 item scale with a Cronbach’s alpha of .89. Imitation was not measured in the survey. This is similar to research conducted using Akers’ social learning theory in criminology where imitation is not included (Cochran et al., 2015 ).

An eight item scale was used to assess the extent to which supervisors ensured their learner complied with the road rules while driving. This scale had a Cronbach’s alpha of .91. Further information regarding the scales, including the specific items included, can be found in Bates (2012).

## **Results**

Of the 552 participants within this study, 39.3 per cent were male and 60.7 per cent were female. The ages of the participants ranged from 18 to 85 with a mean of 38.58 years (sd = 12.36). Most of the sample were married (47.5 per cent) although 26.8 per cent were single, 18.5 per cent were in a de facto relationship and 7.2 per cent were previously married. More participants indicated that they lived in New South Wales (58.7 per cent) than Queensland (41.3 per cent). The convenience and snowball recruitment methods used within this study meant that it was not possible to calculate a response rate.

A hierarchical regression was conducted to assess the usefulness of Akers’ social learning theory in predicting the extent to which supervisors ensure compliance with the road laws over and above socio-demographic influences. Therefore, socio-demographic variables were entered as step one, risk perception as step two and social learning factors were entered at step 3. The results are shown in Table 1.

**Table 1** Hierarchical regression of socio-demographic factors, risk perception and Akers' social learning theory on supervisors ensuring compliance with the road laws

| Variable  | <i>M</i> | <i>sd</i> | <i>B</i> | Std. error | $\beta$ | <i>sr</i> <sup>2</sup> | <i>R</i> <sup>2</sup> | <i>Adj R</i> <sup>2</sup> | <i>Change R</i> <sup>2</sup> |
|---|----------|-----------|----------|------------|---------|------------------------|-----------------------|---------------------------|------------------------------|
| <i>Step 1 – Socio-demographic</i>                                   |          |           |          |            |         |                        |                       |                           |                              |
| Gender  | .63      | .48       | 1.47     | 1.77       | .09     |                        |                       |                           |                              |
| Age   | 44.45    | 9.22      | .21      | .05        | .24***  | .05                    |                       |                           |                              |
| Income  | .59      | .49       | 2.63     | .98        | .16**   | .02                    |                       |                           |                              |
| Marital status  | .79      | .41       | 3.18     | 1.13       | .16**   | .02                    |                       |                           |                              |
| State   | .51      | .50       | 5.37     | .92        | .33***  | .10                    |                       |                           |                              |
| First time supervisor   | .41      | .50       | .04      | .98        | .00     |                        |                       |                           |                              |
| Primary supervisor  | .31      | .47       | 2.78     | .98        | .16**   | .02                    |                       |                           |                              |
| Perception of difficulty to find time to practice                   | 2.71     | .92       | .10      | .51        | .01     |                        |                       |                           |                              |
| Receive guidance  | .38      | .49       | 2.19     | .93        | .13**   | .02                    |                       |                           |                              |
| Relationship with learner   | .36      | .48       | -2.42    | 1.78       | .14     |                        |                       |                           |                              |
|   |          |           |          |            |         |                        | .28***                | .25                       |                              |
| <i>Step 2 – Risk perception</i>                                     |          |           |          |            |         |                        |                       |                           |                              |
| Risk perception (start learner)                                     | 4.20     | 1.06      | 2.46     | .46        | .32***  | .07                    |                       |                           |                              |
| Risk perception (end learner)                                       | 3.23     | 1.26      | -.01     | .39        | -.00    |                        |                       |                           |                              |
|   |          |           |          |            |         |                        | .37***                | .34                       | .08***                       |
| <i>Step 3 – Social learning</i>                                     |          |           |          |            |         |                        |                       |                           |                              |
| Differential association of the behavioural dimension (supervisors) | 13.25    | 2.87      | .13      | .17        | .01     |                        |                       |                           |                              |
| Differential association of the behavioural dimension (instructors) | 15.53    | 3.35      | -.11     | .16        | .05     |                        |                       |                           |                              |
| Differential association of the normative dimension                 | 29.83    | 7.49      | .13      | .07        | .12*    | .01                    |                       |                           |                              |
| Personal attitudes  | 31.66    | 6.95      | .03      | .08        | .02     |                        |                       |                           |                              |
| Personal attitudes (alternative behaviour)                          | 29.92    | 6.18      | .19      | .07        | .14*    | .01                    |                       |                           |                              |
| Anticipated punishment  | 16.02    | 7.62      | -.02     | .07        | -.02    |                        |                       |                           |                              |
| Anticipated rewards   | 63.46    | 13.71     | .16      | .04        | .27***  | .04                    |                       |                           |                              |
|   |          |           |          |            |         |                        | .51***                | .47                       | .14***                       |

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ 

Overall the model was statistically significant with the socio-demographic factors, risk perception and Akers' social learning theory predicting approximately 47 per cent of the variance in the extent to which supervisors ensured that their learner complied with the road laws. The first step in the hierarchical regression was statistically significant ( $F(10) = 9.72, p < .001$ ). This step explained 28 per cent of the variance. The significant predictors within the personal variables were age ( $\beta = .24, p < .001$ ), income ( $\beta = .16, p < .01$ ), marital status ( $\beta = .16, p < .01$ ), state of residence ( $\beta = .33, p < .001$ ), whether they were the primary supervisor ( $\beta = .16, p < .01$ ) and whether they received guidance ( $\beta = .13, p < .01$ ).

