

'R' drive
SCHOOL of MOTORING

MARKET HARBOROUGH – UPPINGHAM – RUTLAND

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Psychology of Driving

Root Causes of Young Driver
Accidents, Serious Injury and
Fatalities

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1 in 5

drivers crash within a year of passing their test¹

Why do drivers crash? These are the Top 10 Causes:

1. Failed to look properly
2. Failed to judge other persons path or speed
3. Driver recklessness or on a hurry
4. Poor turn / manoeuvre
5. Loss of control
6. Pedestrian failing to look properly
7. Slippery road
8. Sudden braking
9. Travelling too fast for conditions
10. Following too close

But **WHY** was there an accident is the important factor? What are root causes?

There are a number of factors that we can categorise as follow:

- Attitudes and beliefs
- Driver distractions
- Physiology
- Perceptual Limits
- Inexperience
- Absolving responsibility

- **Attitude and beliefs**

- a. **Influenced by parent, friends that behaviour is normal**

If Mum, Dad or a close friend for example drives after a drink, drive too fast, or shouts

¹ GAP Insurer ALA Survey - 2017



Psychology of Driving

abuse at other road users, these behaviours are perceived as “normal” and can easily become part of the young drivers natural behaviours.

b. Optimism bias

Ask a driver to rate their chances of having a crash within the next 12 months most drivers believe that other people are at a higher risk of being involved in a road traffic collision than they are. Statistically this is impossible, and we can't all be better than everyone else. “Accidents happen to other people as I am a good driver”

c. Pleasure principle {rewarding behaviour}

Unsafe driving behaviours can be rewarding, too and driven by our desire for immediate pleasure.

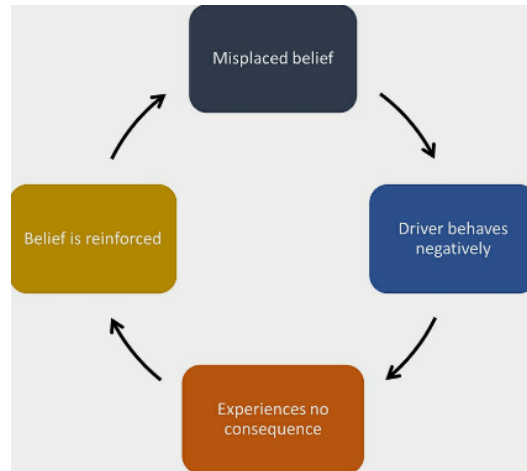
For example:

- “I don't my seat belt because it so uncomfortable.” - *Reward for not wearing a seat belt: driving comfort.*
- “I can multitask when driving and therefore I am safe to can check my mobile” - *Reward for using a mobile phone while driving: contacting friends.*
- “Driving a few miles per hour above the speed limit means I get to work on time.” - *Reward for speeding: shorter journey times and not getting told off.*

All of the above can add to the ‘Confidence feedback loop’:

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d. Confidence feedback loop



If left unchallenged, our **optimism bias** and **beliefs**, driven by **the pleasure principle**, will lead to a dangerous feedback loop. The misplaced belief that “*it won’t happen to me*” becomes a fixed thought when added with the feelings of confidence we gain from our risky behaviours going unpunished.

Consider the many unsafe driving habits that we commonly see on the roads every day: (The fire service safety campaign call it the “Big Four”) **i)** speeding, **ii)** driving under the influence of alcohol or drugs, **iii)** mobile phone distraction, **iv)** not wearing seat belts.

By “getting away with it” repeatedly, confidence grows, and the behaviour continues — until a crash, or a major near-crash finally shakes the confidence. Only then, the driver recognises the danger of that behaviour and the driver’s belief likely to change (if they are still alive).

• Driver Distraction

“Drivers were seen engaging in some type of potentially distracting behaviour leading up to 58% of all crashes examined. The two most frequently seen driver behaviours were attending to passengers (14.9%) and mobile phone use (11.9%).” – (AAA Foundation for Traffic Safety - 2015)² NB: This data was taken six years ago when mobile use was less prevalent, so percentages would arguably be higher today.

