

Risk perception assessment in young novice drivers

The role of Portuguese driving training system in the acquisition and development of this competence

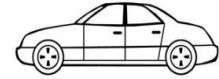
Ana Milhano & Cláudia Alves

Dublin, 6 June 2014

Agenda

1. Overview of driving training and testing process in Portugal
2. The role of risk perception
3. Our research
4. Presentation of the main results and findings
5. Preliminary conclusions and next steps

Portugal has a traditional training and assessment system



B category

Theory, Training and/or Practice

- Previous requirements: Minimum age: 18 years; Physical, mental and psychological fitness

- Mandatory: **Written Test and Driving Test**; Minimum number of theory and practical lessons; Certified instructors

Probationary License

- Public and private exam centres; Certified examiners
- Curriculum regulated by Government (Driving Licence Directive)

Full License

- Theoretical test in a computer based system and a on road skills and behaviour test

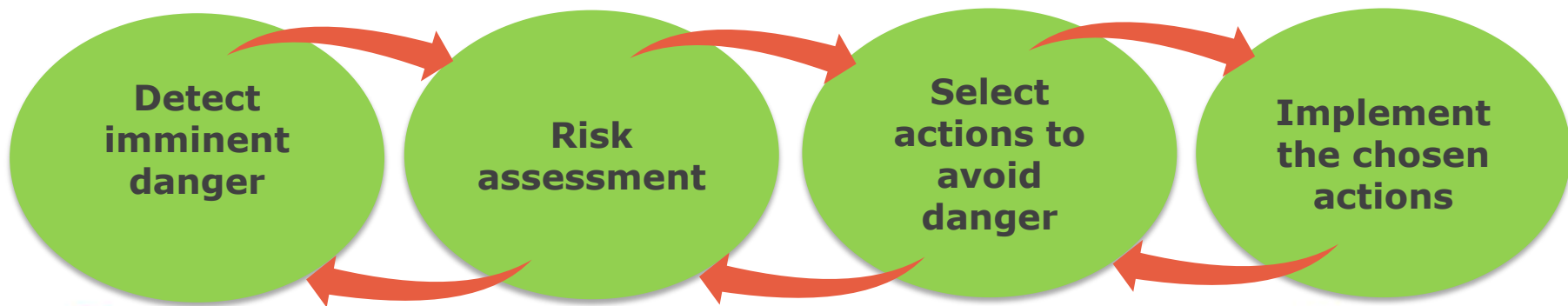
Hazard perception (HP)

“The ability to read the road”, preventing potential hazards that develop in the road environment¹



Source: adapted DSA

4 processes play a role in hazard perception²



Theoretical contents



Practical contents

Human error as the dominant factor in the accident

Visual perception in driving performance

Strategies for anticipating and predicting the potential dangerous of the road elements

Assessment of risk and the accepted lower risk

Adapting speed to traffic

Driving self assessment – Be able to take the best decision

Commented driving

Independent driving



Goals of our research

- Knowing that training and assessment system for drivers candidates in Portugal already includes topics related to risk perception skills
- But considering that this is a traditional system, with possible limitations in the acquisition and development of higher skills
- We set out to investigate the impact of certain parameters of the system, in the levels of risk perception skills in a sample of young novice drivers

Overall objective

To assess risk perception skills, such as visual perception and acceptance of risk by young novice drivers, to know the role that driving schools in Portugal have in the acquisition and development of these skills

Specific objectives

→ Training curriculum

→ Driving experience

obtaining the driving licence

Identify if certain characteristics of driver training contribute to better risk perception skills

Identify if patterns of behaviour influence risk perception skills

Identify if certain factors influence risk perception skills

Method

Sample

- ✓ N=68
- ✓ University students, category B driving license, issued in Portugal
- ✓ Age: 18 to 26 years; Average (21,96 years); SD (1,32)
- ✓ Gender: M = 31 (46%); F = 37 (54%)
- ✓ 35 (51%) in the probationary period (< 3 years); 33 (49%) in the post-probationary period (> 3 to 5 years and 4 months)

Materials

1

2 Psychological tests to assess risk perceptions skills (Vienna Test System)

2

Questionnaire and data from exams (IMT database)

- ✓ Collect information of the training process and the impact when driving solo
- ✓ Importance given by driving schools in contents related with risk perception
- ✓ Driving experience (years of license; hours and km/week of driving)
- ✓ Driving behaviour and attitudes (traffic offenses and accidents)

1

Visual Traffic Perception Test (VTPT): rates the visual perception performance and ability to perceive critical situations with short presentations of 2 seconds of traffic situations

How is the test?



