Centre for Accident Research & Road Safety - Queensland

Adolescent Development

Implications for professional driving instruction

Prof Teresa Senserrick & Dr Natalie Watson-Brown

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ACKNOWLEDGEMENT OF TRADITIONAL OWNERS

QUT acknowledges the Turrbal and Yugara, as the First Nations owners of the lands where QUT now stands. We pay respect to their Elders, lores, customs and creation spirits. We recognise that these lands have always been places of teaching, research and learning.

QUT acknowledges the important role Aboriginal and Torres Strait Islander people play within the QUT community.

Outline

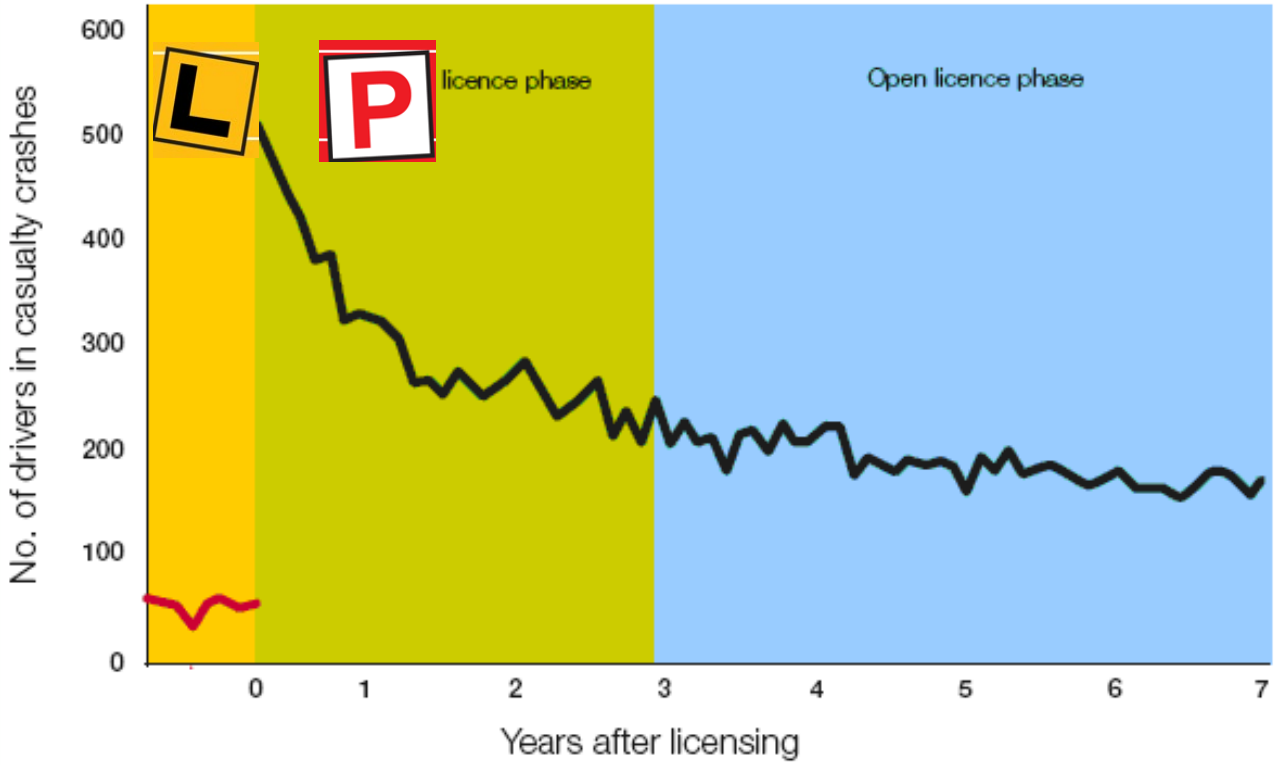
Youth crash risk: what are we targeting?

