

# Learning to drive: the essential thinking skills



A proposal to the Driving Standards Agency

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# 1 Summary

At this stage, this paper is a discussion document to stimulate further debate and development.

The novice driver problem is a complex one, and the measures taken over recent years have had little impact on the novice safety record. This situation is well recognised but not understood, and a change in approach is being called for.

After vehicle control is mastered, safety is determined by *how drivers think and decide what to do*. But learners acquire little skill in this area from current pre-test training. Hence the unwelcome maxim that, "You really learn to drive after passing the test", and the acknowledged need now for fundamental reform in how people learn to drive.

A significant problem in the past was that a driver's thinking skills were not defined in a way that could readily be taught. But that is no longer the case, and there is a new opportunity for the reform that is envisaged in training to include the skills that actually determine safety. These are the *essential thinking skills*.

This proposal recommends the addition of specific skills into the driver training process. With input taken from experienced instructors and trainers, the following areas of skill are needed to give drivers safer *thinking and decision-making* abilities:

1. *Beliefs* - the origin of driving attitudes and behaviour
2. *Sense of danger* - causes of danger, and a robust tool for risk assessment and control
3. *Driving process and skills framework* - how driving works as a mainly thinking task
4. *Learning from experience* - after the test, this is what limits a driver's level of ability
5. *Risk management techniques* - safer concepts and practices in traffic

These skills broaden the definition of overall driving ability, and would dramatically reduce the amount that novices need to discover for themselves. There are consistent themes through these skills, and a logical progression across the stages of learning that can start before driving age.

It is not inevitable that teaching these skills would increase the hours and cost of learning to drive. There are signs that in many ways they accelerate overall learning.

A broad range of objectives are supported by this proposal, including:

- the aim of 'Safe Driving for Life', through improved driving ability
- *fundamental reform* in how we learn to drive
- addressing *novice driver beliefs and attitudes*
- involving *pre-driver age children*
- defining a *structured framework of skills* that is more relevant to safety.

This is a discussion document, and substantial further work is clearly needed, but these thinking skills are understood sufficiently well to give confidence that safety benefits are available and should be pursued.

## 2 Introduction

Traditional suggestions for tackling the novice driver problem have been mainly in three areas:

- *types of road* and weather conditions, eg town driving, in the wet, on motorways, etc, as in Pass Plus
- *how drivers learn*, eg logbooks, extending the period, miles driven, compulsory professional tuition
- *restrictions on drivers*, eg test at age 18, lower alcohol limit, restricting night driving and passengers.

There has been little focus on what is being fundamentally learned.

### New opportunity

After basic car control has been learned, safety is determined by how drivers *think and decide what to do*. This is as true for novices as it is for experienced drivers.

But how to do this safely is currently not well taught, which leaves novices to pick up the critical thinking skills as best they can on their own. It is also much of the reason why people say, "You really learn to drive after passing the test".

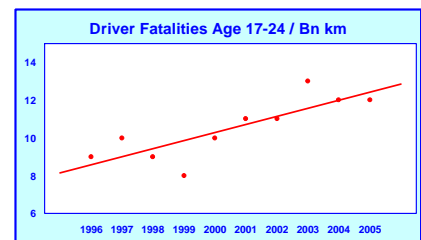
A significant problem has been that these skills were not defined in a way that could readily be taught. But that is no longer the case, and this raises the new opportunity to reach beyond traditional interventions and teach the skills that actually determine driver safety.

### The problem

The problem of the novice group is defined by their relatively poor safety record, coupled with concerns about the training and test system.

