TRAFFIC ACCIDENT RESEARCH UNIT

DRIVER EDUCATION

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DEPARTMENT OF MOTOR TRANSPORT NEW SOUTH WALES

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INTRODUCTION

Driver education schemes may be divided among three groups:-

(a) Basic training. This provides the skill necessary to drive the vehicle, and the information on road rules necessary to obtain a licence to drive. This training is given usually by relatives, by friends or by a commercial driving school.

(b) Safety education. This involves educating drivers, either before or after licensing, to drive with consideration for the safety of themselves and other road users. It includes "defensive driving" as taught by the Department of Motor Transport's Traffic Accident Research Unit, aimed at teaching drivers to avoid getting in to hazardous situations.

(c) Advanced driving. Usually taught by professional competition drivers, this involves increasing driving skill with the object of driving out of hazardous situations.

This paper is not concerned with basic training, but with (b) and (c) above.

STUDIES OF DRIVER EDUCATION

Many claims have been made for the success of (mainly American) high school programmes of driver education, in reducing the accident rates of successful participants. These claims have however been rejected by cynics who have pointed out that the courses were taken mainly by volunteers, who clearly had a prior interest in driving safely, and so might have had safer records, even without any assistance from education. Some driver education programmes have clearly not benefited their pupils. An evaluation[1] of an Advanced Driving School operating in Sydney found a greater number of traffic violations among graduates of the School, than in the general population of drivers. It was not known how many crashes they had.

In Britain, the Institute of Advanced Motorists selects for membership only those that pass a rigorous test. A study[2] of members in 1967 showed them to have 25 per cent fewer crashes over a 3 year period than those who failed

the test. It cannot however be concluded that such a test, if applied to all applicants for a licence, would be acceptable to the public, because only 49 per cent passed on the first or a later attempt. Moreover, applicants were probably more likely to pass than the general population because they included fewer young and old drivers, and fewer manual workers. Also, they had more driving experience and a history of fewer motoring offences. More to the point, the British study did not produce results that could be applied in developing a more suitable programme of tuition.

In Victoria, a study[3] was made of drivers attending an advanced driving training course. The authors said "that drivers voluntarily attending driver-improvement courses differ markedly in attitude and driving experience from drivers attending the course as a job requirement". These volunteers were rated "has having poor attitudes towards driving and had a higher accident involvement". The schools appeared to "collect aggressive drivers", and did not modify this aggressive behaviour.

An American study[4] was made in 27 States of the amount of driver education received by teenagers. Among 16 to 17 years old, driver education greatly increased the number of licensed drivers without decreasing the fatal crash involvement per 10,000 licensed drivers. Because 80 per cent of this age group would not have been licensed until age 18 or thereafter had there been no driver education in high schools, the net effect of driver education was a much higher death rate. At least 2000 fatal crashes per year were attributed to increased driving among 16 to 17 year olds associated with education programmes.

Their study emphasised the importance of delaying until as late as possible the age at which people drive or ride.

These results were consistent with a study[5] in England conducted by the University of Salford. It was concluded that driver education had no effect on the likelihood of an individual having a crash.

What the English did find was that the critical factors in increasing crash risk were exposure and experience. Crashes increased directly with

amount of exposure to risk and crashes decreased directly with amount of on-road experience.

Since increased experience cannot be gained without increasing exposure, it becomes largely a matter of luck that determines the individuals that gain experience without their increased risk actually leading to a crash.

Clearly however, "the survival of the fittest" operates too, and other things being equal, physical and mental fitness will play important roles in reducing risk.

THE POTENTIAL FOR EDUCATION

WHY DO CRASHES OCCUR?

The Unit's recent in-depth study[6] of crashes was mainly of motorcycle, truck and pedestrian crashes in both rural and urban areas. Cars frequently were, however, involved in collisions with these traffic units and with pedal cycles and buses. Factors that contributed to each crash were classified three ways:-

(a) The main contributing factors: the events that precipitated the crash and without which the crash would most likely not have occurred.

(b) Secondary contributing factors: the events that aggravated the pre-crash situation, making the crash more likely.

(c) Uncertain contributing factors: events the presence or contribution of which was in doubt.

