NATIONAL COUNCIL FOR CURRICULUM AND ASSESSMENT


# DRIVER EDUCATION AND TRAINING IN POST-PRIMARY SCHOOLS

Ray Fuller and David Bonney

Department of Psychology
Trinity College, Dublin

# Table of Contents

# Acknowledgements

This study was initially prompted by a request from the former Minister for Education and Science, Dr. Michael Woods, to the National Council for Curriculum and Assessment (NCCA) to investigate driver education in post-primary schools. Accordingly, the NCCA set up a steering committee which, in conjunction with the Department of Psychology, Trinity College, Dublin, undertook to determine the extent of the implementation of driver education and training programmes in post-primary schools in Ireland. This project is thus consistent with the Government Strategy for Road Safety 1998-2002, *The road to safety*, not only in developing linkages for road safety research with third level institutions but in its commitment to the agreement of the Department of Education and Science that road safety merits an appropriate curricular intervention in post-primary education.

The authors have been assisted in the work of this project by several individuals, most notably (and in alphabetical order) Gerry Dempsey (IDEA Ltd), Joyce Kavanagh, Jim McAllister (Garda RSU), Jim McGuire (Garda RSU), James Mulcahy (NCCA), Monica Schaefer (IDEA Ltd) and Rosemary Smith, and by the NCCA Project Steering Committee, the NCCA administrative staff, and the many teachers who took the time and trouble to complete our questionnaires. Many thanks for your invaluable help. The views expressed in this report (and any errors) are, however, those of the authors.

# Executive summary

What has to be learned by a new driver?

- Safe and effective driving is a complex skill requiring extensive knowledge and practice and appropriate attitudes and values to sustain its continued execution. Drivers need to ensure that at all times the demands of the driving task do not exceed their capability.

What is currently being provided in Irish post-primary schools?

- 15.5% of Irish post-primary schools have some form of driver education programme and a majority of these include vehicle control skills. The programme is typically delivered in Transition Year.
- The principal aim of these programmes is *not* to offer a comprehensive driver education and training but to improve safety on the roads. This is reflected in the emphasis on theoretical course content (devised mainly by driving instructors) and the fact that on average only about 13 hours is devoted to each programme. Part of the NSC course *Staying Alive* is used by 40% of schools but only 10% include all of it. The Rosemary Smith one-day *Think Awareness* course constituted the entire programme for about 27% of schools.
- The main difficulties experienced in providing driver education in the school are cost and space, but, amongst schools that currently deliver a programme, there is considerable support for a post-primary module for all students in Transition Year.

What do we know about young drivers that has implications for their education and training?

- Generally, beginners have a higher accident risk (than more experienced drivers) and younger beginners have the highest risk.
- Beginners are less capable than experienced drivers and tend to drive under more demanding conditions as well as create more demanding conditions by their own actions (e.g., by driving fast).
- Irish male students typically have less positive attitudes to road safety than female students, and both groups are accepting of breaking the speed limit when it is perceived to be safe to do so.

What can we learn from education and training programmes elsewhere?

- In most EU countries – and in contrast to Ireland – teachers are the main providers of traffic safety education in post-primary schools. There is support for both theoretical content and training in real driving situations as the most adequate approach, although theoretical education is the most prevalent method used.
- There is evidence that very brief courses have little if any effect, and that more comprehensive programmes may be effective only for a limited period until they are 'overridden' by cumulative experience on the road. Inappropriate attitudes to safe roadway use appear to be formed well before a person starts driver training and may persist beyond that training.

A model of best practice in driver education and training

- There is a growing international consensus that driver education and training should be allied to a graduated licensing system. Graduated licensing is a system whereby a student passes through several stages at which the level of difficulty and the driver's responsibility increase in a carefully structured manner. The trainee is only permitted to have independent responsibility for a vehicle under the conditions for which s/he has demonstrated competence. Research indicates that graduated licensing systems can reduce novice driver accidents by up to 16%.
- A graduated licensing system ensures progressive mastery of knowledge and skills over an extended period, motivating practice and maintenance of safe driving skills and behaviour and providing opportunities for integration with other learning experiences. It is thus well-suited to integration, in a systematic way, with the post-primary school curriculum. This concept is already being developed in Ireland in the IDEA *Steer Clear* programme.
- Training components needed to achieve driver competence include practice and feedback in the development of control skills, learning and applying rules of the road, learning and applying appropriate procedural responses given particular situations, learning about hazards and their creation and avoidance, and learning about the behaviour of other road users.
- New drivers are particularly vulnerable to crash involvement during the first year as an unsupervised and independent driver. It is during this period that s/he learns much about the real contingencies of the road and traffic environment, and about the effects of their own decisions. This experience needs to be gained in a non-punishing way, and virtual reality simulation may offer a viable and cost-effective method for achieving this in the medium term. Mentored driving may support such learning in the immediate term.
- Education and training can deliver highly competent drivers, but this is not enough. Sustained acceptable road-user behaviour relies on the application of appropriate attitudes and values. Such attitudinal development may be assisted at post-primary level by educational components. These might include, for example, the NSC's *Staying Alive* programme, presentations by bodies such as the Garda

RSU, specialised drama groups, and so on. However, acquisition of appropriate attitudes and values cannot be left exclusively until the driver is ready to be trained, but must be integrated into a long-term curriculum reaching back to the person's initial roadway use and progressive socialisation.

# Introduction

Of the various elements of the built environment, perhaps the road and traffic system is our greatest failure. Worldwide it kills about half a million people every year. In Ireland it kills about 450 and injures perhaps 20,000 of whom almost 200 may be permanently disabled. From an ergonomic perspective, the design of the system poses unusual problems. In particular, it has to take account of the spectrum of potential users, from the very young through to the elderly, from the pedestrian and cyclist through to the 35-ton articulated truck. Safe, effective and efficient use of the system has to be regulated: standard rules and procedures are required for its operation and so prospective users have a need for knowledge and skills and, therefore, education and training. But irrespective of the level of knowledge and skill acquired, performance in the system is vulnerable to a host of influences, such as alcohol and information overload, which can seriously undermine it. Collectively these are labelled human factors. Finally there is the question of the road user's motivation to comply with the regulations governing roadway use: violations are common and some of these can have serious consequences for system safety and efficiency.

Because of this multifaceted nature of the design problem in engendering a safe, effective and efficient road and traffic system, we have traditionally tackled it from three perspectives: the three Es of Education, Engineering and Enforcement. Education is concerned with developing appropriate knowledge and skills in using the regulated system, and along with this the development of appropriate attitudes regarding system use. These attitudes relate to a sense of personal responsibility in roadway use and cultural values such as care, courtesy and consideration for others. Engineering is concerned with the physical design of the system to enable mobility goals, whilst being compatible with human limitations. Enforcement is concerned with motivating compliance with system regulations. Clearly all three elements are vital and should be designed and implemented to be consistent with each other.

Politically, the constraints on system development, particularly with regard to safe system operation, have both economic and psychological dimensions. Economically, development will depend on the value placed on a human life and injury-avoidance relative to the costs of further investment in safety or of loss of mobility. Psychologically, it will depend on basic values regarding our expectations of the road and traffic system and of our quality of life. These latter considerations are also a function of learning and may be construed as a further goal of the education system (European Road Safety Federation, 1996).

Young adults aged between 17 and 24 are a particularly vulnerable group of road users because they are in transition from being motorised vehicle passengers to motorised vehicle drivers. Young car drivers are five times more likely to be involved in collisions than older groups, and young motorcyclists are twenty times more likely. Road accidents form the largest category of deaths in this age group. Clearly the system is failing this age group, whether it be in education and training, in engineering or enforcement, or in some combination of these. One aim of this review is to investigate one of these elements, the

role of education and training and with particular reference to car driving. The aim is to examine specifically the role and potential role of the post-primary education system in the development of driver knowledge, skills and attitudes. This will include the identification of a model of best practice for such development and recommendations for the implementation of this model in post-primary schools.

## The current involvement of the post-primary education system in the development of driver knowledge, skills and attitudes

In order to determine the extent and nature of driver training and education currently being delivered in Irish post-primary schools, it was decided to employ a two-stage approach. In stage one, a brief questionnaire, simply enquiring whether or not schools were involved in driver education and training over the previous 12 months, was devised and refined through a series of iterations (see Appendix 1), and distributed by mail to all 748 post-primary schools on the NCCA register. Of these, 581 responded by returning the questionnaire and 162 responded via a follow-up telephone call. Thus the final sample of 743 schools represented 99.3% of the post-primary school population.

In stage two, a detailed questionnaire was devised to explore various aspects of the driver education and training programmes currently being delivered in the schools that indicated in the preliminary questionnaire that they had a programme. The questionnaire included elements concerning programme content, characteristics of the staff involved and of participating students, programme evaluation, and views on the desirability of a post-primary module for driver education. The initial version of the questionnaire was piloted through a number of schools and expert opinion was sought from three reviewers, resulting in a refined version which is presented in Appendix 2. This was distributed by mail to all schools that had reported having a driver education programme in the previous 12 months. Three weeks after the mail shot, all schools that had not responded were prompted by a telephone call. The final sample obtained was 50 schools, or 43.5% of schools that had previously reported having a driver education programme.

### Results from the preliminary questionnaire

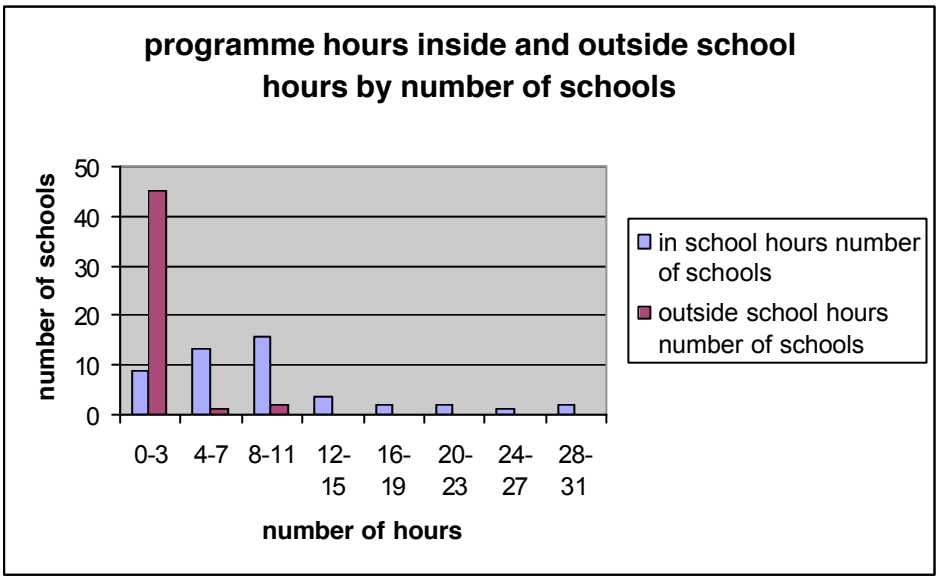
Of the schools sampled, 115, or 15.5%, reported that they had some form of driver education programme and 85 schools (11%) said this included vehicle control skills. It may be noted that 34 schools (4.5%) indicated that they currently had no programme of driver education but were intending to bring one in over the next 12 months. Two schools reported that they had discontinued their driver education programme because there was an insufficient number of students.

## Results from the detailed questionnaire

The analysis which follows assumes that the schools responding are representative of all schools with a driver education programme. Percentage values with decimal places are rounded up according to the normal convention of (>/= 0.5) = (1.0).

**Driver education programme delivery and content**
The most frequently stated main aim of a school's driver education programme was *to improve safety on the roads* (78%), followed by *to improve road skills* (42%). Eleven per cent of schools included as a main aim *to pass elements of driver assessment* and *to develop general life skills* (e.g., of taking responsibility). In most schools (88%), all of the programme was delivered within school hours but in a few a part was delivered outside of school hours: (Figure 1)

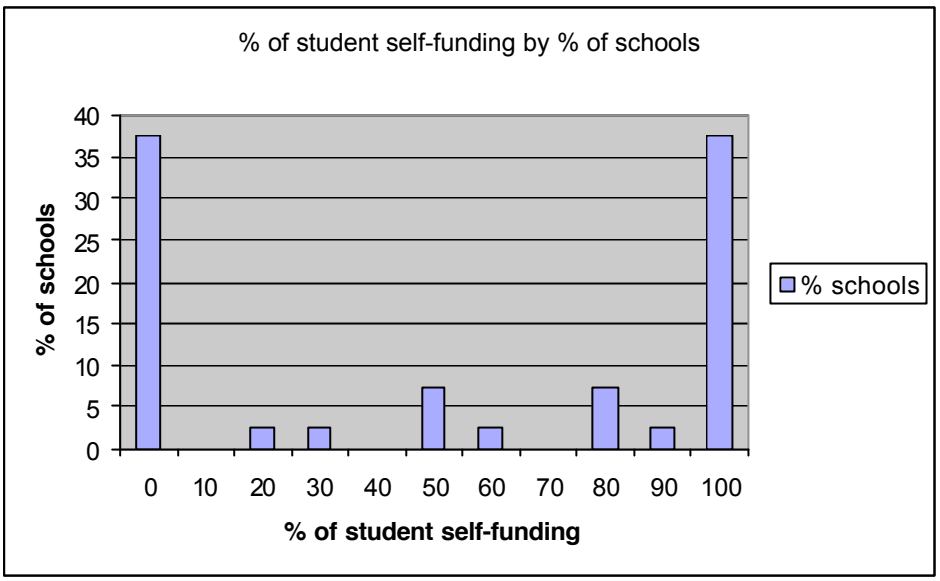
Figure 1




Typically the programme was not integrated with other subjects (92% of schools), but three schools mentioned integration with Business Studies, Physics and SPHE.

