

Learner Driver Trial

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Abstract

As part of its HELP youth strategy, the TAC developed a program designed to gauge the impact of personalised support for learner drivers on the extent and quality of their supervised driving practice.

Designed as a two year, five-stage longitudinal study, the Learner Driver Trial (LDT) involved a sample of parents/supervisors of learner drivers being contacted via telephone every three to four months. At each telephone contact supervisors were surveyed about issues relevant to learning to drive, including the amount and types of practice received by their learner. The results from these surveys were compared with control groups not involved in the program.

Although initial results from the LDT have been reported previously, this is the first time an in depth analysis of the trial data has been undertaken. This analysis examined if the number of trips taken, average length of trip and number of driving conditions experienced by those involved in the LDT was greater than control learner drivers. Additional analyses were also conducted to examine the effects of the LDT on logbook use, total hours of driving experience prior to licensing and age of obtainment of a probationary licence.

The major finding of the study indicates that the LDT has a significant influence on the amount, type and variety of supervised practice learner drivers obtain within the first year of their learner permit tenure. However, towards the later stage of the trial there was generally no difference between the LDT drivers and the control group on measured variables. This suggests that the most significant LDT effect occurs immediately after obtaining a learner permit and helps learners sustain reasonable levels of practice throughout the learner period.

Introduction

Victoria, like many other states and territories in Australia, has made strong road safety gains in the last decade. During the 1990s the introduction of booze buses, speed cameras with supporting public education and the implementation of a large scale blackspot program contributed to a halving of the State's road toll and a reduction in serious injuries by about one third. Despite reductions in road trauma since 1989, young people continue to be vastly over-represented in road accidents. In the five years to 2000, nearly 500 young people (aged 18-25 years old) were killed on Victorian roads. This represents 25 per cent of the total road toll for that period, although 18-25 year olds account for only 12 per cent of the Victorian population.

To address this concern the TAC, in March 1999, launched its HELP strategy. The HELP strategy incorporated a range of elements targeting P-plate holders, learner drivers and their parents. One of the major elements of this strategy was the Learner Driver Trial (LDT).

The LDT involved personalised telephone contact with a group of learner driver supervisors in an effort to positively influence the amount of on-road practice received, the range of driving conditions experienced and the use of a logbook to record driving experience. The LDT was designed as a longitudinal study with supervisors of learner drivers being contacted every three to four months to track the amount and type of driving experience obtained by their learner. The information obtained was compared to a series of control groups that were only contacted once.

The rationale for the TAC developing the LDT was to increase the number of hours of supervised on-road driving experience obtained by learner drivers. Gregersen et al. (1) demonstrated in their 1999 study that by increasing the number of hours of supervised on-road driving practice the accident risk of novice drivers could be reduced. Gregersen et al. (1) used Swedish students as a case study. In 1993, Sweden reduced the age at which individuals were allowed to begin to practice driving from 17½ to 16 years, and thus extending the potential learner driver period from 6 months to 2 years. It was found that there was a general 15% reduction in accident risk (accident risk per 10 million km) of novice drivers. However, on further investigation this reduction only extended to those who utilised the opportunity to practice driving at the early age, with their accident risk reducing by 45 to

50% compared with no reduction for individuals who did not utilise the prolonged training period. Gregersen (2) suggested that around 120 hours of on-road supervised driving practice would reduce a novice driver's crash risk by 30%.

The challenge that came from this research was how to encourage learner drivers to utilise the extended learning period to gain more supervised on-road driving experience before gaining their probationary licence. Research conducted in Victoria by VicRoads (3) indicated that learner drivers obtained 40 to 60 hours of on-road driving experience before gaining their probationary licence. This amount of driving practice is significantly less than the 120 hours recommended by Gregersen (2). Gregersen et al. (1) stated that 'if a larger part of the young learner driver population can be persuaded to start early and to practice more, the safety potential of the lowered age limit may be exploited even more' (p. 10). The LDT was designed to involve regular, personal contact with learner driver supervisors. The contact would also address many of the concerns supervisors identified in providing extensive practice. Support for direct personal contact with supervisors comes from numerous studies investigating the Hawthorne effect. The Hawthorne effect demonstrated that a program, in which participants believe they are being observed or they were receiving special attention, led to those participants behaving differently in an attempt to produce the desired outcome (4).