Adolescent development: understanding risk

Implications for professional driving instruction of young learner drivers

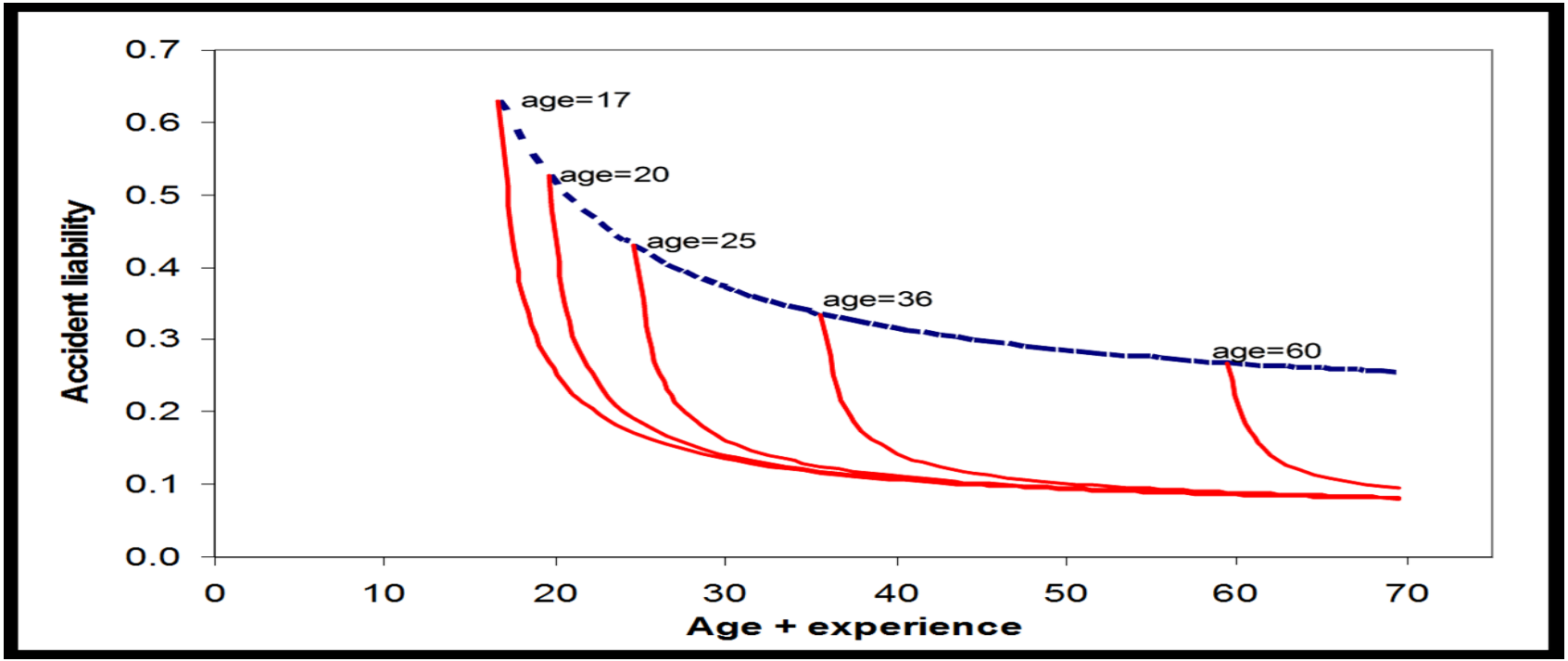
Background

Casualty crash risk by years licensed