Among the 243 crashes that were studied in great depth, 1639 contributing factors were identified. Some 460 of these were main factors. Of these, 401 were human behavioural factors, 38 involved traffic controls or conditions and 21 were vehicular (defects etc).

Among 865 secondary factors, 423 were human, 339 traffic and 103 vehicular, indicating greater contribution of environmental factors of

this level.

Among 314 doubtful factors, 201 were human, 49 traffic and 64 vehicular, reflecting the difficulty of isolating human factors.

These figures support the view that crashes happen, first because the human road user becomes involved in a situation which he can barely handle, and second because an inadequate environment (traffic controls and road and traffic conditions etc) greatly aggravates the problem of avoiding a crash.

CAN HUMAN PERFORMANCE BE IMPROVED?

The question as to whether human performance could be improved in order to reduce crash frequency, can be examined by looking at the categories of main contributing factors that were behavioural.

The most obvious groups consist of:-

(a) Unfamiliarity by the person in charge, with the particular vehicle he was operating, and

(b) Unfamiliarity by any road user with the particular traffic situation he had to deal with.

Considering vehicle unfamiliarity first: this was found to be a contributing factor in no truck crash, one motorcycle crash and no pedestrian collision. It is of course possible that if more car crashes had been studied, vehicle unfamiliarity would have appeared more often, but it has to be pointed out that 175 car drivers were involved in the truck, motorcycle and pedestrian crashes just mentioned.

Considering environment unfamiliarity, 1 truck crash, 2 motorcycle crashes, but no pedestrian collisions were involved. Thus, a total of only 4 of the 401 behavioural main factors involved unfamiliarity with vehicle or traffic environment.

Among the more doubtful topics for education, was the inability

to perceive that a hazardous situation was developing. This was recorded for 11 truck drivers, 5 motorcycle riders, 5 pedestrians and 30 other road users involved in these crashes.

Carelessness of various kinds was attributed to 9 truck drivers, 29 motorcyclists, 35 pedestrians and 65 others. In 13 cases the carelessness took the form of inadequate supervision of a child or infirm pedestrian. There were 14 cases of carelessness regarding travel speed.

Visual and hearing defects, and drug use (other than alcohol) were not often found to be factors in crashes.

There were various miscellaneous factors some of which might be susceptible to education, 4 attributed to truck drivers, 4 to motorcycle riders, 4 to pedestrians and 20 to others.

Clearly one must conclude that, although there may well be some scope for safety education, it would be unlikely to have much effect on crash frequency.

THE MOST FREQUENT HUMAN FACTORS

Finally, it is necessary to refer to the most frequent human factors, whether main or secondary.

A specific stressful condition such as "momentary distraction" was the most frequent one. This type of factor was a contributing one in about 13 per cent of each type of road user, whether truck or car driver, motorcycle rider or pedestrian.

A general stressful condition (allowing little capacity to handle emergencies) brought about by the person's general lifestyle or state of physical or mental health was found almost as frequently. It was found most among truck drivers (in 11 per cent for crashes involving trucks), compared with 6 per cent for all road users.

Inexperience was often a problem for motorcyclists (19 per cent), was rarely so with truck drivers (1 per cent) but was a factor for 10 per cent of all road users directly involved in crashes.

Alcohol was found a problem mostly among motorcyclists (in 12 per cent compared with 8 per cent in all crashes).

Fatigue (in 8 per cent) was mostly a problem for truck drivers, the average frequency for all road users being 2 per cent.

Once again, the reader has to be reminded that crashes involving cars but no other road user, were not covered by this study, so car drivers were under-represented.

CONCLUSIONS

1. The most frequent human factors found to have contributed to crashes were associated with general life style, health and attitude to the driving task. These have not been shown to be very amenable to treatment through safety education programmes.

2. It is important to isolate those few topics that might be suitable for education, and to develop suitable programmes.

3. More likely to succeed than driver education, in reducing crash frequency, is increasing attention to building a road environment that is suited to road users, of all types, having regard for the stressful or deprived conditions in which many people live and drive.

4. Some people may benefit from defensive driving courses. Certain other people probably drive more aggressively after taking particular kinds of advanced driving course.

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