The second step of the hierarchical regression was statistically significant ( $F(12) = 11.79, p < .001$ ) and explained an additional eight per cent of the variance over and above the socio-demographic factors. Within this step, the supervisors' perceptions of risk associated with driving for the learner

at the start of the learner licence was a significant predictor, predicting seven per cent of the variance ( $\beta = .32, p < .001$ ).

The third step of the hierarchical regression was statistically significant ( $F(19) = 12.77, p < .001$ ) and explained an additional 14 per cent of the variance. The significant predictors within the social learning theory variables were the normative dimension ( $\beta = .12, p < .05$ ), personal attitudes towards an alternative behaviour (the use of professional driving instructors;  $\beta = .14, p < .05$ ) and anticipated rewards ( $\beta = .27, p < .001$ ). Overall, it appears that supervisors who are older, have higher incomes, are partnered, live in New South Wales, are not the primary supervisor, do not receive guidance from friends, government websites or driving instructors and perceive the start of the learner licence as riskier are more likely to ensure that their learner complies with the road laws. Supervisors with more positive personal attitudes towards driving instructors, interacted with significant groups that ensured learners complied with the law and anticipated more rewards were also more likely to ensure that their learner complied with the road laws.

## Discussion

Like other studies in the area of road safety (e.g. Armstrong & Ryan, 2006; Fleiter & Watson, 2006; Watson, 2004), this study supports the use of Akers' social learning theory to explain road user behaviour. In this case, the theory helped predict the extent to which supervisors ensured their learner complied with the road laws. The significance of the normative dimension of differential association suggests that social factors have an important role in supervisors encouraging compliance by learner drivers with the road rules. Thus, it is important to develop a shared culture within supervisors, as a group, that identifies the supervision of learner drivers as a positive element of the GDL system.

Consistent with research suggesting that the frequency of speeding is greater when individuals have experienced rewards for engaging in the behaviour (Fleiter & Watson, 2006), anticipated rewards was a significant predictor of the extent to which supervisors ensured that their learner complied with the road laws. While further research will help to identify which elements of supervised practice are rewarding for private supervisors, it appears from the items included in the anticipated rewards scale within this study that having a positive supervision experience is one form of reward. For instance, bonding with the learner and spending time with the learner could be considered rewarding. Additional anticipated rewards could include support from others such as partners and friends or long-term benefits of having a licensed learner. There may be an opportunity to promote these anticipated rewards to private supervisors in order to continue to ensure that they encourage compliance with road laws.

Additionally, personal attitudes towards an alternative behavior (the learner driver having professional driving lessons) were a significant predictor of the extent to which supervisors ensured compliance with the road laws. This finding is consistent with research conducted by Watson (2004) into unlicensed driving.

The overall significance of the Akers' social learning theory variables, and the individual significant predictors, suggests that there are ways to enhance GDL systems, including the learner licence, in Australia and internationally by providing additional advice and support to supervisors. This could include educating supervisors about the rewards of providing supervision and encouraging working relationships between private supervisors and professional instructors. The significance of supervisors' perception of risk at the start of the learner period indicates the importance of ensuring that they are aware of the risks associated with learning to drive.

A key strength of this study was that it explored the experiences of both parental and non-parental supervisors of learner drivers across two Australian states. Traditionally, many studies have focused on parents when considering the supervision of learner drivers. This study has also used theory to help explain behaviour in an area that has traditionally been studied from a data-driven perspective. The limitations of this study include sampling issues associated with the use of an internet survey.

For instance, not all potential participants have access to the internet. It is also not possible to clearly identify the target population in order to assess the quality of the sample or calculate response rates. Further research, that utilises a different research method, would help address the sampling and self-report issues present in this study. Additional studies could also consider the role of parents and non-parental supervisors in Australia once the learner obtains a provisional licence.

## Conclusions

This study has demonstrated the usefulness of Akers' social learning theory in predicting the factors that influences the extent to which the supervisors of learner drivers to ensure that their learner adheres to the road rules. This is consistent with other research within road safety indicating the value of this theory to the road safety and traffic psychology fields. The findings of the study suggest that it is possible that the GDL system could be enhanced by providing a greater level of support to the supervisors of learner drivers as opposed to making further changes to the GDL system. This support could include educating supervisors about the rewards of providing supervision.

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