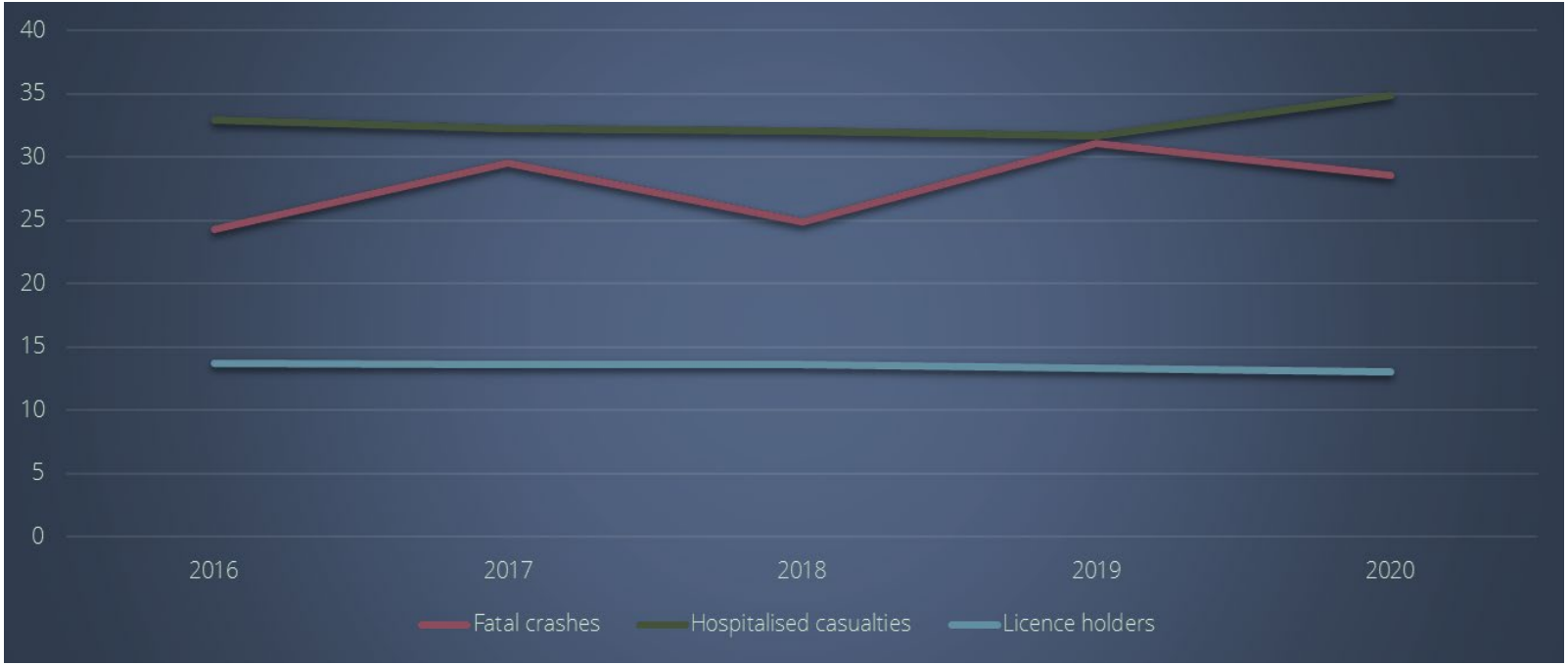


(Queensland Transport, 2009)

Crash risk by age licensed

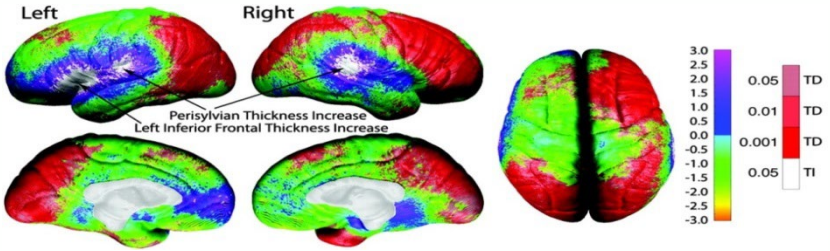


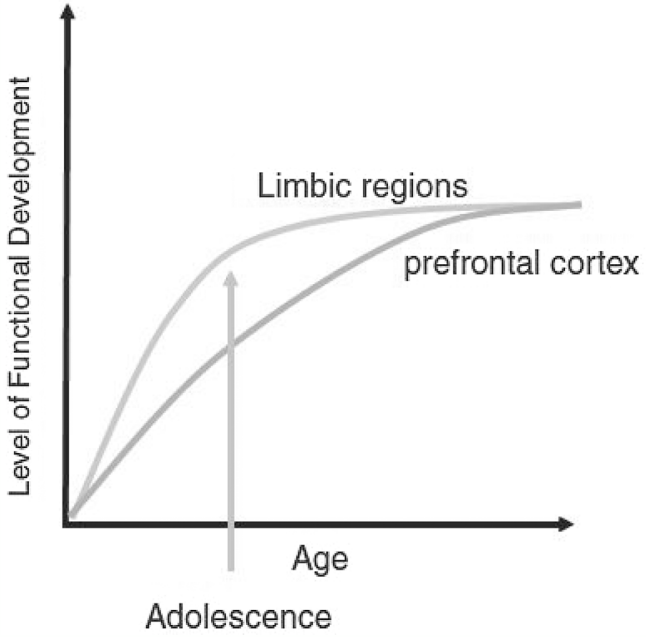
5-year crash trends
Queensland Licence Holders: Aged 16-24 years