- Pedestrian, children
- Motor vehicle
- Bicycle, motorcycle, scooter
- Road sign
- Traffic light

1

Variable: “Willingness to take risks in traffic situations” – A high percentile rank (PR & T) indicates a low level of subjectively accepted risk, measured by the level of risk in potentially dangerous driving situations in accordance with Wilde’s theory of risk homeostasis of objective danger



24 traffic situations in video format

Multiple traffic situations



Procedure

Participants were given standardized information about how to perform each test



They were asked to answer truthfully and to position themselves as if they were in a natural driving environment



Then, completed two psychological tests and the online questionnaire

In total, the assessment lasted for about 50 minutes

Global psychological tests results

✓ Young novice drivers have percentiles in the average (25 to 75) in both psychological tests

Table 1. Percentiles – TAVTMB
(n=68)

Average	SD
39,61	22,40

Table 2. Percentiles – WRBTV
(n=68)

Average	SD
43,75	29,02

PERCENTILE RANK

<16 = Below-average

16-24 = Below-average to average

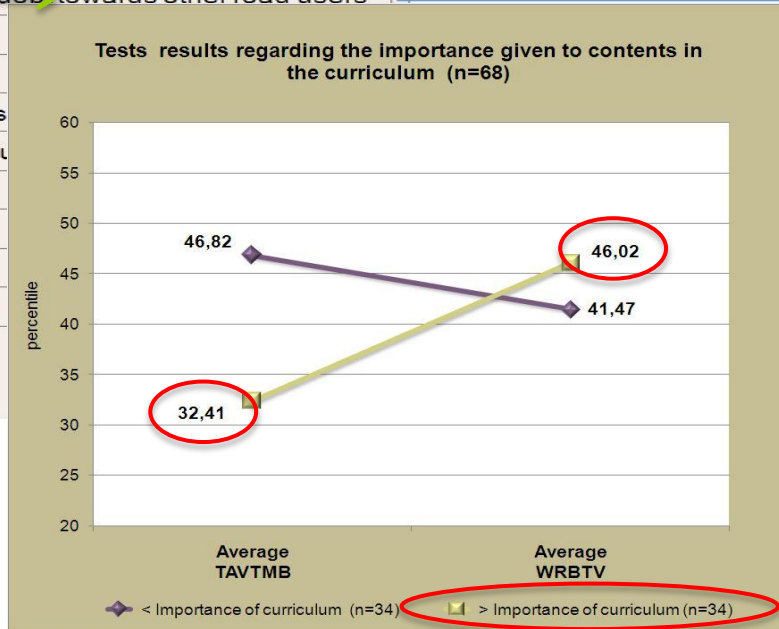
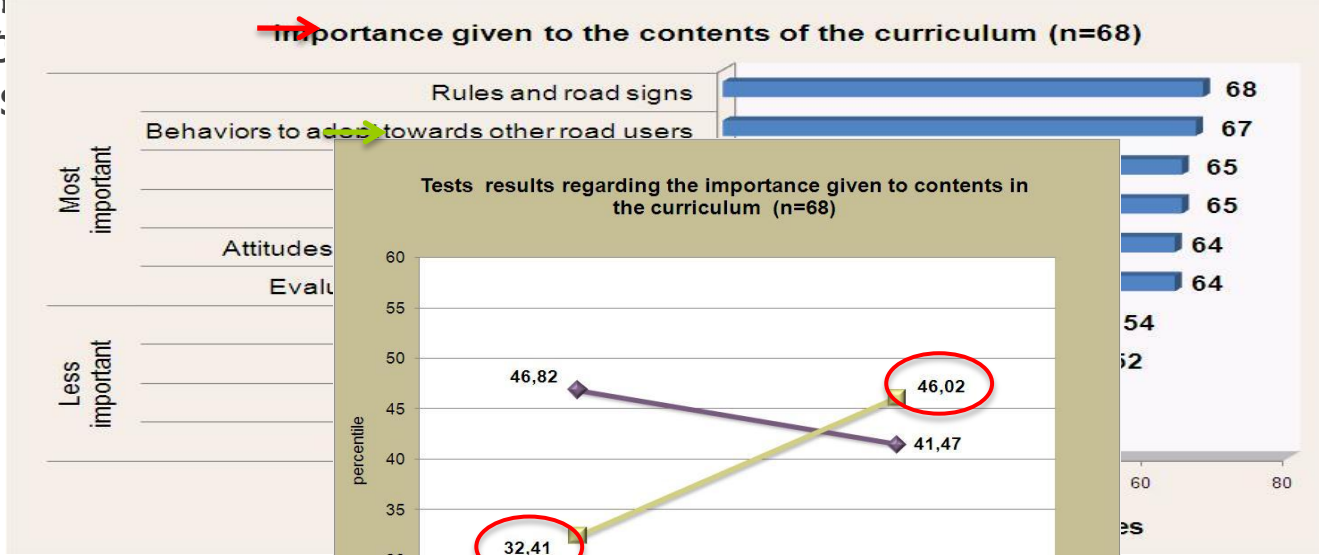
25-75 = Average

