

BSM

DEVELOPING HAZARD PERCEPTION DURING DRIVING LESSONS



INTRODUCTION

Mark Born

Driving Instructor Training Manager
AA Driving School
BSM

Background:

- 2005 – Approved Driving Instructor
- 2009 - ORDIT
- 2011 – Daimler, Mercedes-Benz
- 2017 – AA|BSM Driving Instructor Training

- Supported the development and delivery of classroom and online hazard perception training programmes in United States, Canada and China
- Train 1000+ UK driving instructors per year for AA Driving School & BSM

HAZARD PERCEPTION AND DRIVER TRAINING



Most crashes occur due to human error.

This error is often associated with the driver either not identifying a hazardous situation early enough and/or failing to respond early enough or appropriately (Lewin, 1982).

Hazard perception training has been positively evaluated to have a direct benefit on the safety of new drivers.

How do the actions and teaching of an in-car driving instructor support the development of effective hazard perception skills?

Lewin, I., 1982. Driver training: a perceptual-motor skill approach. Ergonomics 25, 917–924

HOW GOOD IS YOUR FOCUS?

Quirkology Channel

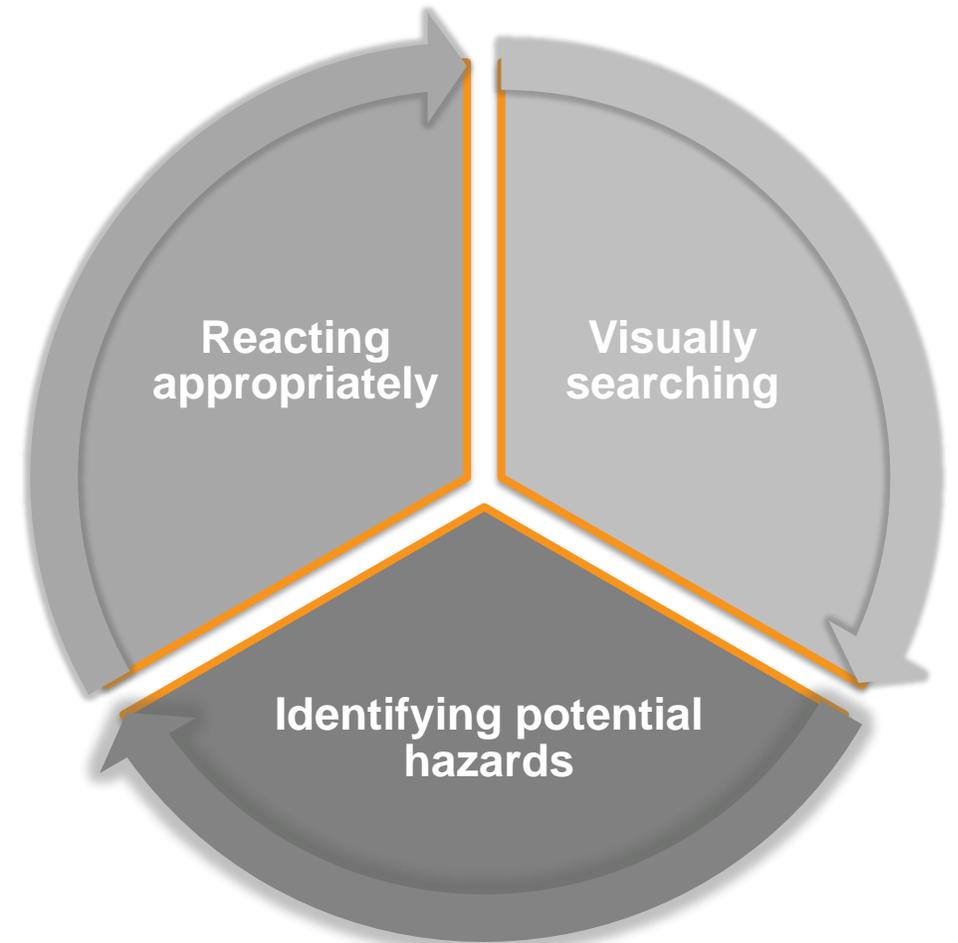
**THE COLOUR
CHANGING
CARD TRICK**

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HAZARD PERCEPTION MEANING

Common themes of hazard perception definitions

- Visually search the environment
 - Scanning the whole environment
 - Identifying areas where dangers may appear
- Identify potential dangers
 - Identify
 - Prioritise & reprioritise
- React appropriately to situations