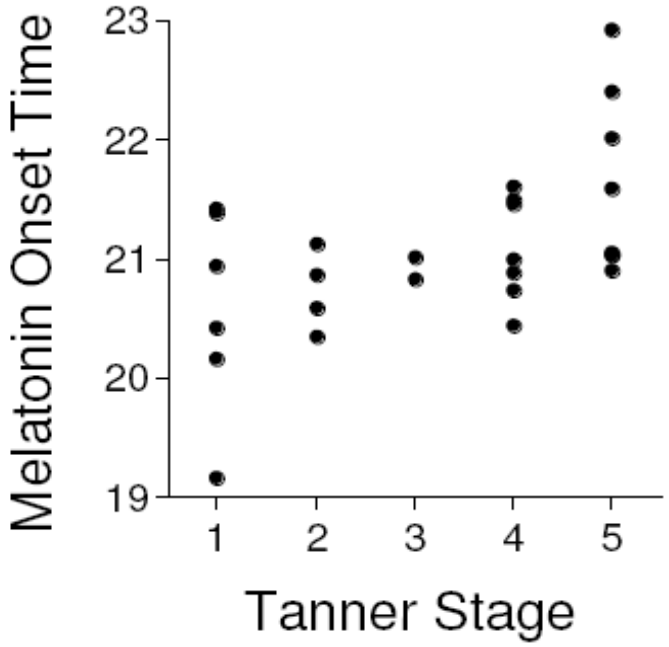
Developmental Factors

Brain development





Melatonin Onset Shift



Driving implications?

Overview of young novice driver crash causes

Biological aspects (Nature)	Age brain development	Gender	Personality	Physical and mental constitution
Norms, values/ competences (Nurture)	Youth cultures lifestyle	Peer group influences	Education	Socioeconomic and cultural background
Capabilities/acute impairments	Alcohol/drugs	Fatigue	Distraction/ inattention	Emotions
Hazard perception in traffic	Scanning	Detecting	Recognizing	Predicting
Risk awareness and task execution	Self assessment	Risk assessment Risk acceptance	Decision making/ action selection	Task execution
Task demands/ exposure	Speed/ vehicle	Traffic density	Road and road environment	(Weather) conditions

(courtesy Vlakveld, 2016)

Adaptive Development

Role of experience

Role of environment