The other components of the HELP campaign reinforced the main principles of the LDT. They were:

- ?? Mass media advertising encouraging learner drivers to gain a minimum of 120 hours of supervised on-road driving experience under a range of driving conditions.
- ?? An information kit mailed to the learner and directed at both learners and supervisors that was designed to complement *VicRoads Getting there from Ls to Ps* publication.
- ?? A Frequent Driver Program offering incentives such as a 'buy one get one free' Big Mac offer for all learner drivers who visit a McDonald's Drive Thru and two driving schools (RACV and Road Runner) with a free lesson offer.
- ?? An interactive CD-ROM, *Drive Smart*, that was designed to supplement hands on driving practice by systematically training users in the areas of detecting hazards, effectively scanning the environment and managing the workload of driving in busy traffic.

The specific aims of the LDT were to encourage learner drivers and their supervisors to:

- ?? substantially increase on-road driving practice prior to licencing;
- ?? practice consistently over the period the learner permit is held;
- ?? use a logbook or diary to record their driving practice.

Method

Subjects

It was felt that the driving supervisor exhibited the most reluctance to be involved in ensuring that their learner got on-road experience needed and thus were the group most likely to respond to being 'treated' in the trial. It was also believed that supervisors were most likely to provide accurate information about their learners' driver experience and they were more likely to remain on the program long term.

Treatment Group

996 individuals sitting for their learner permits at eight VicRoads offices agreed to participate in the trial (96% of those approached) and of these, all supervisors agreed to participate. There were 481 male and 457 female learner drivers recruited in the trial. There were no discernable differences between enrolment levels for rural and metropolitan areas and language was found only to be an issue for a few supervisors.

Control Group

Approximately three hundred individuals were drawn from a VicRoads database (5) of all learner drivers who had obtained their permit in April and May 1999, for each of the five stages of the longitudinal study. The gender-mix of each of the control groups is provided in Table 1 below.

Table 1: Gender mix of control group participants in each stage of the longitudinal study who agreed to participate.

| | Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage 5 |
|----------------|---------|---------|---------|---------|---------|
| Male | 164 | 166 | 152 | 159 | 106 |
| Females | 157 | 135 | 149 | 142 | 84 |

Materials

Supervisors were administered a questionnaire via telephone. At each stage of the longitudinal study supervisors were asked question addressing the following areas:

Amount of driving practice

Firstly, the supervisor was asked to indicate whether their learner driver had started on-road driving practice. If on-road driving practice had commenced, details of how many trips undertaken and length of time in minutes spent driving within the week immediately preceding contact were obtained. An average over a three-week period of trips taken and minutes spent on driving practice per week was also recorded.

Logbook

Firstly, a question was asked to establish whether the learner driver-supervisor pair (LD-SP) utilised a logbook to record supervised driving practice. If a logbook was utilised by the LD-SP, the extent of logbook use along with details of who records driving practice and where it is recorded was obtained.

Experience

First it was established whether on-road driving experienced by LD-SP had generally occurred along a particular route or varied driving routes and destinations were taken. The supervisor was then asked to indicate whether the LD-SP had experienced a number of driving situations (i.e. driven in the rain, night, peak hour traffic and on multi-lane freeways and unsealed roads).

Professional driving

The supervisor was asked to indicate whether the learner driver had received professional supervised driving lessons. If a professional supervised driving lesson had been taken by the learner, the supervisor was asked to indicate whether they had attended any of the lessons and if they had not, were they intending to be present at the lessons in the future.

Access to driving experience

Supervisors were asked how many vehicles the learner had access to and how many fully licensed drivers who were able to assist with on-road driving practice lived in the household.

Procedure

Learner driver-supervisor pairs (LD-SP), with a learner between the ages of 16 and 25 years were sought for the trial as they were most likely to be in a traditional learner-parent relationship. LD-SP were recruited from four metropolitan and four rural VicRoads offices. At the VicRoads offices, those who had gained a learner permit were asked if they wished to join the LDT and if they thought their supervisor would also participate. If they agreed to become involved they filled out an enrolment form specifying their details and those of their supervisor, were asked to show the literature provided to their supervisor and told that their nominated supervisor would be contacted within a week to confirm that they were willing to be involved.