75-84 = Average to above average

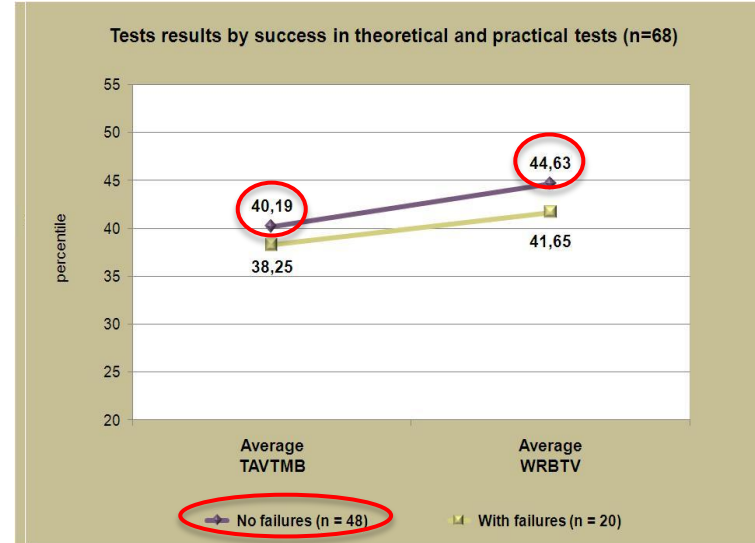
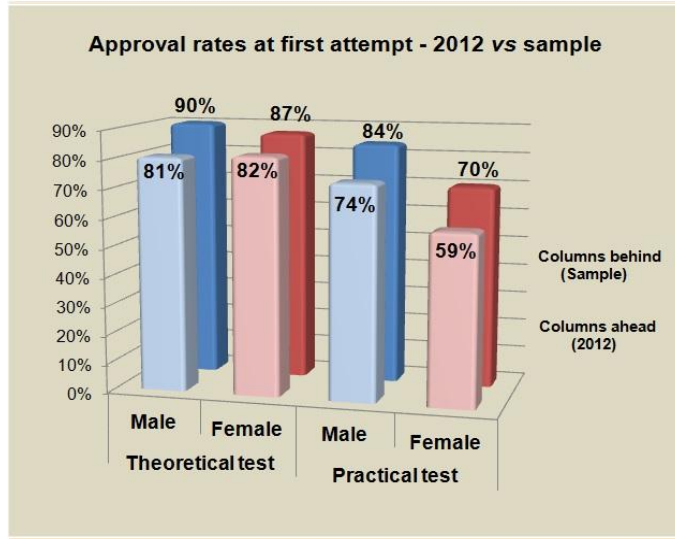
>84 = Clearly above average

Training Curriculum

✓ Participants who consider that driving schools give more importance to the contents of the curriculum (WRBTV) and less importance to the contents of the curriculum (TAVTMB)