Higher risk, not high prevalence

Training Solution? Higher Order, Self-regulation

GDE

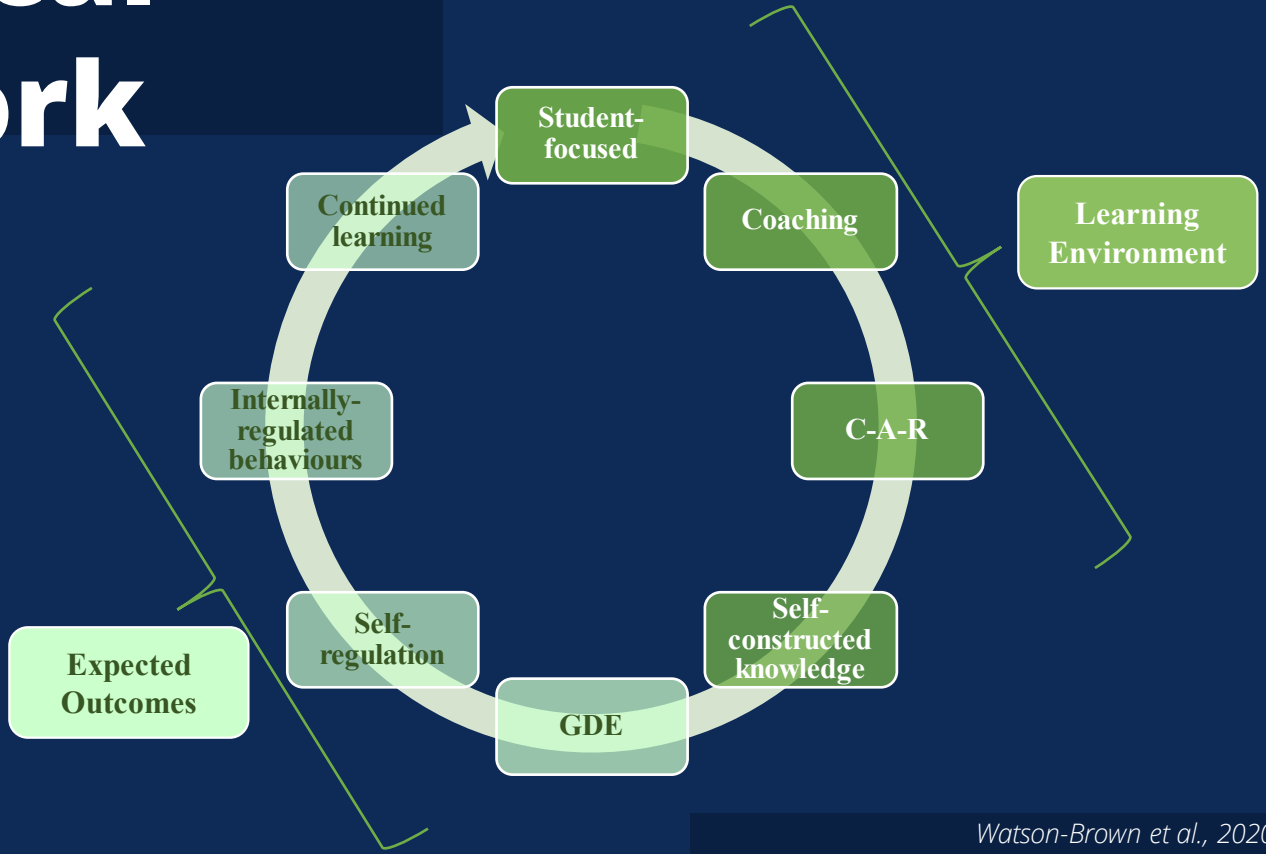
	Knowledge and skills	Risk-increasing factors	Self-evaluation and awareness skills
Level 4: Goals for life and skills for living	Personal tendencies that impact driving	Not accepting safe social norms, e.g., regarding drug use	Ability to recognise and control impulses
Level 3: Goals and contexts for driving	Trip planning, route choice	Poor driver condition, e.g., mood, medication	Personal planning skills, motives for safe vs risky driving
Level 2: Mastery of traffic situations	Road rules, safety margins	Driving skill deficits, e.g., in poor weather conditions	Awareness of personal driving style
Level 1: Vehicle manoeuvring	How to operate a vehicle, e.g., change gears	Not yet automating psychomotor skills for operating a vehicle	Realistic self-evaluation about vehicle handling capability

