Biographical Summary

Title: Mr

First Name: Bill

Surname: Robertson

Qualifications: B.A. (Educ.)

Current Position: Partner

Employer: Struan Enterprises

Bill Robertson has over twenty years' experience in private and public sector organisations, mainly in road safety. While employed as Education Manager for the Land Transport Safety Authority, Bill served on the Australasian Road Safety Education and Promotions Forum and was New Zealand's representative on CIECA the International Driver Testing Organisation. Bill's recent achievements include the conception and development of an extensive educational research project on the teaching of the essential skills in the New Zealand core curriculum and revision of the New Zealand Syllabus for Driver Educators.

In partnership with the Road Transport Industry, Bill has developed a framework that will see all driver licensing qualifications come into the National Qualifications framework within 3 years. As a consequence he has gained extensive experience in assessment and moderation of industry based training initiatives.

IS DRIVER TESTING A VALID FORM OF EVALUATION?

Bill Robertson
Struan Enterprises

ABSTRACT

This paper outlines the current requirements for driver testing in New Zealand and explores their validity as measures of driving competence. It will also describe methods of competency based assessment that may eventually replace traditional testing.

The "graduated licensing" system in New Zealand is divided into four stages; pre-licence, learner, restricted and fully licensed. To gain any type of licence the candidate must pass a test. The initial test is theory only and consists of a 35 question multiple-choice written test. At the end of this stage the learner must pass a practical test which takes about 25 minutes. It assesses basic vehicle control skills. Once the required time has elapsed the learner has to pass a full licence test.

The full licence test takes about an hour, is much more comprehensive than the restricted licence test and aims to assess higher order driving skills such as hazard identification and decision making.

American educator Eliott Eisner (1979) identified five functions of evaluation. Evaluation can be used to diagnose, revise curricula, to compare, anticipate educational needs and to determine if objectives have been achieved. This paper will explore which of these functions have been fulfilled within the new driver tests.

The success of the driver tests will be judged in terms of immediate student outcomes but the greatest judgement will be not of educational but of social outcomes. In the long term success will be judged in terms of outcomes relating to traffic crime and crash rates.

INTRODUCTION

Driver testing is conducted throughout the world as an evaluative measure that a person is safe to be issued with a driver's licence. This infers that testing should be able to identify drivers likely to be involved in crashes and deny them legal access to the roads. Such a position has long been discarded as impractical. Driver licensing and driver testing are almost universal. They have existed and been accepted for many years. *"As a result, in most jurisdictions it would be all but impossible (administratively, politically or otherwise) to eliminate licensing in order to be able to study its effectiveness. Unfortunately this would be the only valid way to determine its effectiveness."* (Coppin, 1977, p. 15) This statement can be accepted only so long as we determine effectiveness of testing on the basis of crash rates.

In 1982 an Australian House of Representatives Standing Committee on Road Safety stated that *"licensing of drivers has traditionally been seen as a screening process, with the aim of keeping unsafe drivers off the road. However, at the present time no system of testing licence applicants has been developed that could be used to deny licences to those highly likely to be involved in accidents, without at the same time denying licences to very large numbers of drivers who would subsequently be accident free".*

There was, and is, no research finding to support any suggestion that driver characteristics of predisposition to crash involvement can be identified through testing. The committee concluded, as have the policy makers in a majority of nations worldwide that, rather than trying to assess for crash involvement, licensing systems should attempt to improve the standard of all drivers. MacDonald (1987) concluded that *"the primary objectives of licence testing are to establish that drivers have attained an adequate level of competence, and to set an appropriate standard of good driving behaviour"*. Driving is regarded as a privilege, which anyone may exercise once they have reached this magical level of competence.

If we accept both this premise and the suggestion that the purposes of evaluation are to diagnose, revise curricula, to compare, anticipate educational needs and to determine if objectives have been achieved (Eisner, 1979), is testing effective. This paper will examine the current situation in New Zealand with a view to answering this question.

CURRENT DRIVER LICENSING REQUIREMENTS IN NEW ZEALAND

During the 1980's researchers and policymakers became increasingly interested in a concept known as graduated licensing. Graduated licensing schemes provide the opportunity for assessments of driving skills to match stages in the development of driving skills, so that an assessment of the higher level skills of a driver is possible at a stage in their driving career where they have potentially accrued enough driving practice to have developed some of these skills. After the introduction of graduated licensing schemes in two Canadian provinces, Mayhew and Simpson (1995) state that it represents one of the most effective means for reducing crash risk among novice drivers. The more usual testing regime, which relies on the results of a license test after a minimal opportunity for driving experience, cannot provide an accurate assessment of the safety-related higher level skills of the driver.