Following the supervisors agreeing to be involved (via telephone call) in the LDT, contact was made with them via a letter thanking them for agreeing to be involved and asking them to use a log to record their learners on-road driving experience so as to provide accurate data to the TAC when next telephoned. Supervisors were referred to the log available in the VicRoads publication *Getting there from Ls to Ps* (6) and were also supplied with a simple log by the TAC. Supervisors were informed in the letter of the longitudinal nature of the research and to expect the TAC to call approximately every 3 to 4 months to check on the progress of the learner's driving practice.

The treatment group was divided into two groups. Treatment group 1 were only provided with telephone contact. Treatment group 2 were contacted by telephone but were also given the option of a help line (during

business hours) and were offered additional printed information if telephone contact identified particular issues that were inhibiting their learner driver receiving practice. Very early in the trial, it was recognised that the differences between the two treatment groups were negligible, with the simple act of telephoning having positive benefits. Thus for this report results from treatment groups 1 and 2 have been combined.

The control groups of LD-SP were drawn from 6682 learners who gained their learner permit in April and May 1999. At each stage of the trial approximately 300 supervisors from the control group were contacted and asked the same set of questions as the treatment groups. The control groups of LD-SP were only contacted once and then removed from the database. The control groups received only telephone contact with no offer of help line assistance or additional printed material.

Results

Learner Drivers

Learner Driver - Supervisor Pairs (LD-SP) in the treatment group were compared to the control groups of LD-SP across the five stages of the study. Supervisors were asked to indicate the number of trips, length of these trips and the variety of driving conditions that were obtained in the week immediately preceding each of the five telephone contacts made by the LDT. The number of participants who provided valid responses, and the means and standard deviations along with significance tests for differences between the treatment and control LD-SP on these variables are provided in Table 2. Graphical representation of the results has been provided in Figures 1 to 3.

The number of trips LD-SP in the treatment group undertook in the week immediately preceding each of the five telephone contacts was significantly greater than the control groups, except at Stage 4. Stage 4 of the LDT was conducted during September 2000 at which time the Olympic games were being held in Sydney. It is possible that the extra enthusiasm the treatment group of LD-SP had displayed for obtaining on-road driving experience may have waived temporarily during the Olympics.

The length of trips (in minutes) LD-SP in the treatment group undertook in the week immediately preceding the first three telephone contacts was significantly greater than the control group. Differences between the treatment and control groups dissipated in Stages 4 and 5, which is largely due to the control group substantially increasing the number of minutes of on-road driving experience obtained. The control group is likely to have increased length of time spent obtaining on-road driving practice because of the impending date for when they would be able to obtain their probationary licence.

The variety of on-road driving experience obtained by LD-SP in the treatment group in the week immediately preceding each of the five telephone contacts was significantly greater than the control group, except at stage 4. Differences between the treatment and control groups dissipated in stage four and was largely due to the control group substantially increasing the number of driving conditions experiences. This rise in the number of driving conditions experienced by the control group is probably due to the increased emphasis placed on preparing for their probationary licence on-road test.

When considering the use of logbooks for treatment and control groups separately, there were generally no significant differences found for the number of trips, length of trips taken or variety of on-road driving experience obtained for those who did and did not utilise a logbook.

Probationary drivers

A subsample of LD-SP for whom the learner drivers had obtained their probationary licence was analysed. There were 129 treatment group LD-SP (68 males, 61 females) who had obtained their probationary licence, having held their learner permit for a mean of 12.84 months (SD = 3.30, Range = 7 to 19 months).