Self-determination theory

Type of Regulation	Non-regulation	External regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
Reason for Acting	None (no intent to act)	Reward or punishment	Others' approval or avoid guilt	Importance and value	Consistent with **my** goals and values	Inherently enjoyable / satisfying
What it means to driving	*Unintentional/ habitual risky driving*	*Comply when enforcement is visible*	*Comply to avoid feelings of guilt*	*Value the safety of compliant driving behaviour*	*Driving safely aligns with other elements of the self*	*Driving safely is enjoyable*

Deci & Ryan, 2000 and Livitz et al., 2017.

Theoretical framework



Watson-Brown et al., 2020

Research

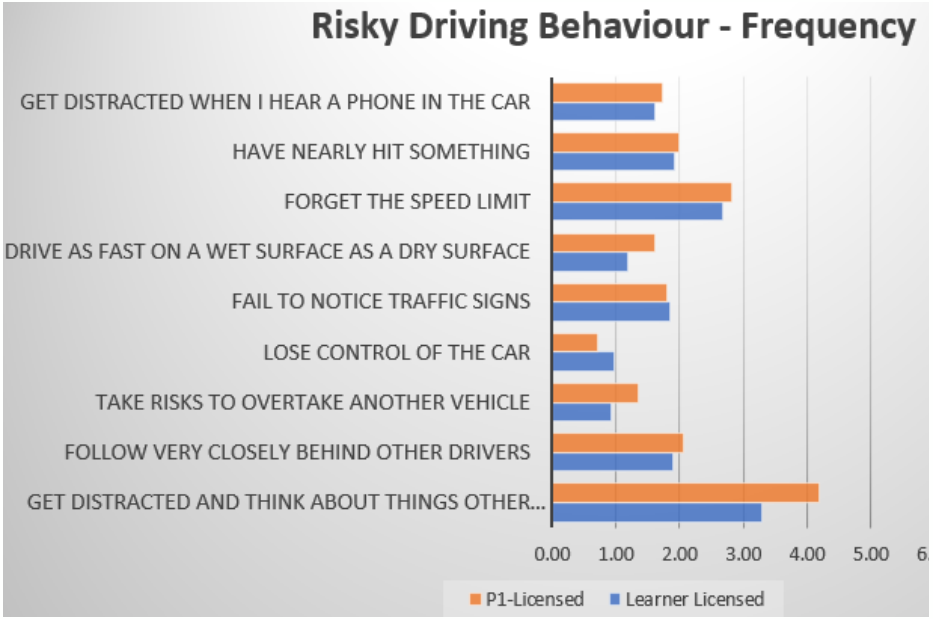
Survey >1,600 drivers age 16-19

– 1,038 L, 589 P

Naturalistic observation
110 professional driving lessons

Interviews 13 professional driving instructors

Survey Results

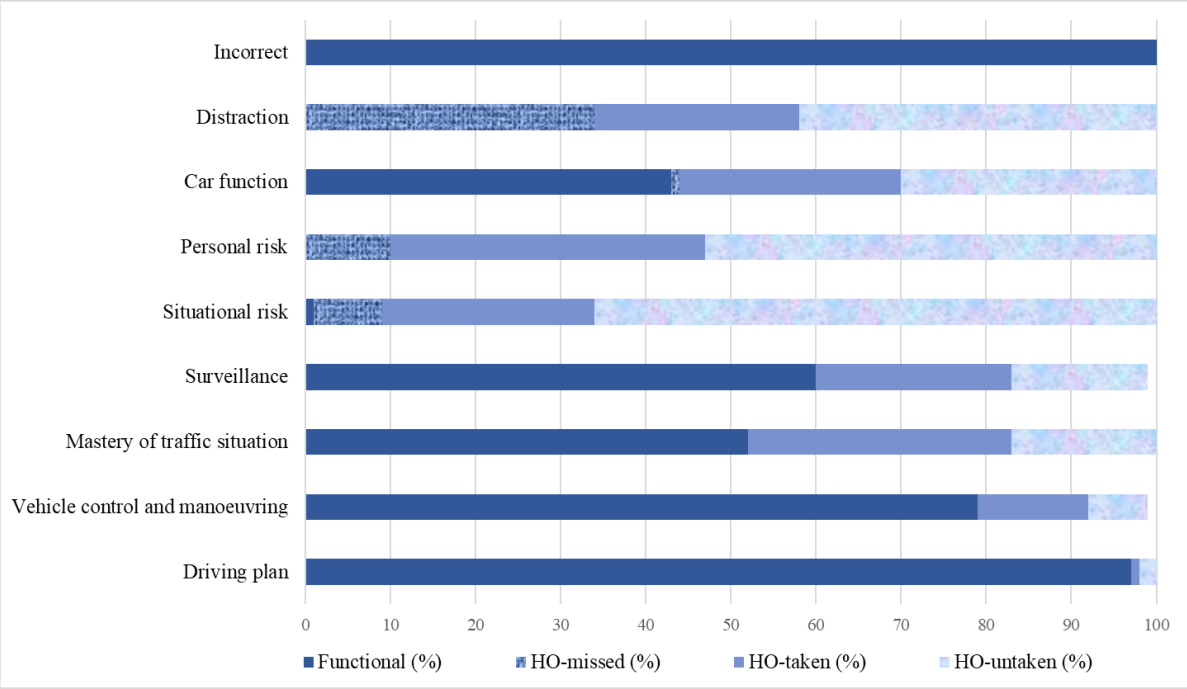


↑Self-regulation = ↓Risky driving
– intentional and unintentional

Influences L unintentional risky driving
↑ negative emotions
↑ pressure from others
– overtaking, tailgating, speeding