With regard to the funding of driver education programmes, schools tended to fall into one of two camps – either the students self-funded all of it, or the school funded all of it. (Figure 2)

Figure 2




Course content was mainly devised by driving school instructors (83% of schools), although in 28% of schools teachers performed this function. In one school course content was determined by gardai. Ten per cent of schools included in their programme all of the National Safety Council course *Staying Alive* (see Appendix 3), 40% included part of this course and 50% did not include any of it. For 34% of schools, their programme incorporated the *Think Awareness* course run by Rosemary Smith (see Appendix 4). For about 80% of these, the *Think Awareness* course constituted their entire programme. The majority of courses were evenly divided between practical training and theoretical content, although 19% were entirely theoretical and 2% entirely practical. (Figure 3)

Table 1 shows the percentage of schools which included particular components in their programme, the average amount of time given to each component, and the assessment methods used.

Over 70% of schools covered road safety from the perspective of other road users, driver attitudes, driver theory, hazard recognition, legal requirements, and theoretical and practical vehicle control skills. About half included accident and emergency procedures and basic vehicle mechanics, and a small number (9%) covered the wider issue of road transport and society. Most course components received on average between one and two hours of treatment although practical vehicle control skills received 5 hours on average. One exceptional school provided 40 hours on this component. Hands-on experience involved real car driving exclusively in 82% of the sample but some simulated driving was available in 13%. This was all that was available in one school.

Figure 3

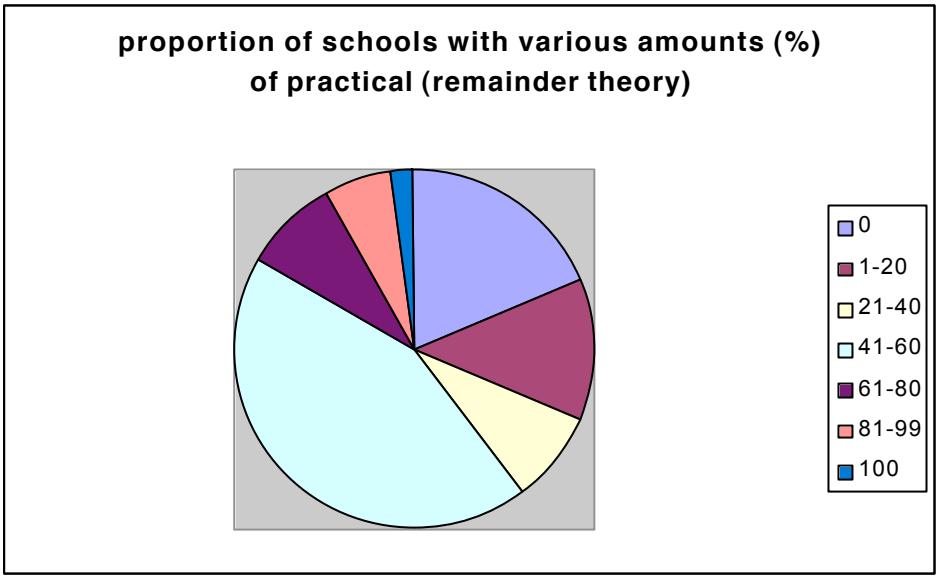



Table 1. Elements of driver education programmes: prevalence, duration and assessment

| Elements of the programme of driver education | % schools including component | Average (sd) hours given to component | How component was assessed (% of schools) | | |
|---|---|---|---|---|---|
| | | | written exam | oral exam | driving/ road test |
| Vehicle control skills (practical hands-on or simulated driving) | 79 | 5.0 (10.6) | 15 | - | 85 |
| Theoretical vehicle control skills | 72 | 1.4 (1.1) | 80 | 16 | 5 |
| Legal requirements of motoring (e.g. licensing, insurance, taxation) | 83 | 1.0 (0.6) | 91 | 10 | - |
| Driver attitudes | 91 | 1.2 (0.8) | 85 | 15 | - |
| Driver theory (incl. Rules of the Road) | 91 | 2.8 (2.0) | 95 | 5 | - |
| Road transport and society (incl. economics of motoring) | 9 | 1.0 (0.0) | 100 | - | - |
| Accident and emergency procedures | 53 | 1.2 (0.8) | 88 | 13 | - |
| Motor vehicle basic mechanics (incl. car safety maintenance) | 53 | 1.8 (1.6) | 100 | - | - |
| Hazard recognition and coping (incl. 'reading the road', speeding) | 83 | 1.8 (1.6) | 79 | 16 | 5 |
| Road safety from viewpoint of other road users (e.g. pedestrians, cyclists, truck drivers, motorcyclists) | 94 | 1.7 (1.2) | 84 | 11 | 5 |

About half of schools delivered hands-on vehicle control training on an individual basis and about half in groups. Many schools required completion of particular theoretical elements before students could progress to practical vehicle control skills. These mainly included theoretical control skills (63%), legal requirements (50%), driver attitudes

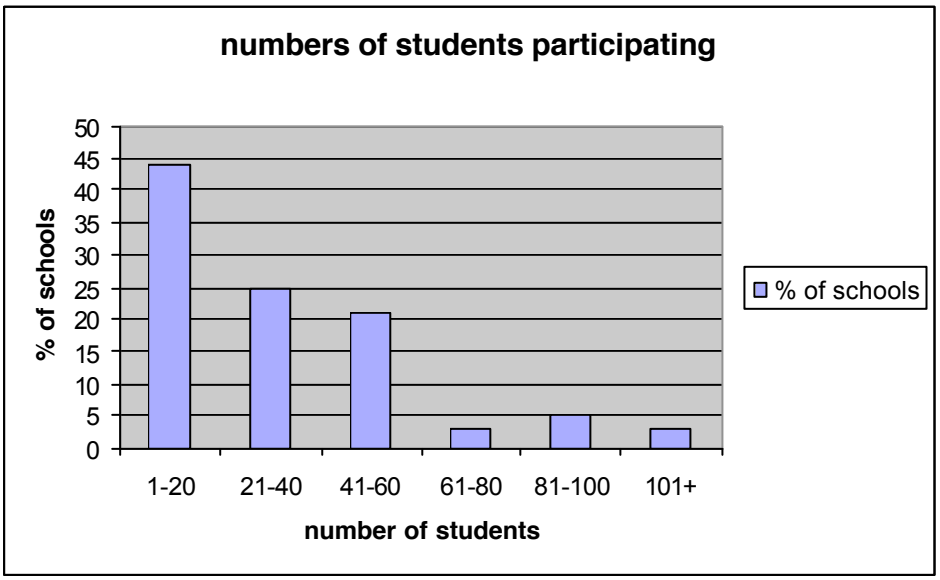
(45%), and driver theory (37%). The average amount of time devoted to theoretical elements was about 8 hours (sd = 6.0 hours). Apart from vehicle control skills, assessment was mainly by written examination. The most important assessment of programme outcome was also written examination (33% of schools), followed by oral examination and the theory test (both 21%). An actual driving test was the most important assessment in 26% of schools.

Teaching methods employed in programme delivery were mainly classroom teaching (88% of schools) and hands-on experience of driving (77% of schools). Driving simulation and role-play were highlighted by only 3 and 2 schools respectively. Video materials were used in 82% of schools, guest expert lecturers in 66%, demonstrations in 50%, and photographs in 48%. Quizzes, slides and project work were used in between 11% and 18% of schools, and three schools actually employed sample theory tests.

**Characteristics of student participants**

The number of students participating in driver education programmes is indicated in Figure 4. The modal number is 25 with a range of from 3 to 150. Nine single-sex girls' schools and 8 single-sex boys' schools have driver education programmes. The ratio of participants in mixed schools is 3:2 in favour of boys. Ages range from 15 through to 18 with transition year being the age requirement for 86% of schools. Indeed, driver education is implemented as part of the transition year programme in the vast majority of schools (83%). In 93% of schools there are no criteria which students must meet in order to participate, although a small number (7%) do impose criteria. These include owning a provisional license to drive, meeting academic and behavioural criteria, having financial support, and obtaining study materials. In 13% of schools students with relevant learning or physical disabilities are not able to participate.

Figure 4

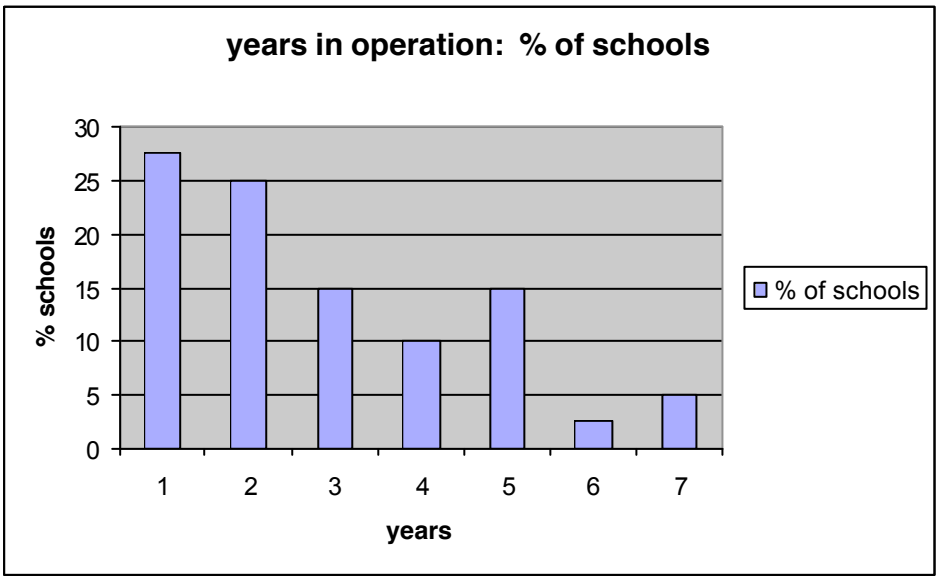


**Staff contributing to the driver education programme**
In 89% of schools with a driver education programme one member of staff oversees and organises all aspects of the programme. Nevertheless, in 64% of schools all of the programme content is contributed by one or more external agencies. In only 17% of schools is the entire programme contributed by school staff. The most frequent contributors to programmes are driving instructors (87% of schools), followed by teachers (21%), gardai (13%), and, in two schools, a 'theory instructor'. Typically no training in driver education is offered to teachers of the course (in 91% of schools), although one school offers initial and follow-up training.

The number of years experience in teaching and instructing of the various contributors to programmes varied markedly. The modal value for driving instructors, for example, was 20 years, with a range from 3 to 25 years. For teachers the mode was 15 years, with a range from 0 to 30 years and for gardai the mode was 20 years, with a range from 15 to 25 years. Driving instructors typically taught all elements of the programme, including practical vehicle control skills, in 62% of schools. In schools where teachers contributed most of the programme content, the emphasis tended to be on elements of driver theory and rules, legal requirements, road safety from the perspective of other road users, driver attitudes, the *Staying Alive* course, hazard recognition, and basic mechanics and maintenance. Where gardai were involved, they tended to cover similar topics, but their proportional contribution to the programme would be about 13% typically (range 5 to 20%).

**Evaluation of driver education programmes**
In 2 schools the driver education programme had been in place for seven years, although the modal 'age' of courses was 2 years (range 1-7 years). Details for the sample responding on this issue are presented in Figure 5.

Figure 5



The majority of driver education programmes (80%) were introduced because of teacher concerns for student road safety. Requests from students themselves prompted the introduction of 30% of programmes and from parents 8% of programmes. A concern to develop general life skills stimulated 18% of programmes.

The main difficulties experienced in providing driver education in the school are listed in Table 2 below. Cost (76% of schools), space (43%) and insurance provision (32%) clearly dominate here, although available time is an issue for 27% of schools.

Table 2. Difficulties experienced in providing driver education

| type of difficulty | % of schools |
|---|---|
| cost | 76 |
| space | 43 |
| insurance provision | 32 |
| time | 27 |
| staffing | 11 |
| organisation | 5 |
| obtaining provisional licenses | 5 |
| motivating students | 5 |
| assessment | 3 |

Although 92% of schools consider periodic assessment of programme content is necessary, this is carried out in only 45% of schools, of which most (94%) do so on an annual basis. Main concerns arising in programme assessment have been programme content, cost and teaching methods (all in 38% of schools), and evaluation of the benefit to students (31%). Other concerns have included time (25%), student enjoyment and resource requirements (both 13%), and extending student participation (6%).