The safety record is illustrated in DfT figures <sup>1</sup>:

- the fatality rate (per billion km) has been on a rising trend, despite a number of measures taken to improve novice safety. These include Pass Plus, the Theory Test, the six-point limit, a longer test, voluntary Driver Record Logbook, and the Hazard Perception Test. Alongside these, of course, have been the ongoing campaigns on drink, drugs, speeding, illegal drivers, etc, which are also often aimed at younger drivers
- this situation is well recognised, but not understood. "Indeed, the rate of novice driver casualties appears to be worsening, and there is little understanding about why this is the case. The measures implemented by the Department over the past twelve years have been incremental and have failed to cut novice driver casualties. A change in approach is now required" <sup>2</sup>.



Although the road safety strategy seven years ago said that, "Better driving skills and better driving behaviour would make an enormous difference to reducing the number of road casualties" <sup>3</sup>, there is increasing concern and frustration that the interventions undertaken have not worked as intended.

More recently, the need has been identified to define 'what makes a driver safe' <sup>4</sup>, together with the conclusion that, "... the time has come to reform fundamentally the way people learn to drive" <sup>5</sup>.

But placing restrictions on novice drivers is also being strongly proposed again <sup>6</sup>. Whatever our judgement on the effectiveness or difficulties of this option, it must surely be more constructive to teach people to drive more safely. It would certainly be more socially positive, and closer to tackling the cause of the problem rather than the symptom. Restrictions would be inappropriate if they amount to a substitute for skills that could be taught.

It is also increasingly suspected that restricting children's earlier experience - of handling risk and taking responsibility for themselves - is one of the trends in society that is making safe driving harder for youngsters to master.

<sup>1</sup> DfT evidence in Mar 2007 to the Transport Committee "Novice Drivers" inquiry

<sup>2</sup> "Novice Drivers" report, Transport Committee, Jul 2007

<sup>3</sup> "Tomorrow's roads: safer for everyone", DETR Mar 2000

<sup>4</sup> "Stakeholder Workshops and Interviews Report", Frontline consultants for the DSA, Dec 2006

<sup>5</sup> "Tomorrow's roads - safer for everyone: The second three-year review", DfT Feb 2007

<sup>6</sup> "Novice Drivers" report, Transport Committee, Jul 2007

### 3 Scope

This proposal is consistent with a broad range of requirements and interventions, most of which have been mentioned in DfT material <sup>7</sup>:

- the aim of '*safe driving for life*', and a better culture for safety skills and lifelong learning
- *fundamental reform* in how we learn to drive, including:
  - a thorough review of the curriculum to establish a framework of competencies for truly safe driving
  - testing that learners can drive safely, not just control a car
- address *novice driver beliefs and attitudes*, which have been found to include:
  - what they are taught is just for passing the test, and is irrelevant to real driving
  - good driving ability is a matter of natural talent
  - they know better than the system that taught them
- reduce the '*post-test shock*' in the first 6-12 months of driving unsupervised, and significantly reduce the extent to which drivers must discover skills for themselves
- develop *pre-driver education* which can:
  - influence children before driving age, including a focus on beliefs, attitudes and peer pressure
  - connect their experience of being pedestrians, cyclists, and passengers to them eventually becoming a driver
  - include the concept of 'passenger skills'
  - fit into the school curriculum, either in a road safety context or as broader life skills
- *define a set of skills* which can:
  - provide a structured framework of the higher order skills that are more relevant to safety
  - correspond to the way drivers understand and perform the task
  - work directly on the root causes of behaviour, and bring the cognitive and behavioural functions into driver training, including beliefs and attitudes
  - improve how drivers understand and manage risk, helping them to identify risk early and see practical ways to take responsibility and control
  - introduce a component of group-based learning into the training process
  - provide a modern training syllabus, with consistent themes across all stages of learning, ie pre-driving, test and post-test
  - bring some of the elements that are currently practiced and tested on computer more into practical training
- improve the *ability to learn from experience* so that:
  - post-test ability increases much more rapidly and effectively
  - self-assessment becomes more honest and accurate
  - skills are built in handling danger caused by others, not only reflecting on the driver's own actions
- include *accompanying driver* training (for private practice) in the learning
- develop *instructor and examiner training* which will:
  - improve their knowledge of the cognitive functions which underpin safe driving skill
  - encourage a training style that develops from instructing to coaching <sup>8</sup>
- find an *alternative approach* to placing restrictions on newly qualified drivers that can:
  - address the underlying cause of the safety concerns
  - ensure that learners become more self-reliant before they are allowed to drive unaccompanied
- be *socially positive* in the process of creating safe drivers so that:
  - tough law enforcement is balanced with constructive training
  - driving is seen as an integral part of life skills, and not in isolation
- counter the *media images* of driving that work against responsibility and safety