Consider the possible distractions whilst driving:

a. Passengers

Young drivers with similarly aged passengers are far more likely to crash than if they

² AAA Foundation for Traffic Safety – Using Naturalised Data to Assess the Prevalence of Environmental Factors and Driver Behaviours in Teen Driver Crashes

Psychology of Driving

drive alone or with an older passenger. Research by the AAA Foundation ³ has found that the fatality risks to 16- or 17-year-old drivers increase by 44% when carrying one passenger aged under 21, doubles when carrying two passengers under 21 years old and quadruples when carrying three or more passengers under 21 years old.

b. Mobile phones

A study of 1,691 moderate-to-severe crashes involving teen drivers found that the average eyes-off-road time for drivers who were operating or looking at their phone was 4.1 seconds. On a dual carriageway that would be 128m

OTHER TYPICAL DISTRACTIONS:

- c. Talking
- d. Eating
- e. In car entertainment /sat navs
- f. Distractions outside the car (billboards, other people)
- g. Emotional state

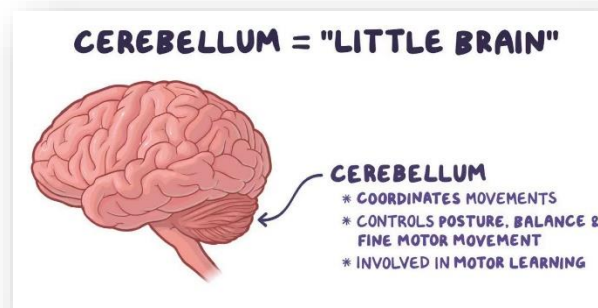
• Physiology

a. Brain development 17-25 year old

Research from the RAC foundation⁴, has shown that a newly qualified 17-year-old driver is almost twice as likely to be involved in a crash as a newly qualified 60-year-old driver, proving that inexperience isn't the sole reason for young drivers being at risk.

Advances in neuroscience have shown that the human brain matures at a much slower rate than previously thought. In infancy, the cerebellum — Latin for “little brain” — at the back of the brain forms first.

It develops quickly and is most active in our infant years. The cerebellum is involved in cognition, hand-eye coordination and balance.



³ AAA Foundation for Traffic Safety (2012). Teen Driver Risk in Relation to Age and Number of Passengers..

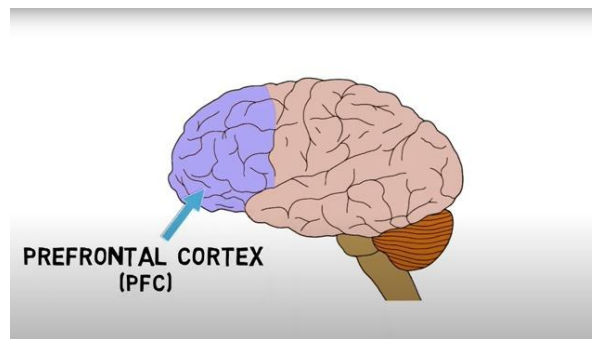
⁴ RAC Foundation (2013). Young Driver Safety: Solutions to an Age-Old Problem.

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During adolescence, the middle part of the brain becomes highly active. This area of the brain is involved with things including friendships, bonding and wanting to “fit in” and your self-esteem.

The **prefrontal cortex** is the last part of the brain to develop.

The function of the prefrontal cortex includes things such as: attention hazard perception risk assessment judgement and impulse.



Research has found that the prefrontal cortex isn't fully developed until the age of 25, which explains why people drive as they do in their late teens and early twenties. It also explains why there's a significant drop in the number of collisions involving those aged 25–29, compared to those

aged 17–24⁵.

It might seem being young is a lost cause for safety. But with an awareness of the issues and with training, it can improve your attitude to speeding, overtaking and following too closely, and lowered misplaced overconfidence with levels of driving abilities.

b. Fatigue

1/5 of road accidents are sleep deprived related. Young people tend to get more tired and need more sleep.

c. Alcohol and drugs



The good news is that fewer people are taking the chance of drink-driving at night. However, others are

⁵ Sowell, E., Thompson, P., Holmes, C., Jernigan, T. and Toga, A. (1999). In Vivo Evidence for Post-Adolescent Brain Maturation in Frontal and Striatal Regions. *Nature Neuroscience*, 2(10), pp.859-861. Available at: http://www.nature.com/neuro/journal/v2/n10/abs/nn1099_859.html

Psychology of Driving

risking driving in the morning, without realising that they may still be affected by the alcohol from the previous night.

Generally, our bodies can process only around one unit of alcohol per hour — one unit being equal to 10ml of pure alcohol. However, it varies from person to person.

FOR EXAMPLE: Young, females big Saturday night out with friends:

½ a bottle of wine (before leaving the house) — five units

Two bottles of cider/lager — five units

Three cocktails — six units

Two shots of sambuca — two units

In total, 18 units of alcohol, meaning it will take approximately 18 hours for her body to process the alcohol and clean it from their system. Assuming she finished drinking in the early hours of Sunday morning, she'll be impaired for the whole of Sunday and maybe even until the early hours of Monday morning!

d. Dehydration



Research from Loughborough University has found that be dehydrated causes as many driver errors as being over the drink drive limit⁶.