The theoretical content of programmes is rated as being 'very important' by 88% of schools, whereas training in real traffic situations is similarly rated by 64% of schools and training in a simulated situation by 46% of schools. Furthermore, 14% and 17% of schools respectively consider training in real or simulated situations 'not at all important'. Elements of their programmes which schools considered to be particularly successful, are presented in Table 3. Practical and theoretical vehicle control skills, driver theory, rules of the road, and driver attitudes stand out here, although 27% of schools said all elements were particularly successful. Content elements that schools thought could be improved were mainly practical and theoretical vehicle control kills (43% and 21% of schools respectively) and driver theory and rules of the road (18%). Other frequently identified aspects for improvement were timetabling (21%) and investment (14%).

Table 3. Particularly successful programme elements

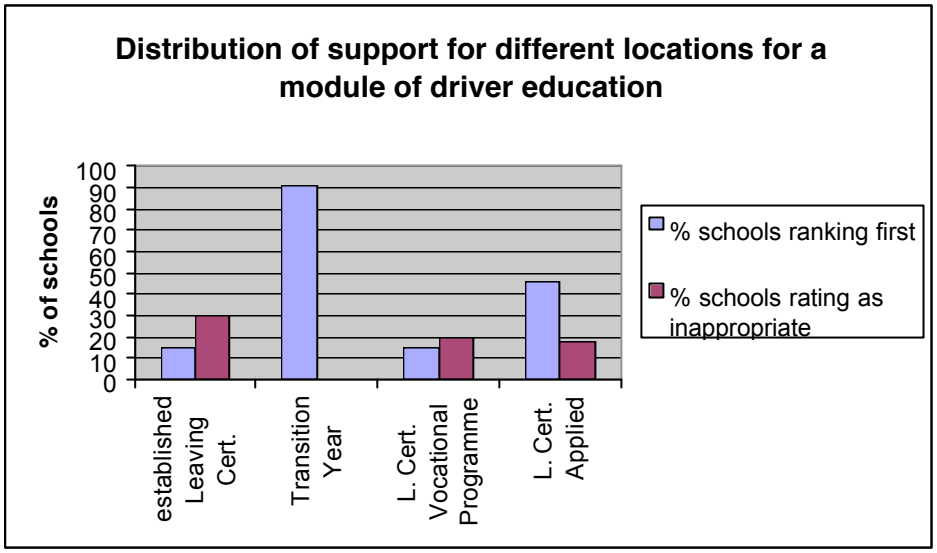
| element | % of schools |
|---|---|
| practical vehicle control skills | 40 |
| driver attitudes | 27 |
| all elements | 27 |
| driver theory and rules of the road | 23 |
| theoretical vehicle control skills | 20 |
| hazard recognition | 13 |
| road safety from viewpoint of others | 10 |
| road transport and society | 7 |
| accident and emergency procedures | 7 |
| garda visits | 7 |
| teaching | 7 |
| legal requirements | 3 |
| mechanics and maintenance | 3 |
| video work and projects | 3 |

Schools are very positive in their assessment of the degree of success of their programmes in improving students' knowledge, attitudes and driving skills. The median proportion of students thought to have improved was 100% on all three dimensions. Eighty three per cent of schools considered their students would be safer drivers and 80% that they would be more courteous, caring and considerate in their driving. Sixty three per cent reckoned they would be more skilful, and a half considered the course would enable the student to take the driving test. Forty percent said the course would enable them to pass it. Thirty-eight percent considered the course enabled students to drive earlier and 80% that the course would not generate any problems. However, 2 schools thought their programme might make students want to drive earlier than the legal limit and 3 that students might be motivated to drive before they could afford insurance. In general though, driver education is positively evaluated by the students and their parents in the vast majority of schools (92% and 97% respectively).

**Attitudes to the development of a post-primary module for driver education**

Ninety percent of schools responded that a post-primary module of driver education for all students would be desirable. The 10% against this indicated problems of practicability, lack of available time in the curriculum, and desirability of minimum age restrictions. The potential disadvantages of such a module, from the perspective of those in favour of it, also included the lack of available time in the curriculum (44%) and high cost (16%). Suggestions as to where such a module might be located are presented in Figure 6 below.

Figure 6




It is very clear from Figure 6 that there is overwhelming support for the location of a module for driver education in the Transition Year, and no school considers this an inappropriate location. However, many schools indicated more than one 'best location' for such a module.

## Summary of questionnaire survey results

**Prevalence of driver education programmes**

- Seven hundred and forty three schools representing 99.3% of the post-primary school population responded to a preliminary questionnaire. One hundred and fifteen schools, or 15.5%, reported that they had some form of driver education programme, and 85 schools (11%) said that this included vehicle control skills. Thirty four schools (4.5%) indicated that they had no programme of driver education but were intending to introduce one over the next 12 months.
- Fifty schools, or 43.5% of schools that had previously reported having a driver education programme, responded to an extensive questionnaire concerning their programme.

**Driver education programme delivery and content**

- The most frequently stated main aim of a school's driver education programme was *to improve safety on the roads* (78%).
- For most schools (88%), all of the programme was delivered within school hours. Typically the programme was not integrated with other subjects (92% of schools).

- Programmes were equally divided between self-funding by students and funding by the school.
- Course content was mainly devised by driving school instructors (83% of schools). The majority of courses were evenly divided between practical training and theoretical content. Over 70% of schools covered road safety from the perspective of other road users, driver attitudes, driver theory, hazard recognition, legal requirements, and theoretical and practical vehicle control skills.
- Ten percent of schools included in their programme all of the National Safety Council course *Staying Alive* (see Appendix 3); 40% included part of this course.
- For 34% of schools, their programme incorporated the *Think Awareness* course run by Rosemary Smith. For about 80% of these (i.e. 27% of schools), the *Think Awareness* course constituted their entire programme.
- The average amount of time devoted to theoretical elements was about 8 hours (sd = 6.0 hours). Apart from vehicle control skills, assessment was mainly by written examination.
- Teaching methods employed in programme delivery were mainly classroom teaching (88% of schools) and hands-on experience of driving (77% of schools). Video materials were used in 82% of schools and guest expert lecturers in 66%.

**Characteristics of student participants**

- The modal number of students participating in driver education programmes is 25 with a range of from 3 to 150.
- Driver education is implemented as part of the transition year programme in the vast majority of schools (83%).
- In 93% of schools there are no criteria which students must meet in order to participate.

**Staff contributing to the driver education programme**

- In 89% of schools, one member of staff oversees and organises all aspects of the programme.
- In 64% of schools, all of the programme content is contributed by one or more external agencies.
- In only 17% of schools is the entire programme contributed by school staff.
- The most frequent contributors to programmes are driving instructors (87% of schools), who generally taught all elements of the programme, including practical vehicle control skills.
- In schools where teachers contributed most of programme, the emphasis tended to be on theoretical content and attitude formation.
- Typically, no training in driver education is offered to teachers of the course (91% of schools).

**Evaluation of driver education programmes**

- The modal 'age' of courses was 2 years (range 1-7 years).
- The majority of driver education programmes (80%) were introduced because of teacher concerns for student road safety.

- The main difficulties experienced in providing driver education in the school are cost (76% of schools), space (43%), and insurance provision (32%).
- Although 92% of schools consider periodic evaluation of programme content is necessary, this is carried out in only 45% of schools, and typically on an annual basis.
- The theoretical content of programmes is rated as being 'very important' by 88% of schools.
- Training in real traffic situations is rated as being 'very important' by 64% of schools.
- Schools are very positive in their assessment of the degree of success of their programmes in improving students' knowledge, attitudes and driving skills.
- Eighty three percent of schools considered their students would be safer drivers and 80% that they would be more courteous, caring and considerate in their driving. Sixty three percent reckoned they would be more skilful.
- Fifty percent of schools considered the course would enable the student to take the driving test, and 40% said the course would enable them to pass it.
- Eighty percent of schools said that the course would not generate any problems.
- Driver education is positively evaluated by the students and their parents in the vast majority of schools (92% and 97% respectively).

**Attitudes to the development of a post-primary module for driver education**

- Ninety percent of schools responded that a post-primary module of driver education for all students would be desirable.
- There is overwhelming support for the location of a module for driver education in the Transition Year.

# The potential role of the post-primary education system in the development of driver knowledge, skills and attitudes

## Driver education and training: what is it that has to be learned and developed?

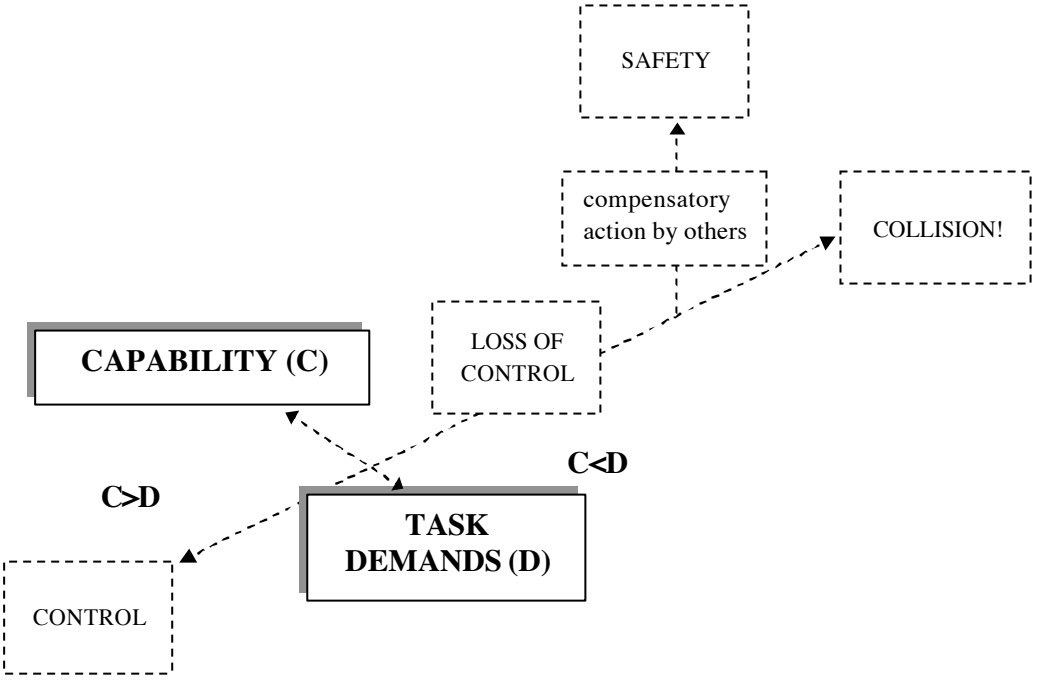
The driver's task is to control a vehicle in an effective and safe manner while satisfying some mobility goal. Effectiveness clearly involves mastery of vehicle controls and understanding of various sources of information provided by the vehicle instrumentation. Safety involves the application of an extensive range of knowledge that includes:

- the rules and regulations which orchestrate roadway use
- how to interpret the instructions and information provided by the road system (e.g., signs, signals, roadway markings)
- procedural knowledge defining what to do under what circumstances (conditional rules)
- recognition and avoidance of hazards
- the factors that can undermine performance
- understanding and predicting the behaviour of other road users (involving a representation of the dynamics of road and traffic scenarios which enable prediction of how those scenarios will develop immediately ahead of the driver).

Mastery of these core elements, however, is not of itself enough to ensure effective and safe behaviour on the road. What is also needed is the motivation to apply the skills of vehicle control and knowledge as described and to comply not only with the formal rules and regulations but with a culturally determined value of giving consideration to other road users (care and courtesy). The roadway is, apart from anything else, a social environment and, just as in any other social environment, a code of socially acceptable behaviour applies. Thus, in sum, effective and safe driving requires appropriate skills, knowledge and attitudes.

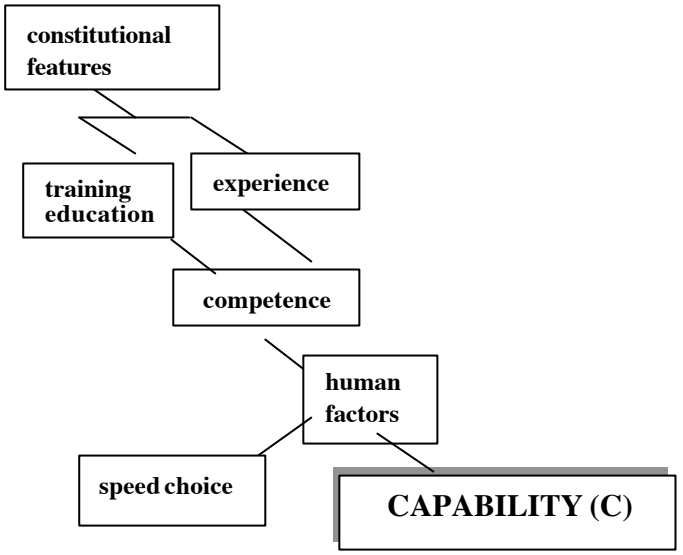
It is perhaps useful at this point to understand more clearly how safety fails in the road and traffic system and how accidents occur. To do this we shall refer to a recently developed conceptual model known as the Task-Capability Interface model (Fuller, 2000). In this model task difficulty arises out of the dynamic interaction or interface between the demands of the driving task and the capability of the driver. Where capability exceeds demand, the task is easy. Where capability equals demand, the driver is operating at the limits of his/her capability and the task is difficult. Where capability is less than demand, then the task is by definition just too difficult and the driver fails at the task and loses control, and this perhaps leads to a collision or the vehicle running off the roadway. Sometimes the actions of another road user can rescue the situation from imminent catastrophe, when, for example, a pedestrian, about to be hit, leaps out of the path of the out-of-control vehicle. In such an instance the pedestrian has effectively changed the task demand at the very last moment (see Figure 7).