<sup>7</sup> "Decision Letter: Introducing a more structured approach to learning to drive - results consultation", DfT April 2004

"The good, the bad and the talented", SHM Consultants for the DfT, Nov 2006

"Stakeholder Workshops and Interviews Report" Frontline consultants for the DSA, Dec 2006

"Tomorrow's roads - safer for everyone: The second three-year review", DfT Feb 2007

DfT evidence in Mar 2007 to the Transport Committee "Novice Drivers" inquiry

<sup>8</sup> Consistent with the aims of the EU Project Hermes (following on from Merit and Gadget which introduced the GDE matrix)

## 4 The Essential Thinking Skills

How well should we expect drivers to gain skills they have not been shown? Or should we be surprised that their period of discovery when they begin to drive unsupervised proves to be dangerous?

We know that young drivers are sceptical about the learning process<sup>9</sup>, and will express views such as:

- much of what they are taught is irrelevant to good driving
- they really learn to drive only after passing the test
- they are the masters of what really constitutes good driving
- driving ability is a matter of natural talent.

The implication is that they feel they know more about driving than the system that taught them. This is a critical condition, and clearly not helpful for their driving career. But if skills are obviously missing from their tuition, we should expect them to hold this view.

Such a severe limit on the new driver's perception of what safe driving really entails needs to be removed.

They should be able to answer, "What are the skills of safe driving?", with a good understanding of all the skills. Currently this question receives a variety of hesitant and incomplete responses - even among experienced drivers and trainers.

Input taken from experienced instructors and trainers has shown five areas where 'thinking skills' could be introduced into a safer training system:

1. Beliefs
2. Sense of danger
3. Driving process and skills framework
4. Learning from experience
5. Risk management techniques.

These can be taught, and will improve a driver's internal thinking and decision-making ability.

Internal control is vital in pursuing the aim of *Safe Driving for Life* in driver training. Our task is to create more behaviour that is *voluntarily* safe, rather than imposed. Relying on external control would need continual enforcement at a detrimental level.

Although it is said that, "You can't teach experience", this is untrue in the way it is sometimes used. Many of the skills that experienced drivers have picked up slowly definitely can be taught to new drivers.

It is also not inevitable that adding these skills into training would increase the hours, and therefore cost, of tuition. There are early signs from instructors that these skills can help pupils to grasp what is required more quickly, and therefore accelerate overall learning.

In the following sections, examples from Mind Driving are used to illustrate the points.

### 4.1 Beliefs

For all drivers, their driving style and standard of safety begins with their beliefs. This is where internally controlled behaviour originates, and there is a certain logic in saying this is also where driver training should begin.

Research is increasingly pointing to this area as likely to be the most effective basis for interventions in the pre-driving stage of learning. "There is a large body of opinion, and growing evidence, that young people pick up attitudes to driving and road safety long before they reach the minimum age to hold a provisional licence. ... ways of shaping safer attitudes to driving are urgently needed"<sup>10</sup>.

We also know that early beliefs and attitudes towards driving are wide ranging<sup>11</sup>, from how easy it will be, to how popular it will make the individual and whether speed will be fun.

Importantly, there are helpful connections with children's experience as passengers, being a pedestrian, cycling, skateboarding, and playing team sports.