VISUAL SEARCH – NOVICE VERSUS EXPERIENCED

Novice

- Smaller area of focus
- Very close to the front of the car
- Directed downwards towards the road surface
- Longer fixation periods
- Minimal head movement
- Slower to use their peripheral vision

Experienced

- Start to move their head to the side before moving their eyes
- Wider horizontal search patterns
- However, still many weaknesses
 - Maintaining attention
 - Expanding visual search
 - Not identifying where dangers may come from

IDENTIFYING HAZARDS – NOVICE VERSES EXPERIENCED

Novice

- Poor visual search means novice drivers:
 - May see hazards much later
 - Have less time to react to what they see
- Limited experience in understanding a complex and constantly changing environment
- Task overload – still need time to think
- Task focus – may be prioritising other activities

Experienced

- Has the ability to identify hazards
- Demonstrates greater levels of situation awareness
- However, still many weaknesses
 - Inattention blindness – think of the colour changing card trick
 - Distraction
 - Speed and space choices

REACTING TO HAZARDS – NOVICE VERSES EXPERIENCED

Novice

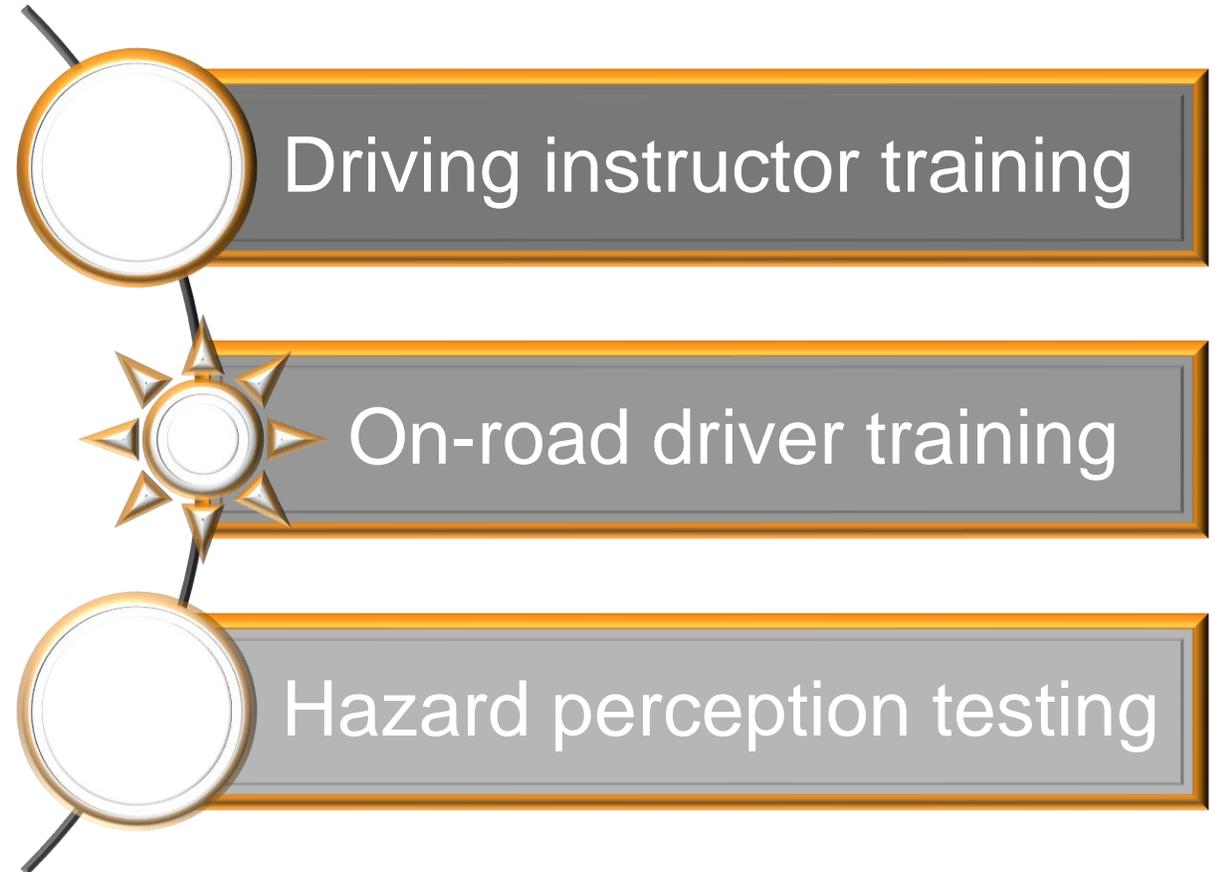
- Lack of experience in knowing what to do
- Less time to react
- Limited awareness of risk – weighing up the benefits and disadvantages of possible courses of action