Figure 7. Possible outcomes from the interface between task demands and driver capability




Let us explore this model further by unpacking the elements of driver capability on the one hand and task demands on the other. Driver capability is initially limited by biological characteristics of the driver, constraints associated with, for example, sensory and perceptual processing, information processing capacity and speed, reaction times, physical reach, motor coordination, and perhaps flexibility and strength. Interacting with these cha racteristics are knowledge and skills arising out of training and experience. Such knowledge includes, as briefly described earlier, formal elements such as rules of the road, procedural knowledge defining what to do under what circumstances (conditional rules), and a representation of the dynamics of road and traffic scenarios which enable prediction of how those scenarios will develop (akin to an internalized mental video which runs on ahead of the immediately-observed situation). Skills include control skills associated with basic vehicle control as well as handling skills in challenging circumstances such as skidding. Together, these biological characteristics and characteristics acquired through training and experience determine the upper limit of the driver's competence. However, this competence is not necessarily what is available or delivered at any moment in time, because capability is vulnerable to a host of variables which we might label collectively as human factors. These include attitude, motivation, fatigue, drowsiness, time-of-day, drugs, distraction, emotion (such as anger and aggression), and stress. Any of these can detract from driver competence to yield a level of capability at a somewhat lower level (see Figure 8).

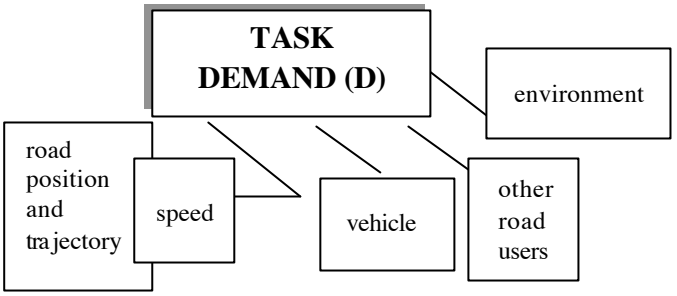
Figure 8. Determinants of driver capability




There is, of course, even a biologically-determined limit to which maximum effort can be sustained when attempting to perform at the upper limit of one's competence. Another set of human factor variables relate to motivation for speed and therefore have an effect not so much on driver capability but rather on the demand level of the driving task.

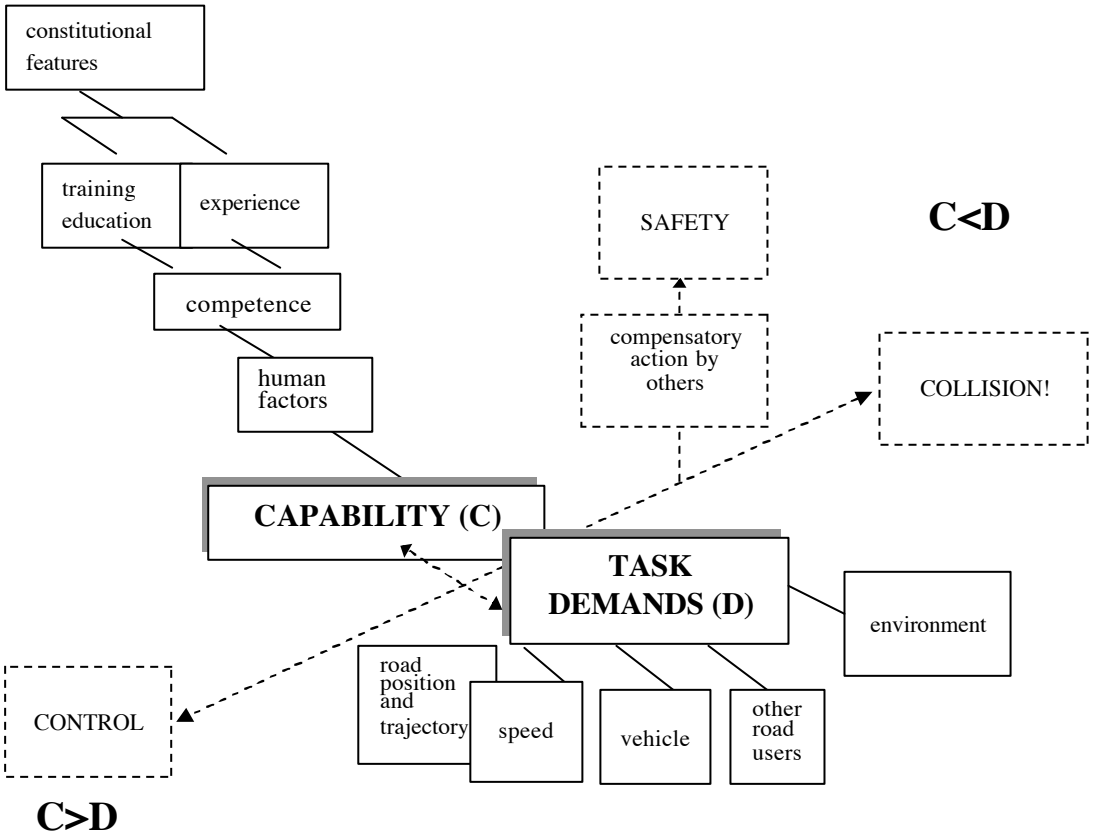
Driving task demands are determined by a plethora of interacting elements (see Figure 9 below). There are environmental factors such as visibility, road alignment, road marking, road signs, signals, road surfaces, curve camber angles, and so on. There are other road users with various properties occupying, or with the potential of imminently occupying, critical areas in the projected path of the driver. There are the operational features of the vehicle being driven, such as its information display characteristics, control characteristics of steering, braking and accelerating, and its capability to provide roa dway illumination in dark conditions. Added to all of these, are elements of task difficulty over which the driver has immediate and direct control, namely the vehicle's trajectory and speed. Of these speed is clearly the most significant factor. It is self-evident that the faster a driver travels, the less time is available to take information in, to process it and to respond to it. Driving is often described as a self-paced activity, and this means that in the last analysis driving task demand and ultimately driving task difficulty are under the control of the driver. (One rare exception to this rule is where a minimum speed is required over a road section.)

Figure 9. Contributing factors to demands on the driver




Putting all of these general features of the determinants of task difficulty together we arrive at the model presented in Figure 10, the Task-Capability Interface Model. The elements of the model interact to determine task difficulty and the outcome for the driver, in terms of whether or not control is maintained or lost.

Figure 10. The Task-Capability Interface Model



Given this exposition, we can begin to appreciate the sheer complexity of what makes for a safe and effective driver and the enormous challenge that any comprehensive driver education and training programme faces. New drivers are especially vulnerable because, on the one hand, they have relatively low levels of capablity and, on the other, they are prone to create a high level of task difficulty by driving too fast for the prevailing conditions. To assist in facing this challenge, however, we do know quite a lot at this stage about young driver characteristics and what implications these have for the design of any education and training programme.

## What characteristics of young drivers have implications for the timing and content of a driver education and training syllabus?

**Effects of age**

All age groups of novice drivers have a higher involvement in culpable accidents, although the youngest novice drivers have the highest initial accident involvement. Maycock, Lockwood and Lester (1991) found that the initial risk during the first few years decreased by 59% due to experience and 31% due to age factors, which are more important in the lower age groups. Thus all beginners have a higher accident risk and younger beginners the highest (see brief review by Gregersen, 1997). However this age effect is not a necessary consequence of the introduction of earlier driver training. Gregersen (op. cit.) reports preliminary results from a study of a new Swedish licensing system which reduced the age of possibility to practice driving from $17^1/_2$ to 16 years. This system enabled 16 year olds to take to the wheel if they

- had a satisfactory health declaration and eye test
- had no police record
- were accompanied by an instructor (lay or professional) of at least 24 years with minimum 5 years continuous license.

If these conditions were met, both the driver and instructor were given written permission which had to be kept in the vehicle during all practice sessions. A structured training curriculum was prescribed but the only mandatory element was a half-day of training on low friction road surface driving. Gregersen found that prior to the driving test, drivers who started at 16 (n = 172,000) had accumulated on average about 120 hours experience compared with drivers starting at $17^1/_2$ (n = 120,000) who had accumulated only 41 hours. However the total number and severity of accidents was virtually identical between the two groups, yielding an accident rate per unit time of exposure four times higher in the older group. Thus starting driving at age 16 years did not result in any more accidents before obtaining a license than starting at $17^1/_2$ years. Whether or not this earlier introduction to driver training, which provides for more extensive supervised experience, produces safer drivers subsequent to obtaining a full license, remains to be determined.

**Young driver behaviour on the road**

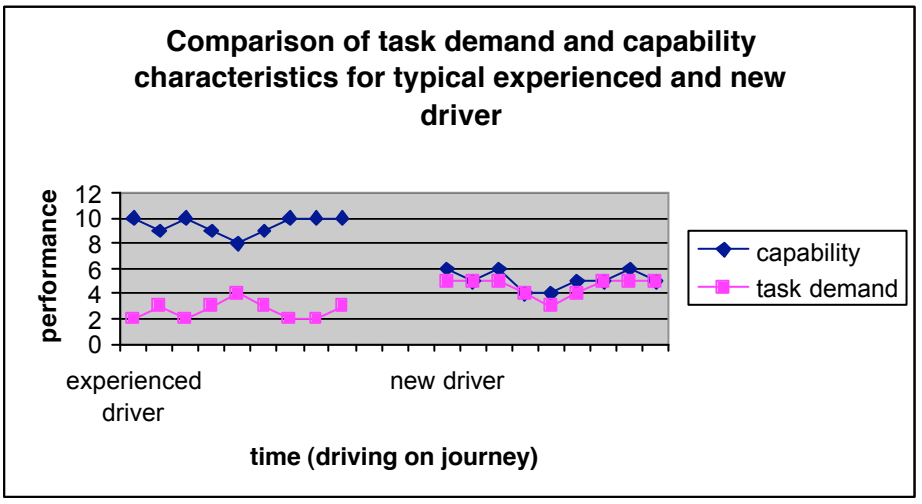
The increased risk of most novice drivers comes from inappropriate behaviour - taking risky actions either deliberately or without appreciating the actual risk involved. Research

results are reviewed in a number of publications (for example, AAA, 1995; Fuller, 2002) and may be summarised here as follows. Compared to more experienced drivers, young drivers

1. include a sub-group of high-risk lifestyle individuals (about 10% of young male drivers)
2. tend to drive under more vulnerable conditions
3. are subject to peer pressures to adopt high-risk driving styles
4. overestimate their ability to drive safely (especially young male drivers)
5. are poor at hazard recognition
6. are prone to drive too fast for the prevailing conditions
7. follow other vehicles too closely
8. run amber lights more
9. accept smaller gaps in traffic
10. generally allow less of a safety margin while driving.

If we refer back to the Task-Capability Interface Model and the significance of the discrepancy between task demand and capability we see that young drivers are challenged from both sides of the interface: they have relatively reduced capability (4 and 5 above) and yet they tend to drive under conditions of higher task demand (2, 3, 6-10 above). We can represent these differences between new and experienced drivers schematically as in Figure 11. It is no wonder, then, that new drivers are disproportionately involved in collisions.

Figure 11



In addition, as discussed extensively by Fuller (2002), when it comes to learning through direct experience of road and traffic conditions, the inexperienced driver is further handicapped by

- inadequate exposure to the contingencies of safe driving
- discrepancies between experienced contingencies and contingencies as represented in learned 'rules of the road'
- few opportunities to learn directly the relationships between low probability events
- the reinforcement of unsafe driving behaviour and the punishment or at least non-reinforcement of safe driving behaviour.

Despite this somewhat dismal situation for the novice driver, it may be noted that all of the characteristics noted above are in principle open to influence through education and training, in particular elements 2-10 (p. 25). In addition, the provision of direct experience of road and traffic conditions in a safe environment with monitoring and feedback can be provided through extensive mentoring by an accompanied driver, and perhaps in the near future, and more effectively, through the application of structured training on a virtual reality simulator.

**Young driver attitudes**
A recent study of over 500 post-primary students in Ireland (O'Brien, Rooney and Fuller, 2001) with a sample mean age of 16 years revealed that, in the main, attitudes to roadway use were safety oriented. Nevertheless, two consistent features emerged with direct relevance to the design of education and training measures. Firstly, males typically demonstrated significantly less positive attitudes than females. In all gender comparisons were there was a significant difference between females and males, the males scoring lower on positive safety attitude. Secondly, both sexes were accepting of breaking the speed limit where it was perceived to be safe to do so. Consistent with this is the result of a study in the US by Laframboise (1998) who found that highest risk attitudes amongst 15-17 year old students undertaking a driver education programme related to speeding.