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<sup>9</sup> "The good, the bad and the talented", SHM Consultants for the DfT, Nov 2006

<sup>10</sup> "Novice Drivers" report, Transport Committee, Jul 2007

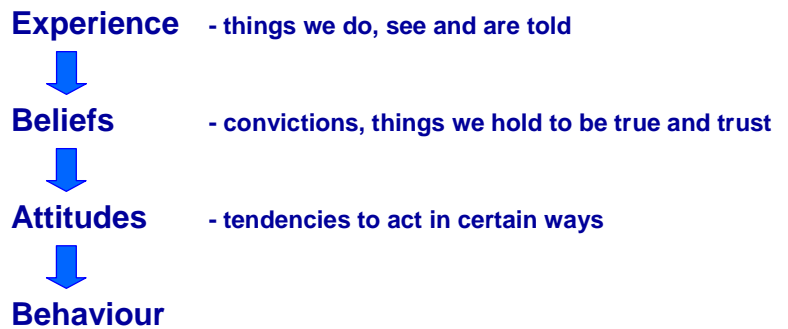
<sup>11</sup> For example: "Pre-driver's Attitudes Towards Driving", Andrea Waylen and Frank McKenna, March 2002

## Chain of causation

Safe or dangerous attitudes and behaviour do not exist in a vacuum - there are causes.

In fact there is a '*chain of causation*', which starts with *experience* - of life in general and driving in particular. This is filtered through what we can call personality traits to form *beliefs* about how life and driving work. These beliefs then create the *attitudes* which result in the displayed *behaviour*.

Problems with attitude invariably stem from beliefs.



This is important for two reasons. Firstly, it shows why attitudes cannot be changed directly. Altering behaviour that is voluntary and internally controlled involves working with beliefs - or the way they are used.

Sometimes beliefs can be changed with simple pieces of new information. Though often it is not necessary to *change* someone's beliefs, but simply to bring some of them to the surface. To 'switch on' or 're-sequence' beliefs can have a significant and more willing effect on behaviour. So while some beliefs may need to be squarely challenged, it is also quite normal for people to hold beliefs that they neglect when driving.

Secondly, the word 'attitude' itself is confrontational in training. Because the common usage is about 'poor' attitudes and 'bad' behaviour, people see the conversation as blaming and threatening, and therefore unwelcome. "Now let's discuss your attitude...", is unlikely to start a good conversation - especially with a young male. Talking about 'beliefs' is easier, or even the 'principles' of safe driving will allow a more effective communication.

It can be important to use the words quite carefully, and certainly avoid using 'attitude' when 'belief' is meant or could be better.

## Specific beliefs

The beliefs that impinge on driving are many and varied. Most of them are about life more generally, rather than being solely about driving. Often they are simply about how we interact with other people.

It is possible to write a set of beliefs which make up a good 'mindset' for safe driving. For example, the table on the right works well with qualified drivers, and has been used successfully by trainers<sup>12</sup>.

Clearly, other beliefs can be identified that are more specific to young drivers, the pre-driver stage or to address peer pressure<sup>13</sup>. But the principle and opportunity is the same.

On peer pressure, it is important to see a mechanism that operates through beliefs. They are about what will impress the peers and improve status and image, and how important it might be to drive to the peer's expectations. Because of this, building a defence against negative peer pressure can be expected to involve working with beliefs.

Also important is to distinguish between 'active' and 'assumed' peer pressure, which function differently and need different strategies.