Dehydration affects our physiology and mental functions in many ways. It leads to reduced alertness, fatigue, reduced concentration and changes in mood. Is you feel thirsty you are already dehydrated, it is not a sign, so drink regularly, even if not feeling thirsty.

• Perceptual Limits

We have limits to what we can perceive at any one time. When instructing we try to develop a learner driver's anticipation and awareness skills. So, we ask questions such as.

⁶ Watson, P., Whale, A., Mears, S., Reyner, L. and Maughan, R. (2015). Mild Hypohydration Increases the Frequency of Driver Errors During a Prolonged, Monotonous Driving Task. *Physiology & Behaviour*, 147, pp.313-318. Available at: <http://www.sciencedirect.com/science/article/pii/S0031938415002358>



Psychology of Driving

“What can you see up ahead?” and “How are you going to deal with it?”. Quite often a learner appear to look directly at something, but still not see it. Why?

a. Inattentional blindness

We have something called **reticular activating system (RAS)**. This reduces our mental burden by filtering irrelevant information from our conscious awareness. Without this filter, our brains would simply overload!

In your first lesson we discuss the invisible gorilla experiment:

[selective attention test - YouTube](#)

Basically, if you are looking for things you will see them. Whilst RAS stops our brains from overloading, it does create a serious problem for drivers. RAS only allows through information that it feels is of value. So, we easily miss important things. For example: While looking left and right for a safe gap to emerge into traffic, we could easily miss the pedestrian crossing the road.

Driving on usual routes can lead to inattention blindness of roadside features and hazards too. The majority of accidents occur within two miles of the home.

b. **Change blindness**

When we make an eye movement, from one fixation point to another, it takes approximately 20-80 milliseconds. During this time, the brain switches off vision. This avoids us seeing a blur.

For example: Look into a mirror. Look at your left eye, then at your right. Keep switching between them. You cannot see your eyes moving. Now, ask someone to do the same, while you watch their eyes. You see their eyes move.

During any eye movement, our brain blocks the image coming in from the eyes. This blocking is referred to as “saccadic masking”. We’re effectively blind during a saccade.

In addition, the amount of our visual field that’s in focus at any one time is minuscule.

If you’re reading this, look and focus on a word and notice just how little of your visual field is actually in sharp focus. When you extend your arm and look at your thumbnail, that’s approximately the area that is focussed in your field of vision. These physiological phenomena can lead to disaster on the roads. While looking left and right for a safe gap to emerge at junctions, it’s easy to miss things ahead of us, such as a car emerging from a road or driveway opposite, or a pedestrian stepping out into the road.



Psychology of Driving

This is why it is essential to move your head when looking into mirrors and take time to assess a situation by approaching slowly into hazards.

• Inexperience

The more driving experience a driver has before a driving test, the lower their risk becomes. To get safe on the roads, whilst learning, you need to experience driving under a variety of conditions,

Including:

- On different types of roads (rural, single track, urban, dual carriageways, motorways, etc.)
- In various situations (multi-storey car parks, drive-throughs, car wash, petrol station forecourts, etc.)
- At different times of the day (busy rush-hour traffic, as well as quieter times during the day or at weekends) during the daytime and at night in low-light conditions.
- In adverse weather conditions (bright sun, wind, rain, fog, ice, snow, etc.) with distractions (radio, passengers, satnav, children, etc.)

Remember driving a car for test is not the same as being a driver!

• Absolving responsibility

A typical characteristic of many drivers is to instantly blame anything or anyone besides themselves for bad events that happen and to take responsibility when things go well!

For example:

"The road was poorly lit."

"It was the other idiot"

"It could have happened to anyone."

"It wasn't my fault, anyone would have had that accident."

As we drive we build up a library of experiences, if we resolve responsibility then the library stops building the collection. Any drive could have been better, it is up to us to



Psychology of Driving

identify what could have been done better or driving skills do not grow.

PARENTS:

Children are like sponges — they model everything a parent does and incorporate what they see into their own lives. This informal education continues until the child reaches the legal driving age, at which point they take driving lessons. We then try to undo all the bad habits, attitudes and behaviours they've learned from the School of Mum and Dad!

Safe driving is a combination of **physical control** and ability and the right mental aptitude – young drivers also have physiology of brain development working against you. However, with an awareness of the root causes of road accidents you will reduce the chances of an event and hopefully not be in the 1 in 5 club!