## What has been done in post-primary schools and with what results?

**Survey for the European Road Safety Federation (1996)**
In 1996, the European Road Safety Federation published results from a questionnaire on School Traffic Safety Education (STSE) completed by 32 designated road safety organisations in 15 European countries. Main findings pertaining to the 14-18 years age group are summarised below.

- The opinion of respondents from 12 EU countries was equally divided between theoretical and training in real driving situations as the most adequate approach to School Traffic Safety Education (STSE). Nine out of 11 countries rated training in simulated situations as second most adequate.

- The methods used in a sample of 13 EU countries included: theoretical information, group work, dramatization, simulations, pedagogical games, discussions, outdoor training, and training in real traffic. However theoretical information was the most prevalent method in 11 countries.
- There is no clear pattern indicating a consensus on what content is focused on in STSE. Materials used emphasise books/brochures and videos.
- In 9 out of 12 EU countries teachers are the main providers of STSE, although police (10 countries), safety experts (8 countries), local authorities (4 countries), automobile clubs (2 countries), traffic victims (1 country), and driving instructors (1 country) are also used. In the 12 EU countries sampled, STSE training is an element of basic teacher training in only 3 countries and of subsequent training in only 4 countries. Lack of or insufficient preparation of teachers was most frequently rated as the main problem of STSE.
- In no country (11 out of 11) was there a periodic evaluation of the curriculum.
- Extra-curricular driver instruction was given for moped riders in 8 out of 12 countries, for car drivers in 5 out of 12 countries and for motorcyclists in 4 out of 12 countries. This instruction is typically more comprehensive both theoretically and practically, and is also likely to be given by professional driving instructors as well as teachers. Both theory and practice are likely to be assessed. Success at the final examination confers a legal license for moped riders in 5 out of 10 countries, for car drivers in only 2 out of 5 and for motorcyclists in 1 out of 4 countries.
- In most EU countries sampled, STSE takes place in the context of various local and national safety campaigns targeted at the young adult group.

The authors of the report recommended that

- STSE should be compulsory, follow a defined curriculum with a minimum number of hours, include training in real traffic situations, and be periodically reviewed
- STSE teachers should be adequately trained and rewarded
- STSE should be a single subject or delivered in a multidisciplinary approach across several curricular subjects
- STSE for moped riders should be provided as an extracurricular course which includes both theory and practice and which leads to the legal license examination.

**Some key international studies of the effects of different kinds of driver education and training**

There is an extensive literature on the effects of various kinds of training intervention for drivers which take place outside of the school context. In many respects this evidence is not relevant to the issue under consideration here. However a small number of studies are useful because of the insight they can provide for driver education for school-age students.

Carcary (2002) recently reported a series of studies carried out in Scotland in which 451 new drivers aged between 17 and 21 were assigned to a pre-driver training programme, a

post-test programme, or a non-intervention control group. Both programmes were classroom-based and lasted for one afternoon. Topics covered in the pre-driver education programme were based on a review of available pre-driver training materials and a consultative process with road safety practitioners throughout Scotland. These topics included

- attitudes, pressures and social standards
- speeding
- violations
- drink, drugs, fatigue
- social issues
- Highway Code
- roadcraft
- vehicle maintenance
- motor insurance
- post-accident procedures.

Given the short duration of the pre-driving training intervention, it is perhaps not surprising that, at 3 and 9 months after the drivers had taken their driving test, Carcary found no effect on self-reported attitudes to driving violations, knowledge, driving style, or skills. However the study does draw two important conclusions. Firstly that *driver attitudes seem to be well formed before the driver actually starts to learn*. Secondly that *skill-based information may not be taken on board by the learner until s/he is actually practicing the skill in question.*

Another recent study by Carstensen (2002) provides more heartening evidence for the potential impact of a training intervention on young driver accidents. The study was carried out in Denmark where novice drivers may only drive accompanied by an authorised instructor. In 1986 a radical revision of the content and form of driver education was introduced. The new syllabus was implemented according to two basic principles

- progression from simpler to more complex tasks
- theory taught immediately before opportunity for relevant practice.

In particular the content included further elements which were simultaneously introduced in the theoretical and practical driving test, namely individual manoeuvres, defensive driving, and hazard perception.

Hands-on experience followed a graduated programme as follows

- driving a car, starting at low speed, on a closed training ground where the learner would be alone and able to become familiar with basic control elements of the driving task: starting, stopping, using pedals, gears and switches, turning, reversing, and parking

- accompanied driving in real traffic (calm) followed by a focus on starting, stopping, using gears, adequate speed maintenance, and road positioning
- negotiating different junctions and intersections in light and then heavy traffic conditions
- motorway driving and driving in the dark.

Analysis of accident statistics over a 6 year period before and after the introduction of the new training syllabus revealed that the new young drivers had a 20% larger decrease in personal injury accidents (from 50 to 150 personal injury accidents per year) than an older control group trained under the previous relatively non-developed system. A subsequent questionnaire study of newly trained and originally trained drivers was undertaken in which approximately 1000 drivers of each sex in each training group were sampled at 1.5, 3.5 and 5.5 years after acquiring their driver's license. Results confirmed the decrease in accidents but found that the decrease was mainly confined to the first year of driving post-license, and for multiple vehicle and manoeuvering accidents but not single-vehicle accidents. It was concluded by the author of the study that *in the long run the benefit of what is learned through structured driver education seems to be overridden by experience in traffic* and that *single-vehicle accidents may be linked to attitudinal and lifestyle factors* more than other kinds of accident. The time-limited effect of this training is reflected in the beliefs of adolescent students who had completed a driver education programme in the US. They believed their education to be effective in decreasing risky driving, *but did not believe the effects would remain over time* (Laframboise, 1998).

It is also worth noting that compared with drivers trained under the old system, drivers trained under the new syllabus were typically more satisfied with their driver education. This filled a need for more knowledge, for example in relation to the behaviour of other road users and how to deal with it. They also reported that they had better defensive driving skills and that a range of traffic situations were easier to deal with.

An earlier study in Sweden by Gregersen (1996) also provides a useful pointer to the possible consequences of different training strategies. He was concerned to evaluate whether a 'skill' training strategy might produce more false overestimation of competence than an 'insight' training strategy. The 'skill' training involved the trainees in developing skills in handling, braking and avoidance manoeuvers in critical situations. The 'insight' training involved developing an appreciation that driver competence in braking and avoidance in critical situations may be limited and unpredictable. Participants were tested one week after training. No skill differences were found. However the 'skill' group participants estimated their skill level to be higher than did the 'insight' group. It was concluded that a 'skill' training strategy does produce more false overestimation of competence.

With regard to research on the effectiveness of driver education delivered within the school context, Vernick et al. (1999) reviewed nine studies carried out in the USA which met certain minimal acceptable research design criteria. They concluded that there was no convincing evidence that driver education reduces crash involvement rates for young drivers, either at the individual or community level. As was originally concluded in the

well-known DeKalb County (Georgia) study by Stock et al. in 1983, they also reported that the greater availability of high-school driver education courses causes students to become licensed sooner, and because of this greater exposure, crash involvement rates for young people increase (and in some studies rates of traffic violations also increase).

The results of this research are supported by those from a study in Louisiana reported by Ulmer et al. in 1999. In 1993, Louisiana added a provision to its driver licensing law that required that 15-yr olds (the youngest age of eligibility) complete 36 hours of driver education before they could obtain a driver's license. Compared with two control states in which this requirement was not implemented, it was found that in Louisiana the number of licenses issued to this young age group decreased by one third and over the ensuing 2-yr period the fatal and serious injury crash involvements of licensed 15 year olds dropped by 20% per annum. In the control states these rates remained unchanged or actually increased. They concluded that delayed licensing reduced crash involvement.

Despite this evidence, it is important to make the point that few driver education curricula have been subjected to careful evaluation. The problem may not be with the concept of driver education in schools, but rather with what is actually learned and at what age. However, Harre and Field (1998) report a study in Auckland, New Zealand in which they assessed the impact of a 10 x 1 hr school-based programme of driver education which dealt with knowledge, attitudes and judgements relating to safe driving. They found no differences between the intervention and control groups (n = 176 and n = 146 respectively) on any measures at the test point about 4 months after the programme.

Another report worth mentioning is that from part of the EU GADGET (Guarding Automobile Drivers through Guidance, Education and Technology) programme, which considered the goals and content of driver education. The framework developed in this project was notable for two features. First it was organised around the concept of hierarchical levels of behaviour, from general goals for life and living at the highest level, down through the goals and context of driving, mastery of traffic situations, and finally vehicle manoeuvering at the lowest level. The argument here was that higher-order goals can have a key determining influence on decisions made at a much lower level. For example, the need to enhance self-esteem may determine a young man's decision to show off to his friends by making a risky overtaking manoeuvre. Its second notable feature was its advocacy for the inclusion of the development of skills of reflection and self-evaluation as tools for the enhancement of driving skill. Although direct evidence is not presented to justify this feature, it is consistent with what is generally known about the development of expertise. Suggested educational methods to develop self-evaluation are improved feedback during training, self-assessment tools such as questionnaires, scales and checklists, guided discussions with others about personal driving experiences, and evaluations made by instructors and examiners (Hatakka et al., 2001).

Few studies have examined different methods of education and training. One recent example worth mentioning is that of Gray et al. (1998). They showed that a sample of Scottish senior secondary school students learn the Highway Code more effectively through the use of a board game than through the traditional read and memorise method.

**Ireland**

As discussed earlier, the questionnaire review of what is currently done in Irish post-primary schools revealed some kind of driver education programme in almost 15 per cent of schools, typically implemented as part of the Transition Year programme. Rather than provide comprehensive education and training in driving, however, the main aim of these programmes is to improve safety on the roads. Course content is mainly devised by driving school instructors with the majority of courses being evenly divided between practical training and theoretical content, and lasting about 13 hours in total. Most school programmes covered road safety from the perspective of other road users, driver attitudes, driver theory, hazard recognition, legal requirements, and theoretical and practical vehicle control skills. For over a quarter of schools, the entire programme consisted of the Rosemary Smith *Think Awareness course*. Only one in ten schools included all of the National Safety Council course *Staying Alive*. The average amount of time devoted to theoretical elements (rated as being 'very important' ) was about 8 hours. Training in real traffic situations was rated as being 'very important' by a majority of schools.

Despite the fact that, on average, only 13 hours are given over to driver education and training, schools are very positive in their assessment of the degree of success of their programmes in improving students' knowledge, attitudes and driving skills. Driver education is positively evaluated by the students and their parents and there is overwhelming support for a post-primary module in driver education in the Transition Year, although these responses, it must be remembered, are from a sample of schools which are already involved with driver education. Furthermore, there is no evidence that any of the programmes have been evaluated in terms of their effects on new driver behaviour, or indeed on whether or not they encourage more young drivers to drive earlier.

The delivery of driver education and training in post-primary schools in Ireland is clearly informed by a strong sense that something needs to be done to shape appropriate attitudes and values as well as providing relevant knowledge and developing rudimentary control skills. However, this has emerged in the context of a less-than-satisfactory driver assessment and licensing system, and without curricular commitment to a comprehensive programme. Thus, what is generally done represents a start but, given the number of hours devoted to a typical programme, constitutes little more than that.

Recent developments in Ireland

Two recent developments in Ireland concerned with road safety education and training are the establishment of a Garda Road Safety Unit and the *Steer Clear* programme developed by the Irish Drivers' Education Association Ltd.

Garda Road Safety Unit (Dublin Castle). A Road Safety Unit has recently been established at the Dublin Regional Traffic Division based at Dublin Castle. The objective

of the unit is to raise road safety awareness among the public in the Greater Dublin Area. This is aimed at

- creating and promoting sustainable road safety educational programmes with schools and youth organisations
- targeting effective road safety education and training to vulnerable road user groups (for example pedestrians, cyclists, motor cyclists)
- supporting local and national road safety campaigns
- encouraging driver training programmes in the public and private sectors.

The unit's programmes are directed primarily at road users in the 16-30 year age group. The unit will prepare and distribute programmes to national school children in 5th class, post-primary students in Transition Year, third level students, and community and industry groups. With a current front line operational staff of two, the unit has concentrated initially on the development and deployment of a hard-hitting presentation to Transition Year students, focusing on inappropriate road-user behaviour and its consequences.

The Irish Drivers' Education Association Ltd. (IDEA) *Steer Clear* driver education programme. IDEA has designed a programme for post-primary schools that aims to produce safe drivers for life rather than simply enabling young people to pass the driving test. It also aims to be comprehensive and requires mastery at each level before progression. Further details of this promising development are discussed later.

## An emerging model of best practice

From cognitive psychology we know that information is more likely to be effectively assimilated if attention is paid to it. Motivation is required for sustained attention. Information is also more likely to be assimilated if it can map onto a mental representation that is already evolving or has evolved in the learner's mind. If there is a fundamental discrepancy between the established mental representation and new information, then the new information may be rejected. A pertinent analogy would be a person with established creationist views being presented with evolutionary theory. Alternatively, the new information may ultimately force an accommodation of the learner's mental representation, a fundamental shift in how this domain of knowledge is construed. The analogy here is a person who shifts from religious conviction to atheism. This latter consequence clearly requires a more extensive learning process.