1. <b>Safety</b>	Arriving safely is the most important thing - for me and for everyone else.
2. <b>Thinking, Risk and Decisions</b>	Safe driving is in my thinking. It is about actively managing risk with the decisions I make.
3. <b>Blame</b>	Preventing a collision is more important than who would be to blame for it.
4. <b>Responsibility</b>	I take responsibility for my total situation - everything I do, and protecting myself from others.
5. <b>Skills and Learning</b>	I control risk by gaining and using the right skills, and driving within my ability. I am constantly learning .
6. <b>Concentration, Distraction and Emotion</b>	My skills are best applied through natural concentration. I knowingly resist distractions, and try to keep emotions in neutral.
7. <b>Aggression</b>	I keep aggression out of my driving. It always increases risk.
8. <b>Tolerance, Cooperation and Courtesy</b>	Safe driving is a team effort. I forgive mistakes made by others, will help where I can, and offer courtesy where it is safe and practical.
9. <b>Influence</b>	From all the behaviour displayed on the road, I take only the best as an example to follow.
10. <b>Pride and Pleasure</b>	I take pride in my skills, and enjoy driving! This helps to keep me naturally focused on the task.

<sup>12</sup> Rapid changes in thinking and driving style have been brought about with these beliefs

<sup>13</sup> This connects with the current TRL study on "Changing Learner Drivers' Attitudes through group discussion", and further work is also underway in the SkillDriver project to identify 'young beliefs', and relate them to types of driving fault

## 4.2 Sense of danger

Underlying every driver's ability to be safe is how they understand and make judgements about danger. Excluding the tiny minority of deliberately reckless people, drivers do not want to take unmanageable risks that result in collision - even the young ones.

"What causes danger on the road?" is a simple and important question if risk is to be controlled. But drivers rarely answer it well. Most will list things they wish other drivers would not do, rather than things they can control with their own driving.

It is vital to change this, and give drivers a view of the *risk of collision* that is realistic and credible to them.

The model that identifies the three factors of *Speed, Surprise and Space* provides a clear structure for thinking that is readily understood and accepted<sup>14</sup>. It provides a dramatic simplification of the driver's task in managing risk. (Note that it is a *model* of the relationships, and NOT a mathematical equation.)

$$\text{Risk} = \frac{\text{Speed} \times \text{Surprise}}{\text{Space}}$$

It says that increasing speed or surprise will usually raise the level of risk, while increasing space will usually lower it. Also that the *balance* of the factors is what counts, and that risk cannot be controlled with one factor on its own.

This model is a robust and well proven tool for risk assessment and control, that holds true for all levels of driving from beginner to expert. Many drivers report that it also makes their driving 'easier' - more focused, calmer and less stressful. The concept of 'surprise' is especially effective in helping to reduce risk.

As with Beliefs, this model also connects to children's activities, such as skateboarding through a shopping precinct. It can even be adapted to football.

## 4.3 Driving process and skills framework

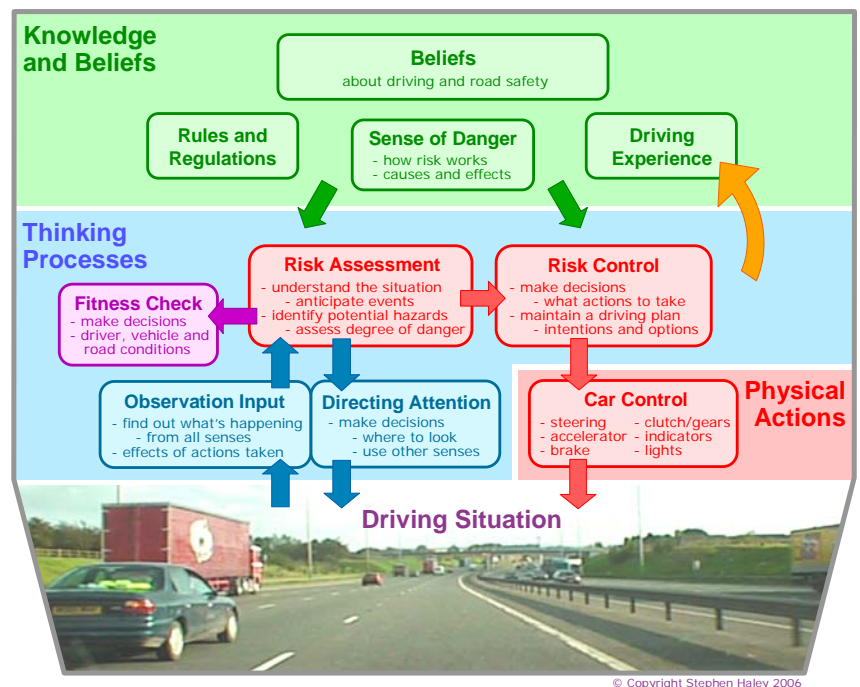
Once the conversation is started, it is not difficult to show young people the mental activities involved in driving, and how they work to determine the physical actions involved.