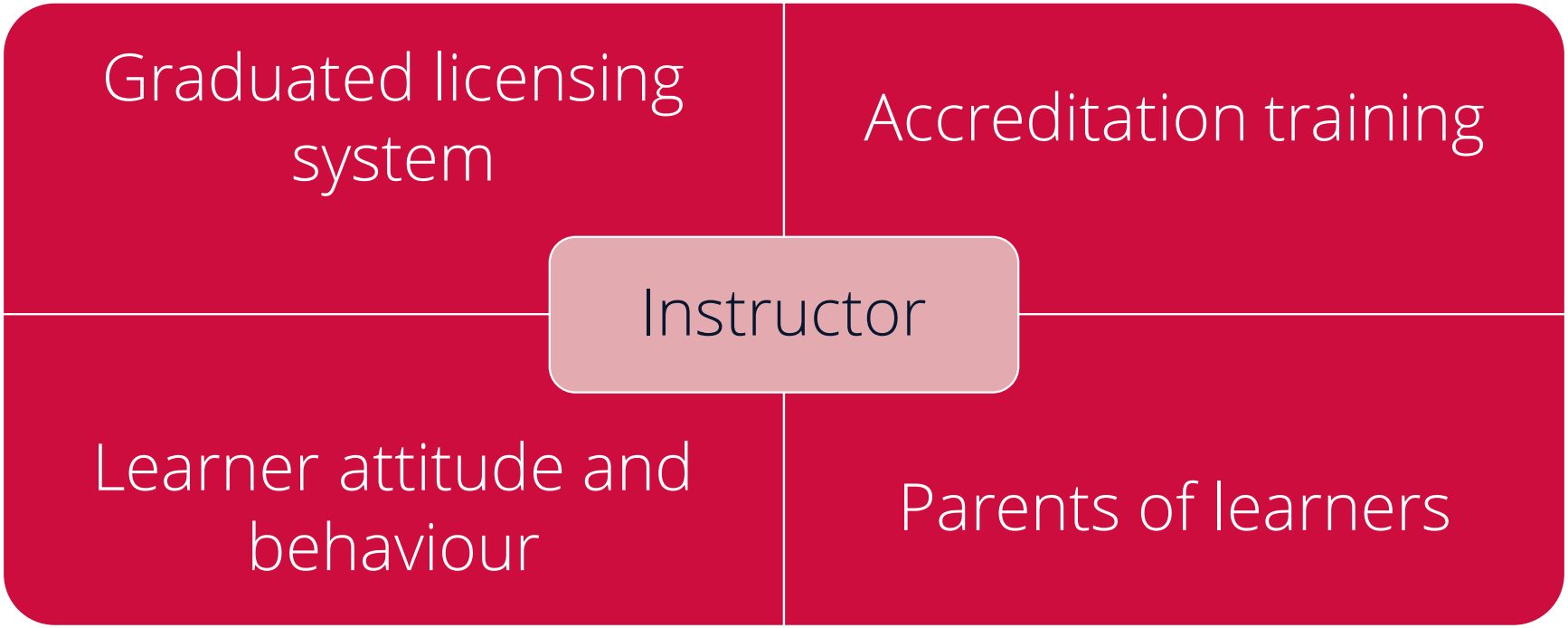
➢ ↑ L self-regulated safety orientation

Observation of Learner Lessons

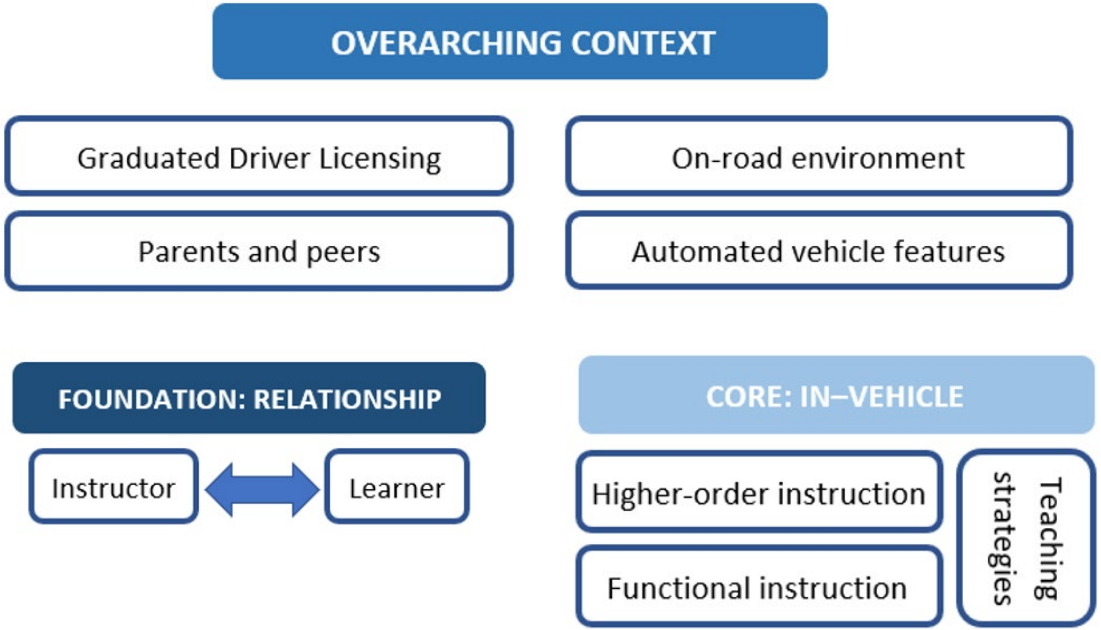


Watson-Brown et al., 2020

Driving Instructor Interviews



HOT-CAR Model



Application of the Model: Learner

Example 1

Learner: I guess I could go now.

Instructor: Should we guess? It is kind of an important decision, I don't want you guessing,

I want you to be able to land a jumbo jet in the gap that you are going to choose.