Two implications follow from these principles. Firstly, with regard to motivation it makes sense to teach learners what they need to know and when they need to know it. Thus, teaching vehicle control skills when the person is not by law permitted to drive the vehicle would be inappropriate. Secondly, information should be presented in the context of a developing mental representation of knowledge and attitudes which are tailored to the student's level of understanding, and his/her needs at each age level. Beginning to learn road crossing drill is inappropriate for a 15 year old and rules about safe parking of

vehicles are inappropriate for a 5 year old. What is needed is a syllabus for roadway use that spans the entire duration of formal education and beyond, and that is linked to the roadway needs and challenges the developing person is likely to experience. The essential elements of driver education and attitudes should be located at appropriate points within such a syllabus.

Evidence suggests a 'hidden' benefit in this developmental and integrated approach to learning about engagement with the road and traffic system. In a recent study mentioned earlier (O'Brien, Rooney and Fuller, 2001), school students of average age 16 years saw a drama designed to shift attitudes towards an appreciation of the complex, extensive and lasting consequences of involvement in a serious car crash. Immediately, attitudes reliably shifted in the desired direction in the drama group compared with a control group who did not see the drama. This effect persisted 10 weeks after the presentation. However, in a follow-up study one year later (Carey, 2002), it was found that the attitudes of the drama group had reverted to the level of the control group. However, it was also found that the original drama group showed a significantly greater response to new positive attitude information. It was as if the original experience of the drama had had a 'ground preparation' effect, making it easier for this group of students to assimilate the new safety information.

Support for this developmental approach also comes from a recent UK study of attitudes of school children aged between 11 and 16 (Waylen and McKenna, 2002), which suggests that many attitudes concerning safe driving of a motor vehicle are well-formed several years prior to the age of driving. Boys were found to have a greater affinity with speed than girls and exhibit more sensation-seeking behaviour, anti-social behaviour, and competitiveness. These latter characteristics were positively associated with affinity with speed, and with disposition to commit traffic violations. The authors suggest that risk-taking or reckless behaviour observed in young drivers is not simply the result of the novelty of driving but is associated with attitudes and behavioural dispositions measurable at a much earlier age. They conclude, therefore, that it may be necessary to begin effective shaping of safe driver attitudes at an age much earlier than 17.

A fundamental challenge for driver training is to provide driving experience in a safe manner. Extended supervised practice on the road is one possibility for achieving this; structured training on a virtual reality simulator, which provides experience of self-created and typical hazards is another; and both are consistent with the concept of enabling drivers progress through a staged programme of training and assessment, supported by graduated licensing. It is to this latter concept that the discussion now turns.

**Graduated licensing**

Graduated licensing is a system that helps students to pass through several steps in a carefully structured way, involving increasing levels of skill mastery and driver responsibility. As Gregersen points out (op. cit.) there may be "rules on where, when, with whom and how you are allowed to drive in different phases of the training" (p. 425). Limitations might include exclusion from night-time and motorway driving, maximum

speed, numbers of passengers, legal BALs, and so on, linked to different levels of license and to a structured programme of training.

It is argued that a graduated licensing system for young novice drivers provides

- *practice in developing driver skills over an extended period of time*. The longer the period of time that elapses between the initial permit and full license the more experienced, mature and proficient the young driver will be. Learning to drive safely cannot be rushed. As with other complex skills, it takes time to master the knowledge and behavioural elements required.
- *increased time in supervised behind-the-wheel training during daylight and night-time hours*. This and other restrictions (for example the type of passengers allowed and by BAL limits) help create a lower risk environment for the novice driver.
- *education in basic and more advanced driving skills and safety knowledge*. This can be developed in a structured manner, ensuring simpler elements are mastered before progression to more advanced elements.
- *motivation to practice and maintain safe driving skills and behaviour by requiring a crash-free and conviction-free driving performance prior to full licensing*. By making deristriction contingent on a good driving record, graduated driver licensing provides a powerful incentive to drive safely. For young drivers, the worst sanction may be the delay that keeps them in an earlier stage longer while their peers advance to the next level. Knowledge of how to control a car is not as critical to safety as individual motivation. Thus, without strong motivation to keep risk at zero, advanced driving skills training can lead to more crashes, not fewer.
- *opportunity for the development and reinforcement of personal motivation for zero risk and social responsibility*.
- *opportunity for integration with other learning experiences in formal schooling*. The most critical areas of integration are, according to the AAA (1997) report, elements which motivate prosocial and self-protective behaviours (for example personal and social values, risk-taking, self-esteem, feelings of power, sense of community and interest in health).
- *opportunity for the development of the involvement of parents in modeling and supervising best practice in road craft and highway safety* (Andersen et al., 2000).

A typical system might have the following graduated steps

- *A learner's permit with supervision required at all times, restrictions on carrying teenage passengers, zero BAL tolerance, and nighttime curfews*. No crashes or convictions must occur if the driver is to progress. This period includes basic driver training and education. To be eligible to progress to the next level, typically, the learner's permit must be held for a minimum period of time and a minimum amount of supervised driving must be completed.

- *Intermediate license (also provisional license and junior license).* Fewer restrictions, for example unsupervised driving may be permitted during daylight

hours. There may still be restrictions on carrying teenage passengers and zero BAL tolerance. No crashes or convictions must occur if the driver is to progress. This period includes more advanced driver training and education.

- *Full license (and unrestricted license). All driving restrictions are removed except for applicable laws.*

In a review of the available research literature Smith (1994) reports that graduated licensing systems introduced in North America and New Zealand have reduced the accident involvement of new drivers by 5 to 16 per cent. In a more recent review, Baughan and Simpson (2002) conclude that a serious case can be made for introducing some elements of graduated licensing, or graduated learning systems.

## The implementation of best practice in post-primary schools in Ireland

The principle of a graduated licensing programme is that the student is licensed at each stage of a developing competence. The trainee is only permitted to have independent responsibility for a vehicle under the conditions for which s/he has demonstrated competence. The development of further competence is achieved under supervised conditions. In the ideal model, the process of staged assessment and licensing reinforce the structured and progressive developmental programme undertaken by the trainee. If we are really serious about reducing casualties among young drivers, we should be prepared to advocate an integrated plan that coordinates training, testing and licensing.

However, in the immediate term we have inherited a testing and licensing system that simply involves two stages of licensing and a rudimentary assessment of competence in order to obtain a full license to take responsibility for a vehicle under all conditions. That this type of system demonstrably fails to select only competent drivers and prevent collisions by newly qualified drivers is recognised not just in Ireland but in Europe and worldwide (see for example Lynam and Twisk, 1995). Given the pervasive evidence from the US, it might also be argued that provision of driver education and training in post-primary schools in Ireland might only serve to encourage more young people on the road and earlier, thereby exacerbating, rather than countering the young driver problem. However, the high cost of insurance, the higher age of eligibility for licensure, the relatively lower dependability on private transport and the less car-oriented culture probably all work towards decreasing the likelihood of this outcome. There is as yet no available evidence in Ireland as to whether or not the provision of driver education and training in schools leads to earlier licensing. Nevertheless, it is of potential benefit to extend driver education in the post-primary school system, particularly where the educational element supports the development of more responsible attitudes to vehicle use and to speed in particular. Furthermore, even without the immediate introduction of a graduated licensing system, it is possible to develop graduated programmes of education and training, which allow staged progress from one demonstrated level of competence to the next.

Considerable work along these lines has already been accomplished by a company called the Irish Drivers Education Association Ltd (IDEA) (Steer Clear, 2002). This company has developed the *Steer Clear* driver education programme for secondary school level, based on an evaluation of driver education systems in Europe, Canada and the USA. The philosophy of the programme is to produce safe drivers for life rather than simply to enable drivers to pass the driving test. A fundamental design principle of the programme is that it requires mastery at each level before progression. The aim is to build sound judgement and awareness as well as competent motor skills in all road conditions. The *Steer Clear* programme will include

- the shaping of attitudes and thinking of young people towards road safety with a strong emphasis on defensive driving awareness

- structured academic training (min. 30 hours), which will include topics of motivation, knowledge, attention, detection, perception, evaluation, decision, motor skill, safety margin, responsibility, risk management, and continuing education
- behind-the-wheel practical learning (min. 6 hours), which will include initiation to driving, basic driving, defensive driving, and advanced manoeuvers
- behind-the-wheel-tuition (40 driving hours with mentor supervision, structured on the basis of a skill evaluation log), which will include development of basic driver actions, driving in light traffic, driving in moderate traffic, parking manoeuvers, effective visual search skills, driving in different environments, adverse conditions and passing, and basic car maintenance
- a required tune-up refresher course (1-day) every 3 years.

All programmes are to be delivered by fully trained and certified instructors of the *Steer Clear* programme, and students successfully completing *Steer Clear* and passing the official driving test will receive a reduction in motor insurance cost. The programme is to be introduced in September 2003 in a pilot stage in second level schools in the Leinster region, initially as part of the Transition Year syllabus, and ultimately will be available to new and existing drivers.

It is clearly recognised in the design of *Steer Clear* that competence in safe driving and the continuing motivation to operate at a safe level are complex goals for any driver education and training programme. Unsafe behaviour may arise intentionally (as in active risk-taking or deliberate violation of a traffic regulation), or unintentionally (as when a driver underestimates the slippiness of the road surface). Driver education and training can target the second of these, i.e. the progressive development of competence to minimise the driver's exposure to unintentional situations in which task-demand exceeds the driver's capability. Indeed it could be argued that this aspect of training has been the key focus of most of what has been done in the past and is being done currently. It is suggested above that a graduated scheme can best enable the development of a high level of competence of this kind in the novice driver, extended to include the systematic learning of human factor variables and how to deal with them. These variables encompass not only those factors which can undermine capability, but importantly also, those which determine the selection of an inappropriately high speed.

Without doubt, different kinds of training components are needed to achieve these goals, including practice and feedback in the development of control skills, learning and applying rules of the road, learning and applying appropriate procedural responses given particular situations, learning about hazards and their creation and avoidance, learning about the behaviour of other road users, and so on. Apart from supervised hands-on experience in progressively more demanding conditions, the novice driver also needs to compress the typical first year or so of post-license experience (when drivers are particularly vulnerable to crash involvement) into a safe training experience. The best solution to this requirement is likely to be some form of virtual driving simulation which

can systematically expose the learner to a large range of hazard situations (including, importantly, those of their own creation), yet in a non-punishing environment. Research and development are currently underway in Ireland to deliver precisely this kind of VR tool for driver training.

With the above discussion in mind, the outline presented in Figure 12 (p. 40) is proposed as a draft blueprint for the development of competence in roadway use in Ireland. Traditionally, the education system has shown a clear commitment to the development of appropriate knowledge, skills and attitudes in pre-driving aspects of roadway use, but has not formally taken on responsibility for the driving stage. This proposal incorporates the concept of an advanced graduated driver training and licensing programme and indicates where elements may fit into the formal educational curriculum. Trainees must reach some criterial level of competence in order to proceed from one stage to the next, and the driver is only permitted to have individual responsibility for a vehicle under conditions that are appropriate to his or her level of competence. An attempt is made to reinforce compliance with traffic regulations by requiring that there be no conviction for a motoring offence in order to proceed from a restricted to an unrestricted license and from an initial (2-year) to a permanent license.

Current education and training in post-primary schools, where available, typically ends at the level of vehicle control skills, largely, one suspects, because of resources of time and funding. However, this makes little sense if the education system is to embrace the role of driver education and training comprehensively. Indeed, it may even be giving the wrong message to new drivers by ending *at* the level of control skills. The natural development of driver education and training in the post-primary school system in Ireland would be to include the level of *road craft* as indicated in Figure 12. Logically this should be introduced in parallel with a new system of restricted licensing.

Thus, what is proposed here is the development of an integrated, comprehensive and standardised programme that will enable our school-leavers to emerge as well-educated and trained drivers with established attitudes and values of responsibility and civility in roadway use. If this proposal is accepted in principle, the next step would be to design in detail the goals and content of each post-primary component indicated in Figure 12, and to devise methods of education, training and assessment appropriate to each element. What would really support this level of educational commitment would, of course, be a parallel move towards the introduction of a graduated licensing system.