On 1 August 1987 New Zealand became the first jurisdiction in the world to introduce a graduated driver licence system. Under this system, New Zealand driver licensing, candidates were required to pass a theory test of 25 written and 5 oral questions. This enabled them to obtain a learners' permit at the age of 15 years. This allowed them to drive under supervision and carried a number of additional restrictions (eg zero blood alcohol levels). A restricted (probationary) licence could be obtained after six months (or three months if certain conditions are met) on the passing of a twenty minute practical test. The restricted licence carried a number of restrictions. Finally, a full licence could be obtained 18 months after the restricted licence was issued (9 months if an approved driver education course was undertaken). Enforcement officers initially conducted licence testing but in 1998 this task was taken over by private sector agencies contracted to the New Zealand Land Transport Safety Authority (LTSA).

In early 1998 LTSA reviewed its licensing system. As part of the review they attempted to raise the minimum driver licensing age to 17 years. However, this attempt was unsuccessful. Thus, New Zealand may continue to have one of the lowest driving age limits in the motorized world. While the minimum driver licence age is 16 years in most (40) US jurisdictions, some (six) allow licensing at 15 and one at 14 (Ferguson, 1996; Williams, Weinberg, Fields & Ferguson, 1996).

While the New Zealand GDLS was perhaps the most fully developed in the world, it did not include any form of assessment to graduate from restricted to full licence status. So as part of the review the LTSA gained government approval for the development and introduction of a test to assess the safe driving skills and abilities of restricted licence holders. This test would be undertaken by car drivers and motorcyclists wishing to “graduate” to full licence status after at least 18 months of solo driving. This Full Licence Test (FLT) would mark the last opportunity for driver assessment before the removal of all graduated licensing restrictions.

Australian Professional Driving Consultants together with the Monash University Accident Research Centre were chosen to develop the test. The developers worked under LTSA specifications and constraints that included restricting the administration time for the FLT to less than 60 minutes in total duration and having the capability of delivery across New Zealand by LTSA staff or agents. LTSA also confirmed that screen based testing options would not be available for some years.

The FLT aims to assess driving associated skills and abilities considered indicative of driving safety but which were unlikely to be available for assessment until the driver has accrued sufficient driving experience. Indeed, the focus of the developers was skills likely to be assessed in a driving test conducted after up to two years of driving experience. The test was developed from first principles to sample competencies and skills necessary for safe and responsible vehicle operation at full licence level. LTSA required that the FLT not be a derivative of existing tests but be based on the crash profile of novice New Zealand drivers and the recent international research literature on the skills/abilities that a novice driver should have on graduation to full licence status.

The FLT development team analyzed all NZ crash data for the period 1992-96 inclusive. Crash patterns of reported car & motorcycle crashes for 15-19 year old drivers/ riders were compared with those for 30-59 year old drivers/ riders (i.e. the lowest risk age group on New Zealand roads). The test developers looked for crash types/circumstances typical of young drivers/riders. They also tried to create a model for novice driver/rider accidents without success.

The results of the crash data analysis may be summarized as follows:

- the top 10 crash types accounted for 68% of 15-19 year old driver/rider crashes ;
- novice drivers/riders had greater problems with left/right turns, U turns and loss of control (perhaps due to speed control) than more experienced drivers;
- most crashes occurred on sealed roads, in dry weather and during daylight hours;
- patterns for car drivers and motorcycle riders were similar, but there was greater male & urban bias among rider crashes.

The developers conducted a brief review of the literature related to the nature of higher level skills considered relevant to crash involvement (especially amongst younger or less experienced drivers). The detailed results of the review are not reproduced here but may be found in Harrison, Fitzgerald, & Pronk (1998).

The developers were particularly influenced by the work of McKnight (1996) who stressed the close relationship between graduated licensing systems and the hierarchical nature of driving abilities. Driving skills (like other complex skills) develop at a number of levels or in stages. Initial stages in complex skill development involve the development of specific skills relevant to the more general skilled behaviour, and subsequent stages involve aggregating those specific skills into complex behaviours and then increasing the level of automatisation of the complex behaviours (Harrison, 1998, Lewin, 1982). It is generally thought that driving skills (and other skills) develop with experience rather than through training (Cowan, 1988, 1995; Harrison, 1998; Logan, 1988). The developers concluded that the FLT provided the opportunity for assessment of higher level skills at a stage in a novice driver's learning curve where they have potentially accrued enough driving practice to have developed most of these skills.

On 3rd May 1999, substantial changes to the New Zealand driving licence system came into effect, including the following changes to the GDLS:

- the requirement for learner drivers to display 'L' plates
- the GDLS applying to all new drivers, regardless of age

- changes to the requirements for reducing minimum periods for holding learner or restricted licences
- more consistent and comprehensive licence tests
- a new scale of fees for driver licences
- increased penalties for breaking the conditions of learner and restricted licences
- more rigorous licence tests and a new 'full licence test'
- new licence classes and endorsements

The system now requires a person to pass a theory test of 35 written questions to qualify for a learner licence. This may be done from the age of fifteen. This licence must be held for at least six months before attempting the practical test. During this phase the restrictions include the need to display "L" plates and a prohibition from driving unaccompanied. Passing a twenty-minute practical test allows the driver to progress to a restricted licence. This allows a driver to drive unaccompanied except during certain nighttime hours. They are not permitted to carry passengers at this time. The restricted licence must be held for eighteen months. This may be reduced to twelve months if they attend an approved course of self-management and metacognitive skills training. At the end of the period the Full Licence Test must be passed before the driver can drop restricted status.