This is a simple but pivotal demonstration from which they can also be convinced that safe driving is a *predominantly thinking task*. It overrides the impression given by the physical nature of the early stages of vehicle control.

The picture on the right, for example, shows the 'process' of driving. *Knowledge and Beliefs* guide the *Thinking Processes*, which in turn determine the *Physical Actions* taken.

It is a full diagram at first sight, but has proved to be readily understood by trainers and drivers, because they recognise in it the way they perform the task<sup>15</sup>.

Having such a structured framework of the task makes it easier to understand and acquire the skills.



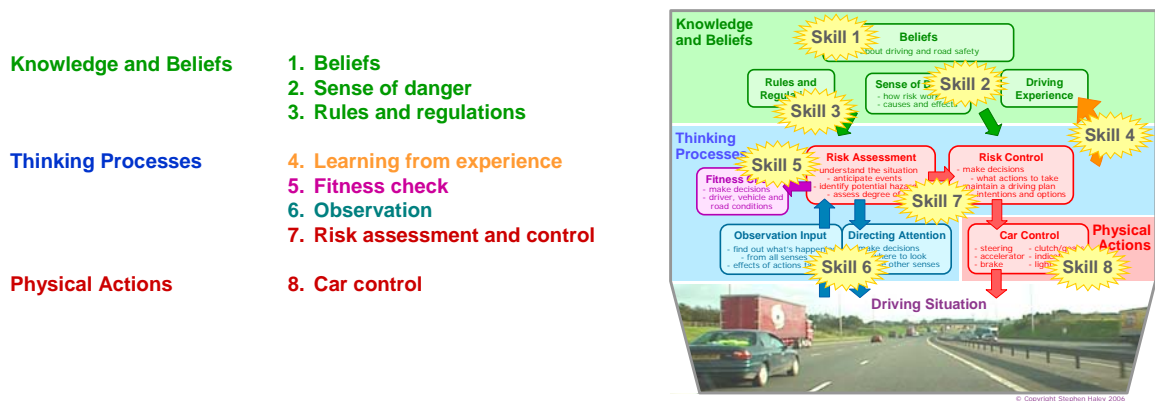
It shows how the higher order skills work and fit together into an overall driving ability.

<sup>14</sup> This risk model is the most quoted tool from the Mind Driving approach.

<sup>15</sup> The Driving Process works well in training classes, and is the most requested diagram from Mind Driving by driver trainers to use with their pupils.



From such a view, the importance of the mental side is very clear. This particular picture gives a set of eight interlocking skills, only the last of which is on physical vehicle control.



#### 4.4 Learning from experience

Perhaps the greatest gift a trainer can impart to a pupil is the motivation and ability to learn. A good internal process of learning enables a continued rapid increase in skills after the trainer has left.

There are three parts involved.

First it is necessary to credibly dispel the idea that the test represents the required level of safety. New drivers need to become far safer than the day they pass the test. They must understand why passing the test is the beginning of an even more vital stage of learning - and how it works.

An effective way to achieve this is to explain a 'learning curve' of the further stages of learning after the test, and the significant increase in skill and safety as progress is made.