Finally, it should be mentioned that deliberate unsafe behaviour, including violations of the rules of the road, poses a real challenge to the safety of the roadway system and to driver education and training. Safety is an expression of natural harm avoidance and it is also a socially constructed goal. Nevertheless the natural avoidance of harm has different values for different people. There are demonstrable individual differences in sensation-seeking, as well as in the disposition to opt for some level of risk under conditions of uncertainty. An increased driving task demand (and often a simultaneous decrease in capability) may arise through the expression of emotional states through driving 'style' (for example, anger). Thus, aggressive driving may not be deliberately unsafe, but that

may be its inevitable consequence. On top of all this, there are individuals who emerge into late adolescence seemingly unaffected by the normal socialisation processes that support conformity to social norms of care and responsibility for others (and themselves) in many areas of social behaviour, including roadway use. It would seem appropriate that the development of socially acceptable attitudes and values should form part of a child's formal and informal educational experience from initial pedestrian roadway use (as is currently done) right through to the driving of vehicles as indicated in Figure 12. In contemporary society these would include qualities of personal responsibility, a co-operative rather than competitive disposition, lack of selfishness, care and consideration for others, and non-aggressiveness. To try to counter a failed socialisation process by the time the individual obtains a provisional license to drive is likely to be an impossible task for driver education and training. Even in normally socialised individuals there are times when the usual controls that maintain reasonable behaviour fail. In these situations, high levels of enforcement (whether through roadway design or policing) are likely to be the only effective measures to sustain an acceptable level of safety in the road and traffic system. Although this may sound somewhat oppressive, it must be remembered that the aim of enforcement is to induce compliance, not principally to punish, and that there is evidence that once behaviour changes in a particular direction, attitudes may follow suit to maintain consistency with the behavioural change.

Figure 12. The development of competence in safe roadway use

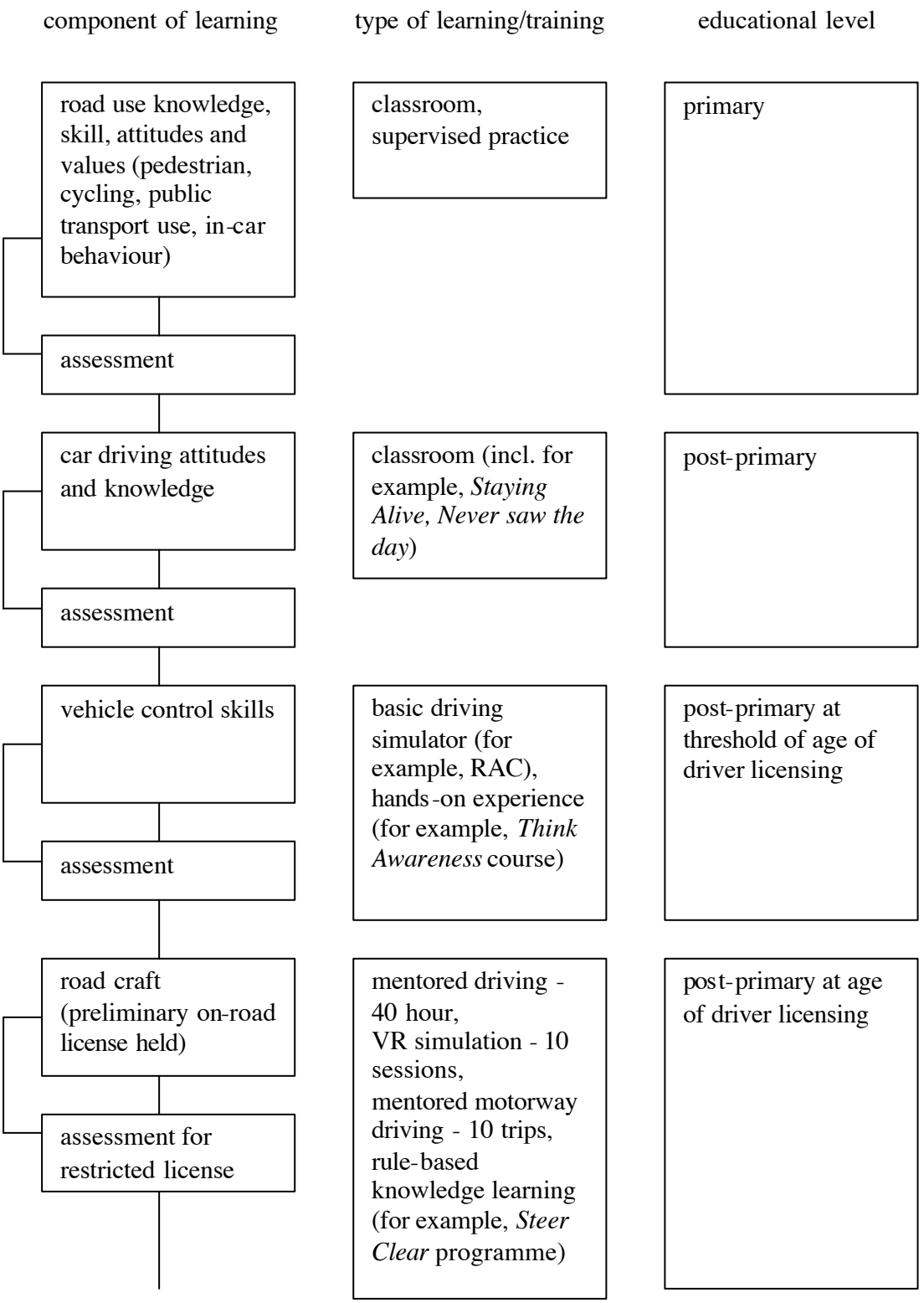
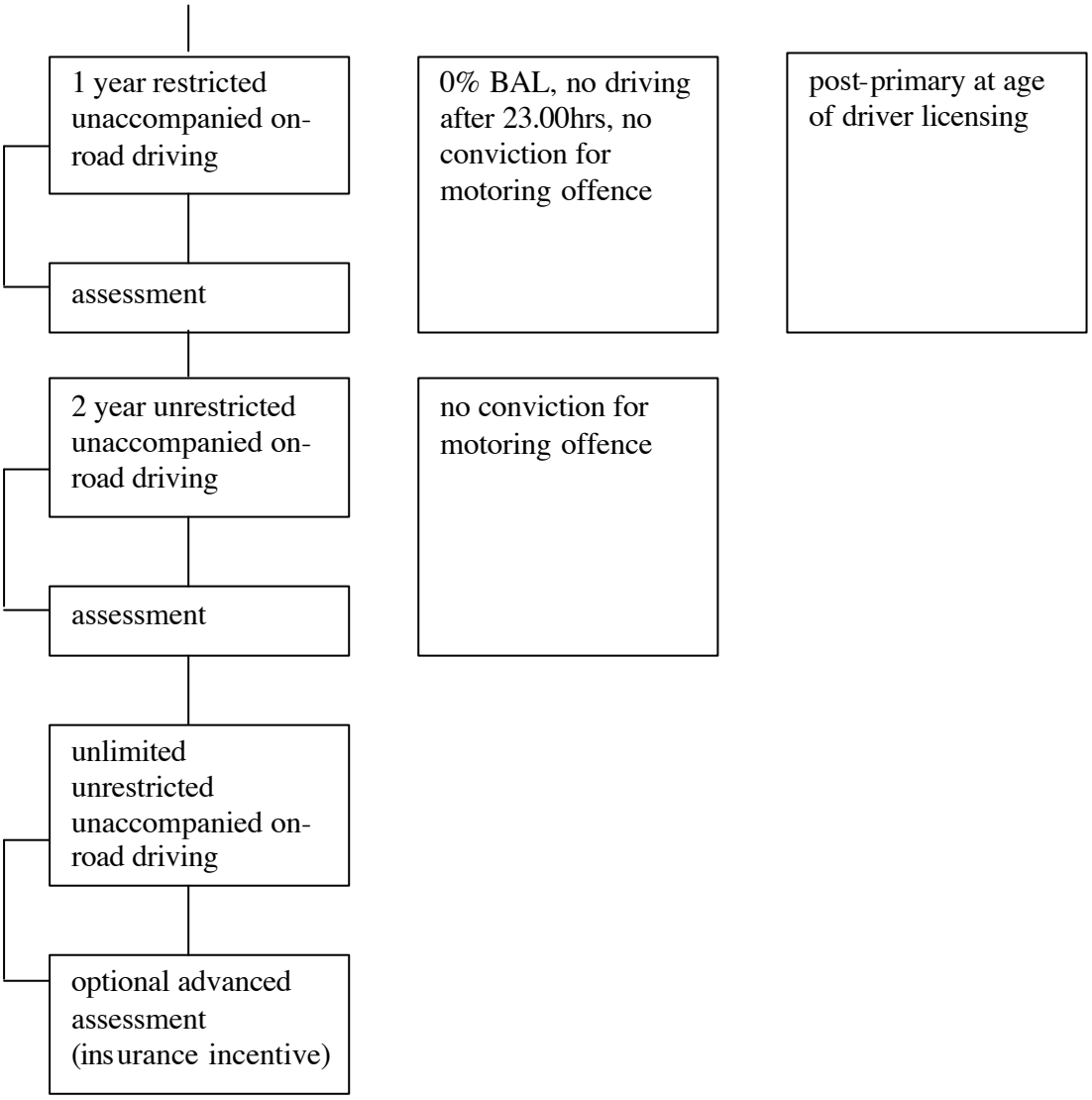


Figure 12 continued (assuming graduated licensing)



# References


AAA (1995). *Novice driver education model curriculum outline*. American Automobile Association Foundation for Traffic Safety.

Andersen, D., Abdalla, A., Goldberg, C.N., Diab, T. and Pomietto, B. (2000). *Young driver: a study of policies and practices. Report of findings*. Center for the Advancement of Public Health: George Mason University.

Baughan, C. and Simpson, H. (2002). *Graduated driver licensing – a review of some current systems. TRL Report TRL 529*, Crowthorne: Transport Research Laboratory.

Carcary, B. (2002). New driver project. In *Behaviour Research in Road Safety*, London: DTLR.

Carey, C. (2002). The initiation of a *Ground Preparation* effect following a drama presentation. Unpublished BA thesis, Department of Psychology, Trinity College, Dublin.

Carstensen, G. (2002). The effect on accident risk of a change in driver education in Denmark. *Accident Analysis and Prevention*, 34, 111-121.

European Road Safety Federation (1996). *Traffic safety education at the secondary school level in the EU countries*. Report by La Prevention Routiere Internationale for the European Road Safety Federation, 1996, pp. 99.

Fuller, R. (2000). The Task-Capability Interface model of the driving process. *Recherche Transports Sécurité*, 66, 47-59.

Fuller, R. (2002).The psychology of the young driver. In R. Fuller and J. Santos (Eds), *Human Factors for Highway Engineers*. Oxford: Pergamon, 241-254.

Gray, A.R., Topping, K.J. and Carcary, W.B. (1998). Individual and group learning of the Highway Code: comparing board game and traditional methods. *Educational Research*, 40 (1), 45-53.

Gregersen, N.P. (1997). Practicing from the age of 16, some evaluation results from Swedish driver training. In T. Rothengatter and E. Carbonell Vaya (Eds), *Traffic & Transport Psychology: Theory and Application*, Oxford: Pergamon, 423-430.

Gregersen, N.P. (1998). Young drivers' overestimation of their own skill: an experiment on the relation between training strategy and skill. *Accident Analysis and Prevention*, 28 (2), 243-250.

Harre, N. and Field, J. (1998). Safe driving education programs at school: lessons from New Zealand. *Australian and New Zealand Journal of Public Health*, 22 (4), 447-450.

Hatakka, M., Keskinen, E., Gregersen, N.P., Glad, A. and Hernetkosi, K. (2001). Goals and contents of driver education. In *Behavioural Research in Road Safety*, London: DETR., 118-125.

Laframboise, L.M.N. (1998). Adolescent perspectives on risky driving. *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 59 (5-B), 2124.

Lynam, D. and Twisk, D. (1995). *Car DriverTraining and Licensing Systems in Europe. TRL Report 147.* Transport Research Laboratory, Crowthorne.

Maycock, G., Lockwood, C.R. and Lester, J.F. (1991). *The accident liability of car drivers.* (TRL Research Report 315). Crowthorne: Transport Research Laboratory.

O'Brien, G., Rooney, F. and Fuller, R. (2001). *The effectiveness of a drama presentation in improving road safety attitudes*. Report to Dublin City Council Office of the Director of Traffic, Dublin: Department of Psychology, TCD.

Smith, M.F. (1994). *Research agenda for an improved novice driver education program.* NHTSA Report DOT HS 808 161. Washington DC: National Highway Traffic Safety Administration.

*Steer Clear* (2002), Irish Drivers Education Association, 11 Marine Terrace, Dun Laoghaire, Co. Dublin (Monica Shaeffer and Gerry Dempsey)

*The road to safety* (1998): *Government Strategy for Road Safety 1998-2002*, Dublin: DELG.

Ulmer, R.G., Preusser, D.F., Ferguson, S.A. and Williams, A.F. (1999). Teenage crash reduction associated with delayed licensure in Louisiana. *Journal of Safety Research*, 30 (1), 31-38.

Vernick, J.S., Li, G., Ogaitis, S., MacKenzie, E.J., Baker, S.P. and Gielen, A.C. (1999). Effects of high school driver education on motor vehicle crashes, violations, and licensure. *American Journal of Preventive Medicine*, 16 (1), 40-46.

Waylen, A. and McKenna, F. (2002). *Cradle attitudes – grave consequences: the development of gender differences in risk attitudes and behaviour in road use.* Basingstoke: AA Foundation for Road Safety Research.