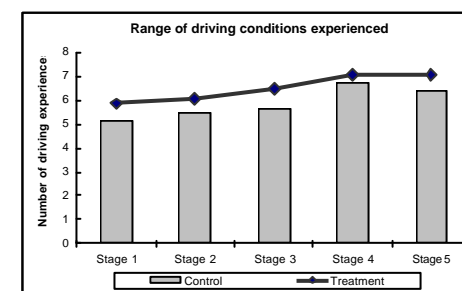
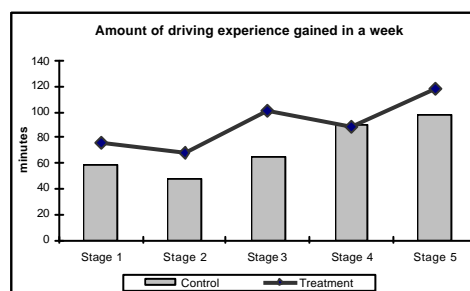
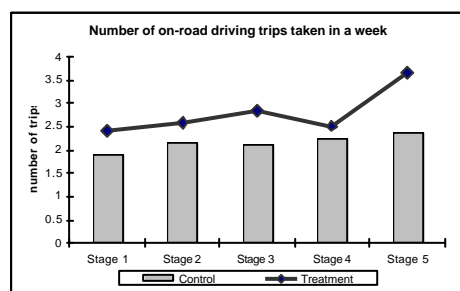
The number of hours of supervised practices obtained by novice drivers during their learner period was estimated by calculating the following:

$$(1) \frac{\text{average amount of minutes per week driven} \times \text{number of weeks learners permit was held}}{60}$$

Table 2: Mean, standard deviation and significance tests for the number of trips, length of these trips and the variety of driving conditions obtained at each of the five telephone contacts. The number of valid cases for each stage is also provided.

| | Stage 1 | | | Stage 2 | | | Stage 3 | | | Stage 4 | | | Stage 5 | | |
|---------------------------------------|--------------------------------|-------|--------|--------------------------------|-------|-------|--------------------------------|--------|-------|-----------------------------|-------|--------|------------------------------|--------|--------|
| | N | X | SD | N | X | SD | N | X | SD | N | X | SD | N | X | SD |
| Number of trips | | | | | | | | | | | | | | | |
| Control | 256 | 1.90 | 2.73 | 275 | 2.14 | 2.64 | 261 | 2.13 | 2.31 | 214 | 2.25 | 2.23 | 171 | 2.37 | 2.58 |
| Treatment | 774 | 2.42 | 3.02 | 615 | 2.60 | 2.98 | 385 | 2.85 | 2.36 | 305 | 2.52 | 2.83 | 142 | 3.67 | 3.25 |
| Significance test | F (1,1028) = 5.97, p = .015** | | | F (1,888) = 4.97, p = .026** | | | F (1,644) = 14.49, p = .000*** | | | F (1,517) = 1.34, p = .247 | | | F (1,311) = 15.57, p = .000* | | |
| Length of trips | | | | | | | | | | | | | | | |
| Control | 256 | 58.53 | 109.86 | 275 | 47.60 | 65.12 | 261 | 65.79 | 78.62 | 214 | 90.40 | 132.55 | 171 | 97.43 | 116.50 |
| Treatment | 774 | 76.82 | 107.85 | 615 | 67.75 | 82.71 | 385 | 100.81 | 98.13 | 305 | 88.36 | 99.43 | 142 | 118.32 | 116.48 |
| Significance test | F (1,1028) = 5.48, p = .019* | | | F (1,888) = 12.77, p = .000*** | | | F (1,644) = 23.16, p = .000*** | | | F (1,517) = 0.04, p = .842 | | | F (1,311) = 2.50, p = .115 | | |
| Variety of driving experiences | | | | | | | | | | | | | | | |
| Control | 256 | 5.11 | 2.93 | 275 | 5.45 | 3.02 | 261 | 5.61 | 2.88 | 214 | 6.75 | 3.50 | 171 | 6.37 | 3.34 |
| Treatment | 774 | 5.85 | 3.06 | 612 | 6.08 | 3.09 | 386 | 6.49 | 2.33 | 305 | 7.07 | 3.36 | 180 | 7.04 | 2.84 |
| Significance test | F (1,1028) = 11.48, p = .001** | | | F (1,885) = 8.12, p = .004** | | | F (1,645) = 18.57, p = .000*** | | | F (1,517) = 1.06, p = .304* | | | F (1,349) = 4.18, p = .042* | | |

Significant at : * .05 ** .01 ***.001



Figures 1 to 3: Mean number of trips, length of these trips and the variety of driving conditions that were obtained in the week immediately preceding each of the five telephone contacts made by the LDT

It was estimated that learner drivers in the treatment group obtained around 100 hours of supervised on-road practice (SD = 76, Range = 13 to 391) in the period between obtaining their learner permit and gaining their probationary licence. The amount of supervised driving practice reported is substantially more than the 40 to 60 hours reported in previous studies conducted by VicRoads (3), and is approaching the recommended 120 hours of driving practice (2). It should be noted that this group of LD-SP have obtained their probationary licence in a short time frame and thus results should not be generalised to the entire sample of LD-SP.