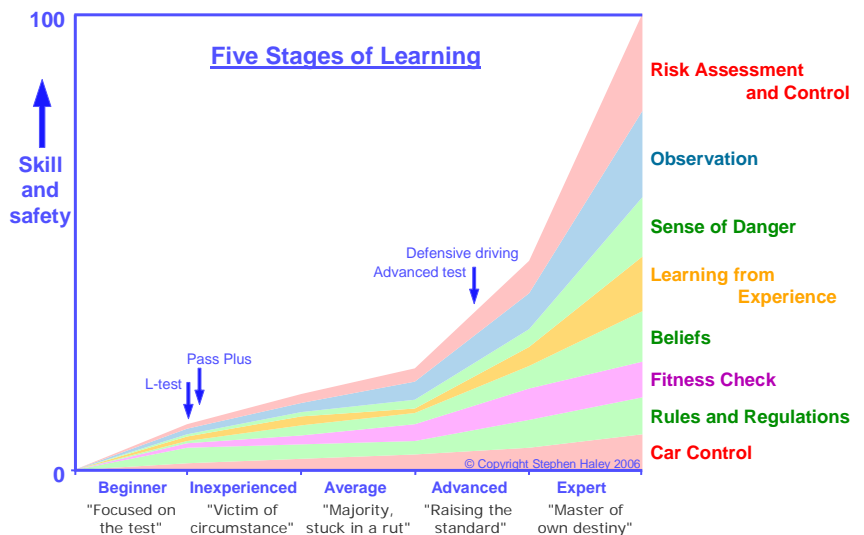
Second, the pupil must have a solid and correct understanding of what there is to learn. For example, the "Driving process and skills framework" above.

Third, is the skill of learning itself, which is a special ability because it builds the other skills. It makes experience count, and this type of learning is the best long term basis for skill.

Drivers can be taught how to learn more effectively, and how to focus on whole situations as well as their own part in events. Steps can be defined to achieve this, for example:

1. *decide to learn* - to establish and kick-start a conscious process
2. *learn naturally, don't force it* - calm and relaxed is more intuitive and effective
3. *assess yourself objectively* - 'noticing' mistakes without blame gets easier with practice
4. *find the learning events* - mistakes by others and things that go well, in addition to your own errors
5. *look for why things happen* - to improve the decision process, rather than just a specific event
6. *use the skills structure* - to make better sense of what is learned
7. *enjoy what you are doing* - to maintain interest and the motivation to learn

Experience has a larger effect on reducing collision risk than advancing age<sup>16</sup>. So that *failure* to learn effectively from experience is a major cause of poor driving on the road. After the test, this is what limits a driver's level of ability.



<sup>16</sup> "Novice Drivers" report, Transport Committee, Jul 2007



## 4.5 Risk management techniques

There are specific techniques and ideas that can further strengthen a driver's ability to manage risk, such as the following.

### Hazards are you

"You are part of every hazard you meet - and this is what gives you control over the outcome". This statement requires a more involved approach to hazards, rather than seeing them as just 'out there'. Drivers are encouraged to actively predict and prevent danger, rather than react to it. It is a more realistic and constructive view which also promotes a higher sense of responsibility and being in control. It explains too how a poor driver will be part of worse hazards than a good one in the same situation.

### Who is in control?

Staying safe is about how much control you have over what happens to you.

A threat is created if what happens to you is significantly in the hands of someone (or something) else, and a good question is always, "How much control are you happy to surrender to others (or to chance)?"

Reducing risk involves maximising control over how events unfold for you, and not giving it up needlessly.

### Legal speeding

Choosing a safe speed is a driver's responsibility, and cannot be delegated to a speed limit.

Most crashes happen at legal speeds, so 'legal' is often too fast. Speed limits might give the illusion of safety, but they do not give permission to ignore the circumstances.

Obedying speed limits is not a real skill, but properly assessing danger definitely is.

### Fast reactions reality

High skill is not embodied in lightning reactions. Actions that are *early and light* show better control than ones that are late and severe.