Duration of training and practical tests

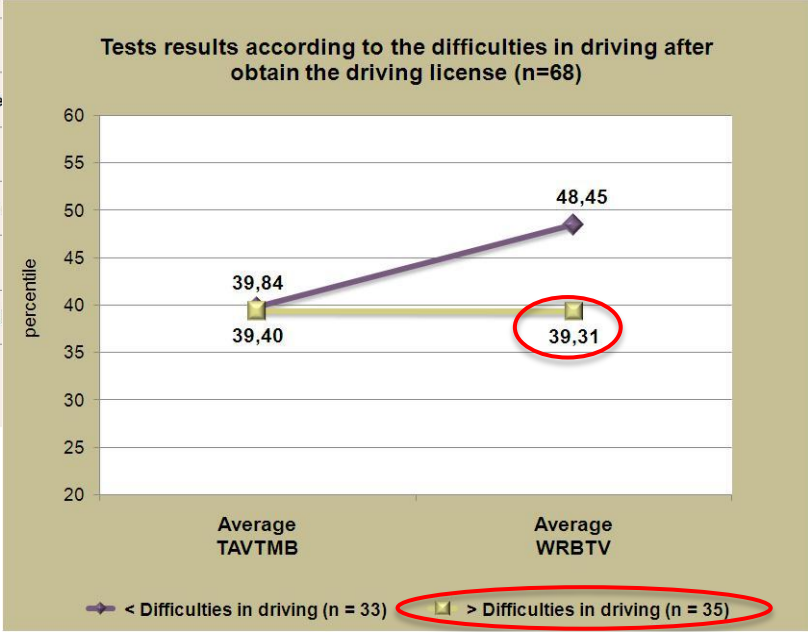
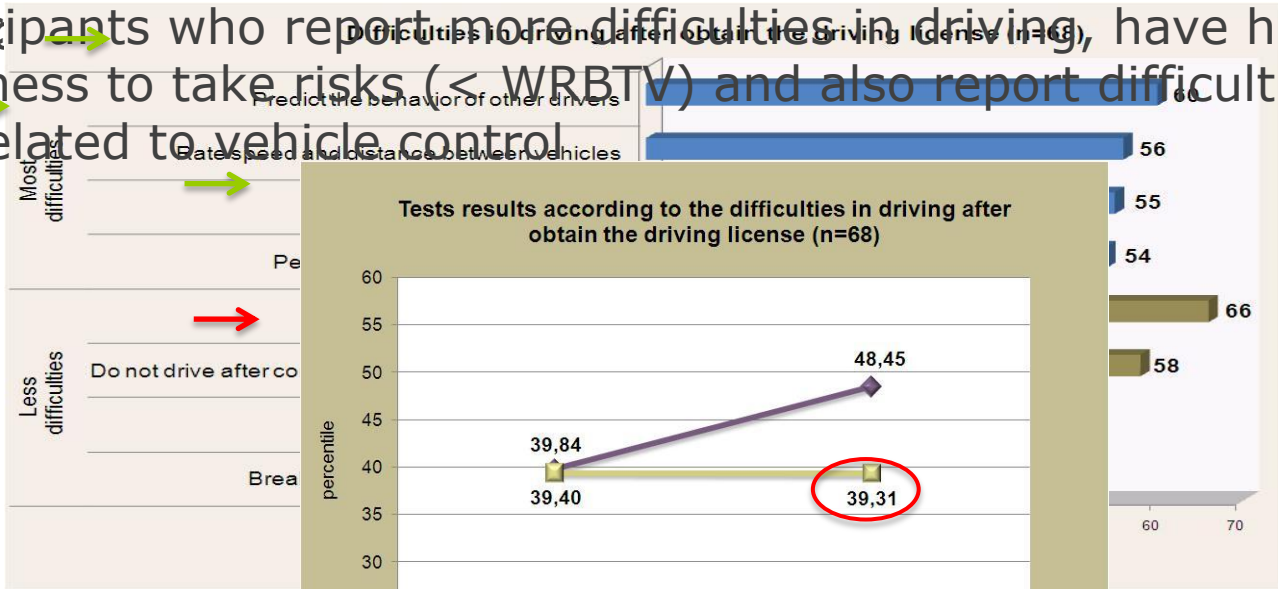


✓ Training tends to last longer for women than men
 ✓ Men have higher % approval in both tests at first attempt

It is not clear the relation between the duration of training and the tests results
 ✓ Participants who approve at first attempt (T + P tests) have better performance in TAVTMB and WRBTB