# Appendix 1

## BRIEF SURVEY OF DRIVER TRAINING OPPORTUNITIES FOR POST-PRIMARY STUDENTS

DEPARTMENT OF PSYCHOLOGY

# TRINITY COLLEGE
DUBLIN 2

Tel + 353-1-6081886 (Department) Fax +353-1-6712006
Tel + 353-1-6082426 (Direct Personal Line) E-mail rfuller@tcd.ie

The Minister for Education and Science, Dr. Michael Woods, has asked the National Council for Curriculum and Assessment (NCCA) to investigate driver education in post-primary schools. Accordingly the NCCA in conjunction with the Department of Psychology, Trinity College, Dublin is currently undertaking research to determine the extent of implementation of driver education and training programmes in post-primary schools in Ireland.

We would be most grateful if you would answer the following simple questions and return this page in the enclosed post-paid envelope as soon as possible. It should only take a few seconds. All information regarding any individual school will be completely confidential to the research team.

1. Has your school run a driver education course for post-primary students in the last 12 months?
   Yes o No o

   If "Yes", were driver control skills included in the course (e.g., vehicle controls, actual or simulated car driving)?
   Yes o No o

2. Do you intend to run a driver education course for post-primary students in the next 12 months?
   Yes o No o Don't yet know o

   If "Yes", will driver control skills be included in the course (e.g., vehicle controls, actual or simulated car driving)?
   Yes o No o

Please write here the information requested

| | |
|---|---|
| School number | |
| Name of school | |
| Address of school | |
| | |
| | |
| | |

| | |
|---|---|
| Contact name & phone | |

Please return this page in the envelope provided.

Thank you very much for your help.

Dr Ray Fuller
NCCA Driver Training Survey, Department of Psychology, Trinity College, Dublin 2.

Appendix 2

# FURTHER SURVEY OF CAR DRIVER TRAINING OPPORTUNITIES FOR POST-PRIMARY STUDENTS

DEPARTMENT OF PSYCHOLOGY

**TRINITY COLLEGE**
DUBLIN 2

Tel + 353-1-6081886 (Department) Fax +353-1-6712006
Tel + 353-1-6082426 (Direct Personal Line) E-mail rfuller@tcd.ie

## FURTHER SURVEY OF CAR DRIVER TRAINING OPPORTUNITIES FOR POST-PRIMARY STUDENTS

As you will already know from our brief survey of a few weeks ago, the Minister for Education and Science has asked the National Council for Curriculum and Assessment (NCCA) to investigate driver education in post-primary schools. The Department of Psychology, Trinity College Dublin has been commissioned to carry out this task.

I would like to thank you for your prompt reply to my previous communication. By way of follow-up I now enclose a more detailed and final questionnaire. I would be most grateful if the member of staff who is most familiar with the course of driver education in your school could complete it as soon as possible. This task should take no more than about 10 minutes. A post-paid envelope is enclosed for convenience.

All details will be treated in the strictest confidence and will not be released to anyone in a fashion which will allow individual responses to be identified with specific schools.

We really appreciate your help in this and will be pleased to answer any questions you may have.

Dr. Ray Fuller
NCCA Driver Training Survey
Department of Psychology
Trinity College
Dublin 2

# SURVEY OF CAR DRIVER TRAINING OPPORTUNITIES FOR POST-PRIMARY STUDENTS

**Please complete the following questions concerning the programme of driver education in your school. It should take about 10 minutes. Very many thanks.**

School number | | | |

**Section 1. Content of the Driver Education Programme**

1. Please list the main aims of your school's programme of driver education

_____

_____

_____

_____

_____

2. How many hours of driver education are available to a student in the programme?
   a) within school hours _____ hrs
   b) outside school hours _____ hrs

3. Is the driver education programme integrated with other subjects (e.g., Physics)?
   __ (Y/N)

4. If 'Yes', with which subjects is it integrated?
   _____
   _____

5. Does your programme include all or part of the NSC *Staying Alive* course?
   all ❑ part ❑ none ❑

6. How is your programme divided between practical training and theoretical content?
   practical ___%
   theoretical ___%

7. In column 1 below, various elements of a driver education programme (a) – (j) are listed. Please place a tick against each element you have in your programme, indicate the number of hours devoted to it and say how it is assessed.

| 1. Elements of a programme of driver education | 2. Tick if component is included in your programme | 3. How many hours are given to this component? | 4. How is this component assessed? (e.g. written exam, oral exam, road test etc. If it is not assessed, please write NA) |
|---|---|---|---|
| a) Vehicle Control Skills (practical hands-on or simulated driving) | | | |
| b) Vehicle Control Skills (theoretical) | | | |
| c) Legal requirements of motoring (e.g., licensing, insurance, taxation) | | | |
| d) Driver attitudes | | | |
| e) Driver Theory (incl. Rules of the Road) | | | |
| f) Road Transport and Society (incl. economics of motoring) | | | |
| g) Accident and Emergency Procedures | | | |
| h) Motor vehicle basic mechanics (incl. car safety maintenance) | | | |
| i) Hazard recognition and coping (incl. 'reading the road'; speeding) | | | |
| j) Road safety from viewpoint of other road users (e.g., pedestrians, cyclists, truck drivers, motorcyclists) | | | |

8. If the programme involves 'hands-on' and/ or simulated driving, please indicate the relative percentage of each
   Real ___% Simulated ___% (real+simulated=100%)

9. Indicate which components listed in question 7 above must be completed before 'hands-on' training begins (e.g., b, c, e...). If none please write 'none'.
   _____

10. Do students have 'hands-on' vehicle control training on an individual basis or with others?
    individual basis ❑ with others ❑

11. Which of the following teaching methods are used in your school's programme of driver education? Please tick each box which applies.

| | |
|---|---|
| Class-room teaching | ❑ |
| Hands-on experience of driving | ❑ |
| Driving Simulation | ❑ |
| Role-play | ❑ |

Other (please state) _____
_____
_____

12. Does the programme use any of the following? Please tick each box which applies.

| | |
|---|---|
| Video | ❑ |
| Slides | ❑ |
| Photographs | ❑ |
| Demonstrations | ❑ |
| Project work / research | ❑ |
| Guest Expert Lecturers | ❑ |
| Quizzes | ❑ |

13. Who mainly devises the course content (e.g. teacher, driving school instructor, garda, etc)?
_____
_____

14. What is the most important assessment(s) of the outcome of your programme (e.g. written examination, theory test, driving test, other)?
_____
_____
_____
_____

15. Has your school's programme of driver education been discontinued? __ (Y/N)

16. If 'Yes', please say why
_____
_____

**Section 2. Student participant characteristics**

17. About how many students participate in the programme each school year?
_____ students

18. What is the ratio of boys to girls? _____

19. What is the approximate age range of participating students? _____

20. Is driver education implemented as part of the transition year programme? __ (Y/N)

21. Is there is a lower age/school year limit for students to participate? __ (Y/N)

22. If 'Yes', please state age or school year ____

23. Please list any other criteria (e.g. academic, conduct) which must be met by the students before they may participate in the programme

_____
_____
_____
_____

24. Is it possible for students with learning or physical disabilities to participate in the programme? __ (Y/N)

**Section 3. Staff who contribute to the Driver Education Programme**

25. What training in driver education is offered to teachers of the course?
none ❑ initial training offered ❑ follow-up training offered ❑

26. Does one member of your school's staff oversee and organise all aspects of the programme? __ (Y/N)

27. Do any external agencies (e.g., driving schools, the Gardai), contribute to the programme?
none ❑ part ❑ all ❑

28. Please state for each person who contributes to your driver education programme their professional category (in column 1), experience (in column 2), the elements they contribute (in column 3) and their proportion of the programme (in column 4)

| 1<br>Staff category (e.g. school teacher, garda, driving instructor) | 2<br>Years experience teaching/instructing (leave blank if not known) | 3<br>This contributor teaches these elements of the programme | 4<br>% these elements contribute |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**Section 4. Evaluation of School Driver Education initiatives**

29. For how many years has your school's programme of driver education been in operation?

_____years

30. What motivated the introduction of the programme? (Please tick as many as apply)

Student demand __ Teacher concern for student road safety __
Parent demand __ Other (please state) _____

31. What do you think are the main difficulties associated with providing driver education in the school (e.g., insurance provision, space, cost, time, staffing, etc.)?

_____
_____
_____
_____

32. Is the content of the programme in your school periodically reassessed? __ (Y/N)

33. If 'Yes', how often do reassessments take place? _____

34. If 'Yes', with what issues have reassessments been mainly concerned?

_____
_____
_____
_____
_____

35. In your opinion is periodic reassessment necessary? __ (Y/N)

36. Please rate the importance in your programme of each of the approaches to driver education listed below by ticking the appropriate box (1=not at all important, 3=neither important nor unimportant, 5=very important)

| Approaches | not at all important | | neither | | very important |
|---|---|---|---|---|---|
| Theoretical..... | 1❑ | 2❑ | 3❑ | 4❑ | 5❑ |
| Training in real traffic situations... | 1❑ | 2❑ | 3❑ | 4❑ | 5❑ |
| Training in simulated situation..... | 1❑ | 2❑ | 3❑ | 4❑ | 5❑ |

37. Estimate the proportion of students whom you feel have improved in various ways as a result of participating in your school's programme

in knowledge ___%
in attitudes ___%
in driving skills ___%

38. Do you consider your course enables students...

to drive earlier? ❑
to take the driving test ? ❑
to pass the driving test? ❑
to be more skilful drivers? ❑ please tick all boxes which apply
to be more courteous, caring and considerate in their driving? ❑
to be safer drivers? ❑

39. Describe the students' response to the programme. How would they typically evaluate it?

_____
_____
_____
_____

40. How much of the programme do students self-fund? ____%

41. If students self-fund only part or none of the programme, what other sources of funding support the programme?

_____
_____

42. Describe the parents' response to your school's programme. How would they typically evaluate it?

_____
_____
_____
_____

43. Please describe elements of your programme which you consider to be particularly successful

_____
_____
_____
_____
_____

44. Please describe elements of your programme which you consider could be improved

_____
_____
_____
_____

45. Please describe any problems (if any) you perceive regarding the possible effects of the programme

_____
_____
_____
_____

**Section 5. A Post-Primary Module for Driver Education?**

46. In your opinion, would a post-primary module of driver education for the senior cycle be desireable? __ (Y/N)

47. If 'No', please explain why

_____

_____

48. If 'Yes', please rank in order of importance where you would you locate such a module (1=best location). Place a cross if you think a particular programme would not be an appropriate location

| | rank or x |
|---|---|
| Established Leaving Certificate? | ___ |
| Transition Year Programme? | ___ |
| Leaving Certificate Vocational Programme? | ___ |
| Leaving Certificate Applied? | ___ |

49. Are there any potential disadvantages to a post-primary module of driver education for the senior cycle?

_____

_____

_____

**Thank you very much indeed for your co-operation in completing this questionnaire. Please return to me in the enclosed post-paid envelope. If you have any queries please do not hesitate to contact me at rfuller@tcd.ie or phone 01 6082426.**

# Appendix 3

## *Staying Alive*
## Programme of the National Safety Council

*Staying Alive* is a resource for a classroom programme for Transition Year students. It was developed for the NSC and released in September 2001 after a short-term piloting.

Its stated aims are to

- explore the wider issues of road usage from both a personal and community perspective
- raise road safety issues within the context of students' personal decision making
- engage students in a consideration of the issues
- promote safer attitudes towards road usage prior to young people starting to learn to drive.

The programme covers six main themes entitled

- What is safety? (perceptions of road safety, who is responsible, the road rules)
- Risk and consequences (what are the risks? managing risks, action consequences)
- Science and technology (stopping distances, speed kills, how things have changed)
- Health and safety matters (healthy lifestyles, safety skills, thinking about others)
- All image (influencing action, campaign, independence at a price)
- Planning and the environment (pollution and gridlock, changing modes of travel, *ruralbliss* bypass).

The content for each theme includes a statement of aims, a range of activities and their learning outcomes, and possible project work. For each activity there are suggested teaching strategies, background information and notes for teachers, resource requirements, ideas for extension activities, and cross-curricular links. The resource pack also includes a copy of *Rules of the Road* and a CD that provides the resource text and themed weblinks for extending course materials.

# Appendix 4

## *Think Awareness*
## The Rosemary Smith* Driving Programme for Transition Year Students

Rosemary Smith's *Think Awareness* programme is a one-day course designed for Transition Year students (minimum group size 18 students) with the goal of instructing first steps towards safer motoring. The course includes behind-the-wheel driving and classroom tuition. Students taking part drive with their instructor in a *Skoda Fabia Hatchback* fitted with dual controls. Driving takes place off-road on private school grounds or at Rosemary Smith's own school in Fairyhouse, Co. Meath. No public road driving is permitted.

Classroom tuition covers the following topics

- rules of the road
- recognising road signs
- anti-drink/drugs
- road rage
- risk perception skills
- car familiarisation
- safety behind the wheel.

The course concludes with a debriefing session on overall safety topics, student observation and evaluation, and a question and answer session. This is followed by the presentation of certificates.

*Rosemary Smith is a highly accomplished professional driver, an experienced instructor and a member of the Institute of Advanced Motorists. Her programme is supported by An Garda Siochana, the Automobile Association, the National Safety Council, Allianz Group, the Department of Education and Science, and Skoda plc.