The difference is in what the driver is reacting to, and whether it is past events (what has already happened) or the future (what is going to happen). It is safer, and more skilful, to anticipate and prevent a crisis than react to one.

A driving style that relies on sudden actions is not only high risk, but also shows slow thinking and a lack of foresight.

### Be Predictable

"If you surprise someone, they are more likely to hit you". Signalling is basic, but position and the vehicle's 'body language' are vital indications too. This helps to explain the *reason* behind a lot of what safe drivers do.

The aim is to actively help other road users to anticipate and adjust safely. It gets the driver more involved in what other people need to know, and being predictable is readily under a driver's control and relatively easy to improve.

### Threatened space

Movable objects cast danger into the spaces around them, and any space you want to enter is threatened if someone else could get there too.

A moving vehicle casts extreme risk forward into its stopping distance. Similarly, a space that is 'closing' in the traffic will be higher risk than if it is 'opening'.

### Give space to danger

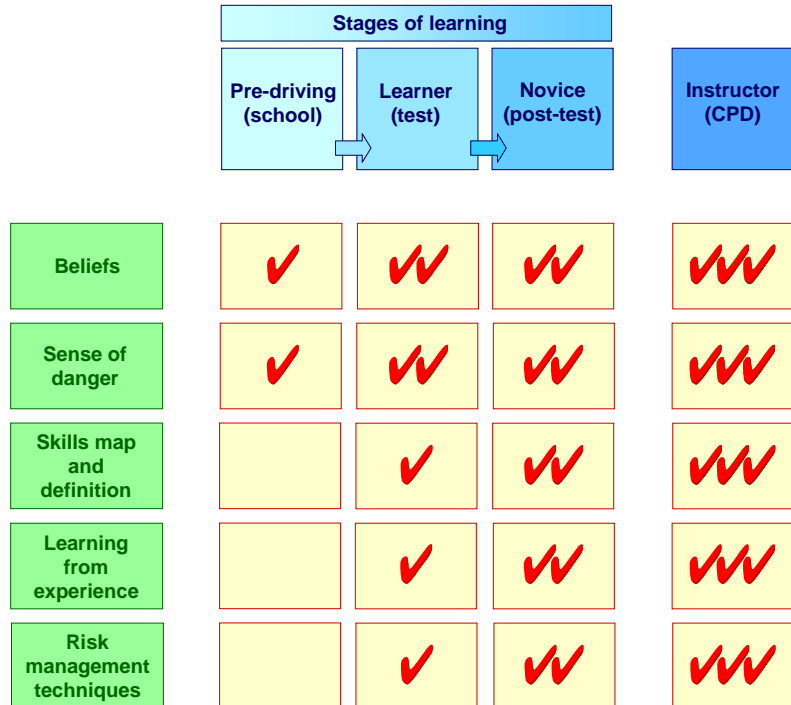
Space and road position should be managed to control risk. Spacing-off a danger will reduce it - and this is exactly what space is for.

This technique requires that dangers are identified, and it is therefore more active than maintaining a general 'buffer' of space around the vehicle. When passing between two threats, for example, the chosen line should be balanced on the assessed risks, eg children on the path versus traffic on the other side of the road.

## 5 Stages of learning

There are consistent themes in the thinking skills, and training can be introduced and increased in a logical progression across the stages of learning. For example, as shown.

Driving instructors clearly need a high level of knowledge and understanding across them all.



## 6 Conclusion

Over a period of some years, traditional-style measures have not improved the novice driver problem, and this is receiving a renewed level of attention. It has been acknowledged that fundamental reform is required in how people learn to drive. There is a new opportunity now for that reform to include the skills that actually determine how safe a driver will be. These are the *essential thinking skills*.

Because these skills can also accelerate overall learning, including them in the training system would not automatically increase the time and cost involved in learning to drive.

Much further work is clearly needed on development for implementation, but the thinking skills are understood and documented sufficiently well to give confidence that significant safety benefits are available, and should be pursued.