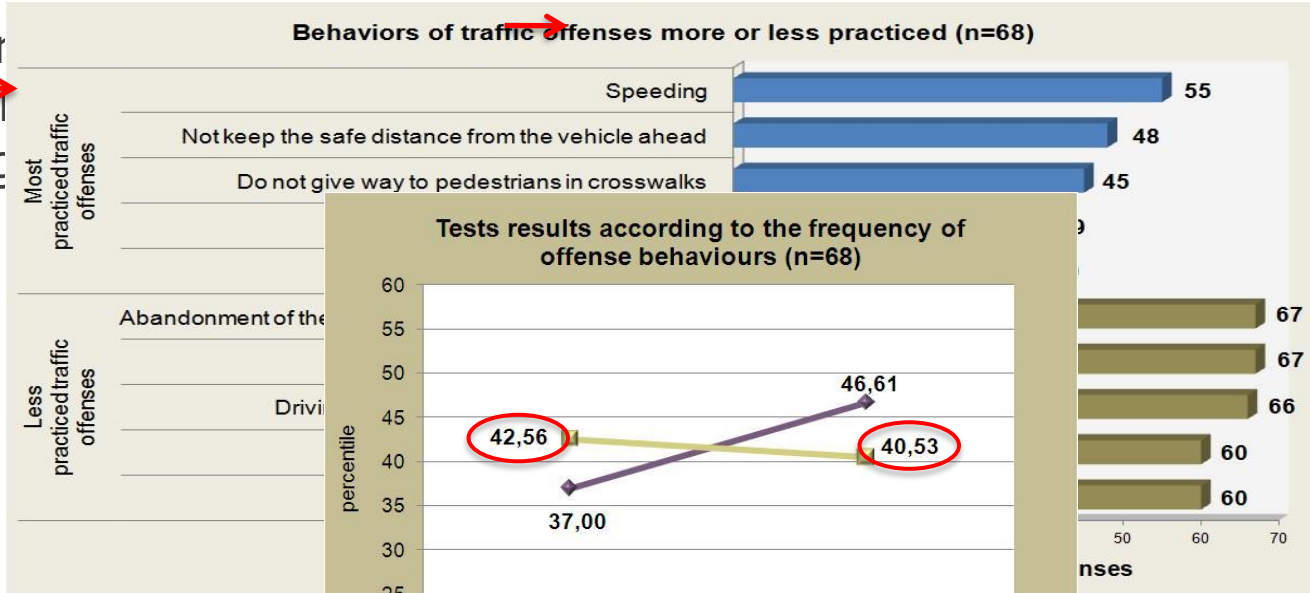
Specific difficulties after obtaining the driving license

✓ Most participants who report more difficulties in driving, have higher willingness to take risks ($< WRBTV$) and also report difficulties in skills related to vehicle control.



Self-report behaviours of traffic offenses

✓ Driver higher willingness



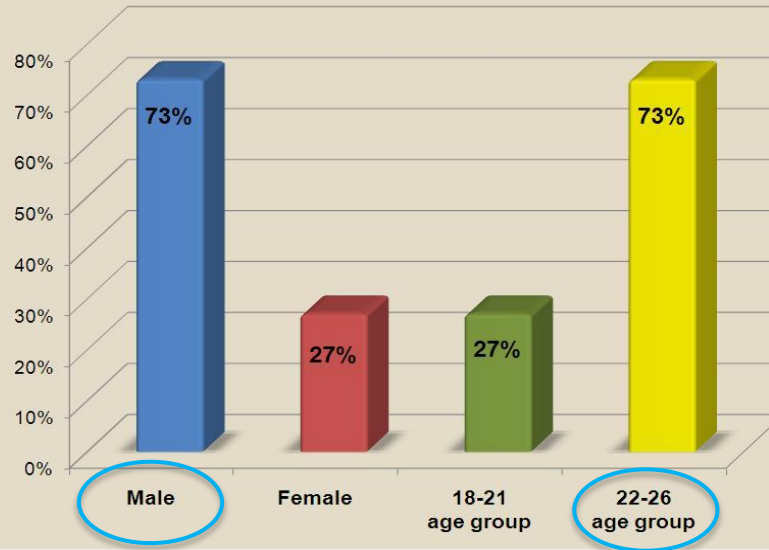
ve higher

Register and report traffic offenses

- ✓ 16% (n=11) of the sample were involved in 23 traffic offenses (19 men; 4 women)
- ✓ Traffic offenses are mainly committed by men and specially after the probationary