Pretend you are driving a double decker bus; that is the gap that you need

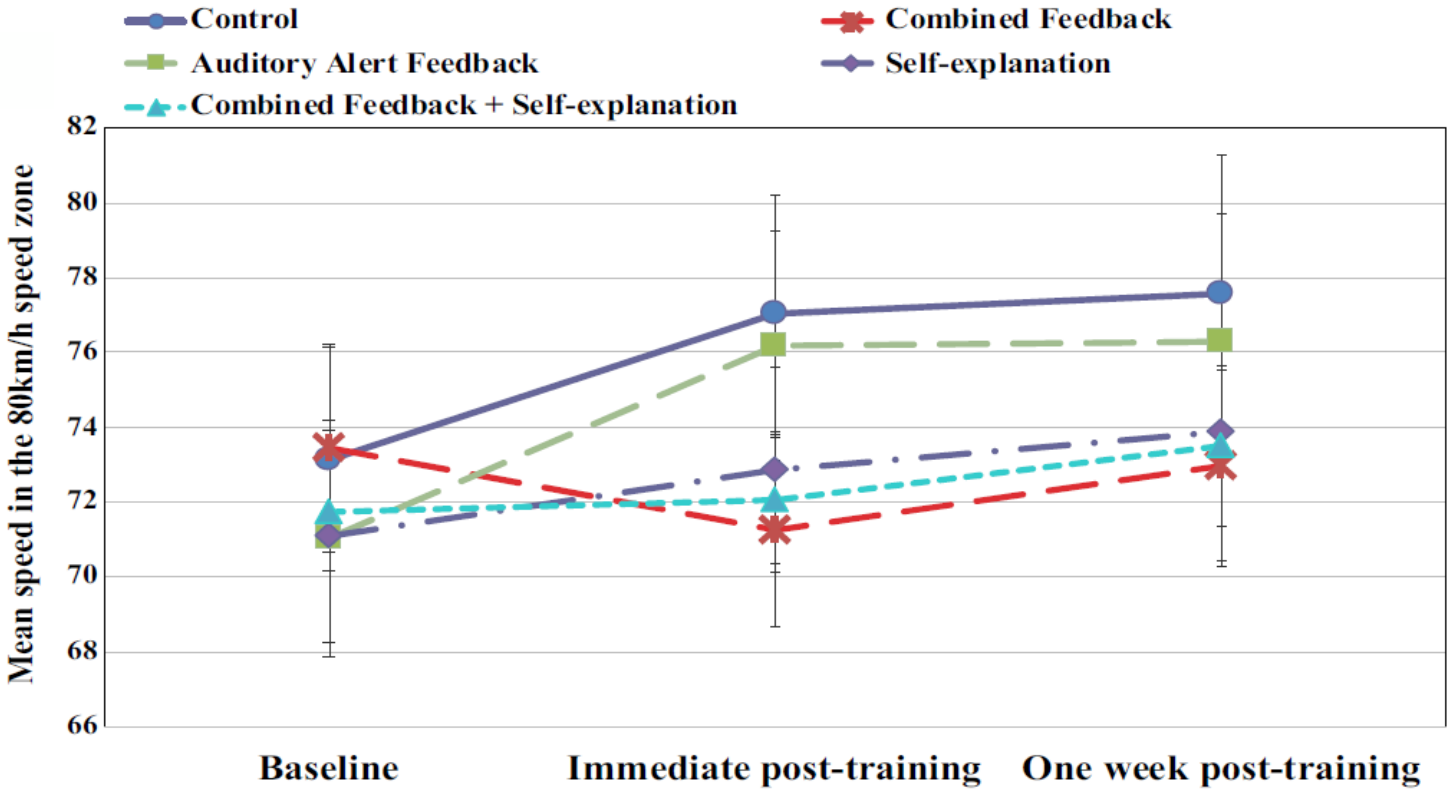
Dissecting Example 1

Mastery of Traffic Situation

Coaching strategies
Driving task reflection; Autonomy supportive; Specific feedback; Encouraging self-awareness; Relatedness; Homework

Targeted higher-order skills
Decision-making – judgement; Situation awareness; Risk awareness

P driver Example



Conclusions

Healthy development, lifestyle, inexperience inflate risk

- Most young people intend to drive safely
- High risk-takers few, mostly short-lived

Training Ls: higher-order, self-regulation

- Beyond passing test, reduces risky driving

Feedback, coaching

- Self-reflection, self-regulation

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Thank You!

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Teresa Senserrick PhD
Teresa.senserrick@qut.edu.au