Experienced

- Draw upon previous experiences
- Have learnt coping strategies and engage with limited cognitive effort
- However, still many weaknesses
 - Context – running late? Frustrated?
 - Attitude – who should have priority?
 - Decisions – limited perhaps by speed and space choices

CONCLUSION

- Novice drivers are at a significant disadvantage across all 3 areas of hazard perception.
- Hazard Perception training is an area of road safety that has had significant research to support its importance in all driver training.



ON ROAD DRIVER TRAINING

Commentary driving

- Commentary driving typically involves being trained in how to produce a verbal running commentary about:
 - what you can see
 - what you are doing
 - what might happen
 - what action you will take to avoid potential hazards
- However, research suggests that this type of commentary can be detrimental to hazard perception.

ON ROAD DRIVER TRAINING

Hazard perception commentary driving

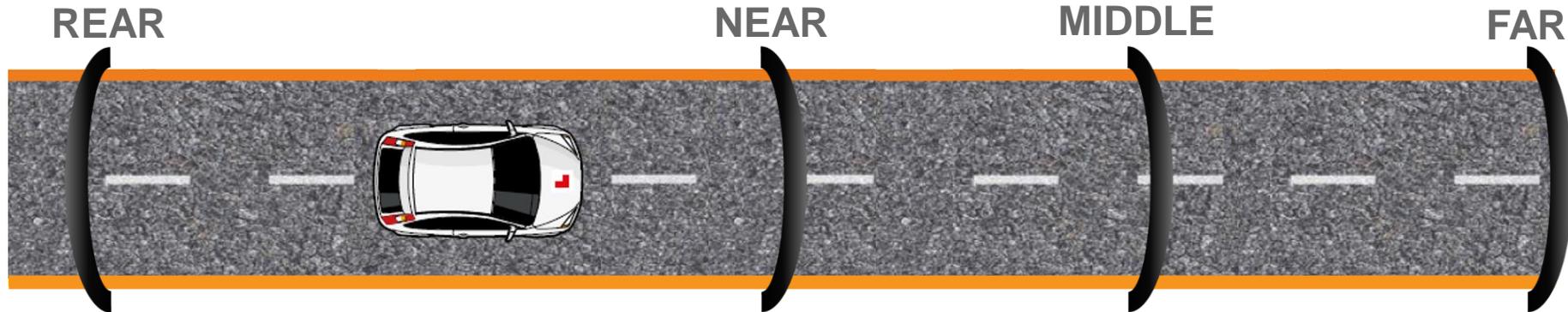
Focus on just two questions

- What do you see on the road clearly that could affect your driving?
- Where could hidden/less obvious danger come from?

NOTE: If you only ask these questions when you spot a hazard for your pupil to deal with you will not fully develop their hazard perception skills. They need to be asked as part of a continuous active hazard perception exercise.

ON ROAD DRIVER TRAINING

Developing prototypes for hazard perception – actively involved



- Use a pattern to support active scanning
- Vision needs to be aimed high and wide

ON ROAD DRIVER TRAINING

Reference points

- There are many mentions regarding the use of fixed reference points to help with; slow speed manoeuvres, positioning and judgement of learner drivers.
- The use of these reference points may
 - encourage a smaller area of focus
 - prolonged fixation
 - downward vision
 - poor awareness of hazards



ON ROAD DRIVER TRAINING

Snap Shot

- Place your learner driver in the appropriate position.
- Take a mental picture from a number of different points of view.
- Discuss the viewpoints encouraging high aim vision and different levels of distance.
- Help support your learner identify potential risks or hazards.
- Test their awareness by providing opportunity for independent practice.



SUMMARY

Thank you for your participation today

- What do you feel you have discovered today?
- What questions/comments do you have?
- What can we do to support you further?