EFFECTIVENESS OF TESTING

Evaluation of the first GDLS program showed an initial drop of about 25% in novice driver casualties and a durable reduction of about 8% in respect of drivers aged 15-19 years of age (Langley, Wagenaar & Begg, 1996). None of this reduction was attributed to the efficacy of tests, however. In fact the evaluators commented that *"caution should be exercised in attributing causation especially since work by Begg et al. (1995) suggests that compliance with some of the key provisions of the GDLS is low. The findings produced suggest that one of the principal effects of the GDLS on crashes may have been indirect through a reduction in overall exposure."* (Langley, Wagenaar & Begg, 1996, p.145).

There is no evidence, worldwide to show that any form of driver testing reduces crashes. On July 1st 1996, the United Kingdom introduced a written driver licence test for the first time as part of a European Union directive, despite the fact that the United Kingdom already had one of the lowest crash rates in Europe. Since the introduction, the Driving Standards Agency has regularly reported high pass rates and high standards of user satisfaction with administration but no impact on traffic offence or crash rates.

If the objective of driver testing was to reduce crashes or to detect those likely to crash it would be seen as a dismal failure. Governments around the world are taking billions of dollars in test fees on false pretences. If, as we earlier agreed, driver testing is simply to ensure that "*drivers have attained an adequate level of competence, and to set an appropriate standard of good driving behaviour"* (MacDonald, 1987) the situation is less dismal. It is undoubtably true that candidates who pass a theory test have demonstrated an adequate level of competence in the knowledge of road rules on that day.

Drivers who pass e practical test have also demonstrated a level of competence but not necessarily in the skills the test aims to assess. The first New Zealand restricted licence test was introduced to detect hazard recognition and avoidance skills (among others). It is located at a point in the system where it is unlikely drivers will have developed these skills let alone be able to demonstrate them. The test is designed to take approximately twenty minutes despite the advice of the University of Michigan, from where it was sourced, that it takes a drive of at least forty minutes to be able to detect skill and error patterns.

The FLT has a much greater chance of producing results. It is located in the correct place in the system and targets situations that have been shown to be problematic for novice drivers. From Eisner's (1979) perspective the test will be used to diagnose areas of strength and weaknesses in driver performance. More importantly it will be able to diagnose whether a driver has had sufficient experience to justify the removal of restrictions. Test results will be used to revise the driver-training syllabus and to compare driver performances. Test reports will allow driver educators to anticipate the educational needs of those who fail and to allow testing officers determine if objectives have been achieved.

ANOTHER WAY

Although new tests provide a greater evaluative measure than some earlier ones they still have problems. They can not guarantee that drivers will transfer the displayed competencies nor do they prevent the problem of skill slippage as drivers get more confident. In addition they involve setting up large expensive bureaucracies for little social gain. If all the test is designed to do is to ensure a standard of competency at any one time, there might be a cheaper way to do it.

South Australia (SA) is trialing a system known as Competency Based Testing (CBT). This gives the learner the option of going through the normal driver test (known in S.A. as VORT) or CBT conducted by the driving instructor throughout tuition. Several studies have been completed and several more are under way. One will examine whether the SA - CBT program provides a more valid means of preparing and assessing novice drivers for a provisional licence and the experience gained from the development and operation of the scheme which has significance for other licensing jurisdictions.

Another study aims to investigate the relationship between the type of training and testing undertaken (CBT versus VORT) and the subsequent offence and accident history. The study will be of considerable interest to all jurisdictions, but particularly the newly formed SA Joint Parliamentary Committee on Transport Safety, whose first inquiry is in the area of driver training and testing. The study commenced at the end of June 1999 with completion due by the end of June 2000.

While there has not been an official cost analysis done on the Accredited and Authorised Instructor Scheme anecdotal evidence shows it to be more popular and cheaper than traditional testing. When the Schemes were introduced in April 1993, the Government increased the practical test fee for a Government test from $24.00 to $34.00 ($69.00 for a heavy vehicle test) and also added a booking fee (making the cost $44.00 ($79.00 for heavy vehicles). As a result the private sector provided initial testing at between $35.00 to $40.00 which reduced the demand for Government testing rapidly. Government testing in the metropolitan area is zero with only a few tests conducted in remote locations (around 100 per year). Government still performs medical assessments (free to the public) but will be outsourcing this function to appropriately qualified external providers in the near future.

So, in conclusion, there is little if any evidence to show the efficacy of driver testing from a safety perspective. Testing may be effective in providing a hurdle, which ensures some training and gathering of supervised experience. Testing regimes are expensive, however, so from the point of view of the consumer competency based testing conducted by driving instructors must look an attractive option.

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