There was no significant difference ($F(1, 113) = .000, p = .986$) in the number of hours of on-road supervised driving experience gained by LD-SP who did ($X = 100.60, SD = 76.53$) and who did not use a logbook ($X = 100.87, SD = 69.05$). However, the results suggest that the use of logbooks may minimize the over estimation of the number of hours of driving experience obtained. Supervisors were asked to estimate the number of hours of supervised practice their learner driver obtained over the entire period of holding the permit. Supervisors who made use of a logbook had estimates more closely aligned to the number of extrapolated hours (see Table 3).

Table 3: Comparison of estimated total hours of driving experience and supervisor estimated total hours of driving experience for LD-SP who did and did not utilise a logbook.

| | Non logbook use | | Logbook use | |
|--|-----------------|-----|-------------|----|
| | X | SD | X | SD |
| Estimated total hours of driving experience (N = 115) | 100 | 69 | 100 | 76 |
| Supervisor estimated total hours of driving experience (N = 129) | 141 | 117 | 122 | 87 |

The variety of driving conditions experienced was found to be significantly higher for those participants who utilised a logbook ($X = 7.44, SD = 1.89$) than learner drivers who chose not to use a logbook ($X = 6.56, SD = 2.20$) ($F(1, 121) = 4.83, p = .030$). The number of individuals in the household that could assist the learner driver in gaining on-road driver practice and the number of cars in the household had no impact on the reported number of hours of driving experience obtained.

Conclusion

The major findings of the study indicates that the LDT had a significant influence on the amount, type and variety of supervised practice learner drivers obtain within the first year of their learner permit tenure. However, towards the later stage of the trial, there was generally no difference between LDT drivers and the control group on measured variables, due to the control group increasing the amount and type of their driving practice. This suggests that the LDT encouraged learner drivers and their supervisors to utilise the entire learner permit tenure to gain driving practice.

It has been estimated that the group of learner drivers who went on to obtain their probationary licence, whilst involved in the LDT, gained approximately 100 hours of on-road driving practice. In previous studies, conducted by VicRoads (3) the average number of hours of driving practice obtained were 40 to 60. The use of logbooks, whilst not contributing to an increase in the number of hours of driving practice obtained, is likely to have led to more accurate reporting of driving practice and helped increase the variety of driving experience obtained.

The LDT has shown that the simple act of providing ongoing personalised contact with supervisors can substantially increase the amount, length and type of on-road experience learners receive prior to licensing. If a cost-beneficial means of rolling out the program can be developed for all learner drivers and their supervisors, it has the potential to substantially reduce road trauma in Victoria. The results of the LDT thus have proven to be positive and expansion of the program to encompass all learner drivers will be carefully assessed in benefit to cost terms.

References

(1) Gregersen, P. N., Berg, H., Engstrom, I., Nolen, S., Nyberg, A., & Rimmo, P. (1999). Sixteen years age limit for Learner Drivers in Sweden – an evaluation of safety effects. *Accident Analysis and Prevention*, p 1-11.

(2) Gregersen, P. N. (1996). Young car drivers. *Swedish National Road and Transport Research Institute (VTI)*; Sweden, Report 409A, p 1-67.

(3) VicRoads (1997). Personal communication.

(4) Roethlisberger, F.J. and Dickson, W. J. (1939). *Management and the Worker*. Cambridge, Mass.: Harvard University Press

(5) VicRoads (1998). *Learner Permit Data*. VicRoads, Victoria.

(6) VicRoads (1998). *Getting There From Ls to Ps* (1998). VicRoads, Victoria.