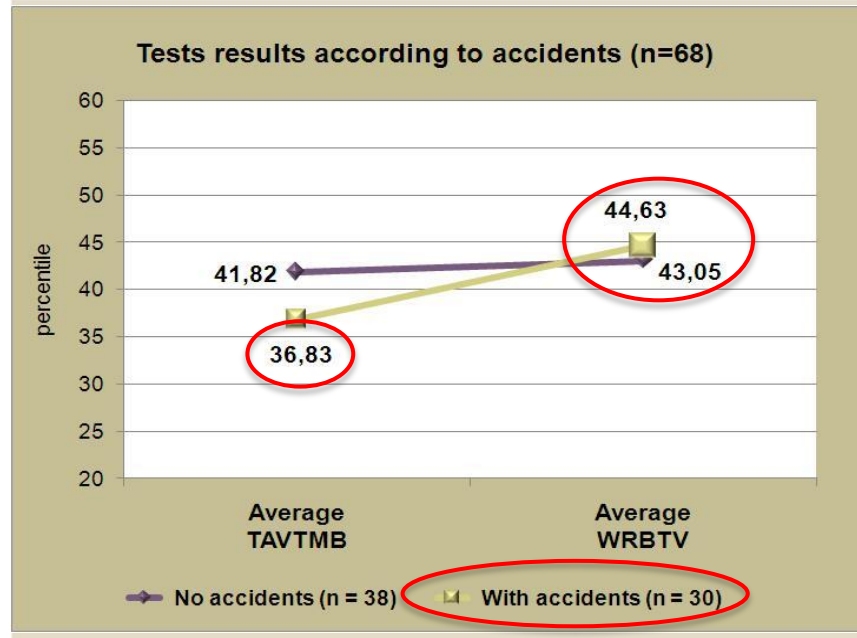
Drivers with and without traffic offenses (%) (n=68)

Traffic offenses by gender and age group (%) (n=68)



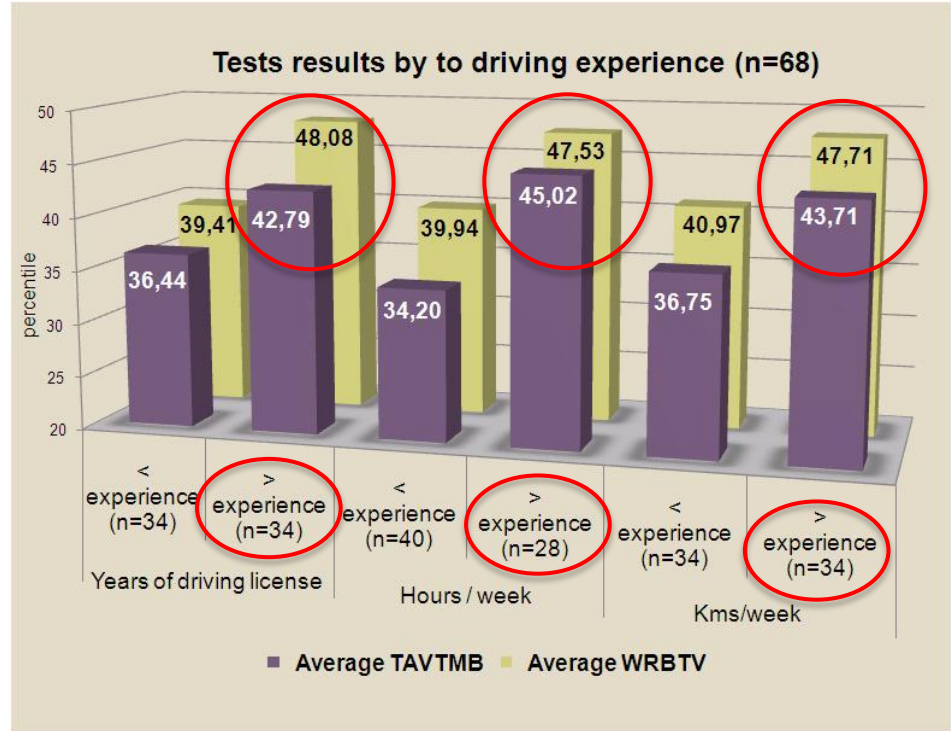
Involvement in self-reported road accidents

- ✓ Drivers with accidents (44%) less accurately distributed by traffic and situations (→ TAVTMB) accidents were due to collisions



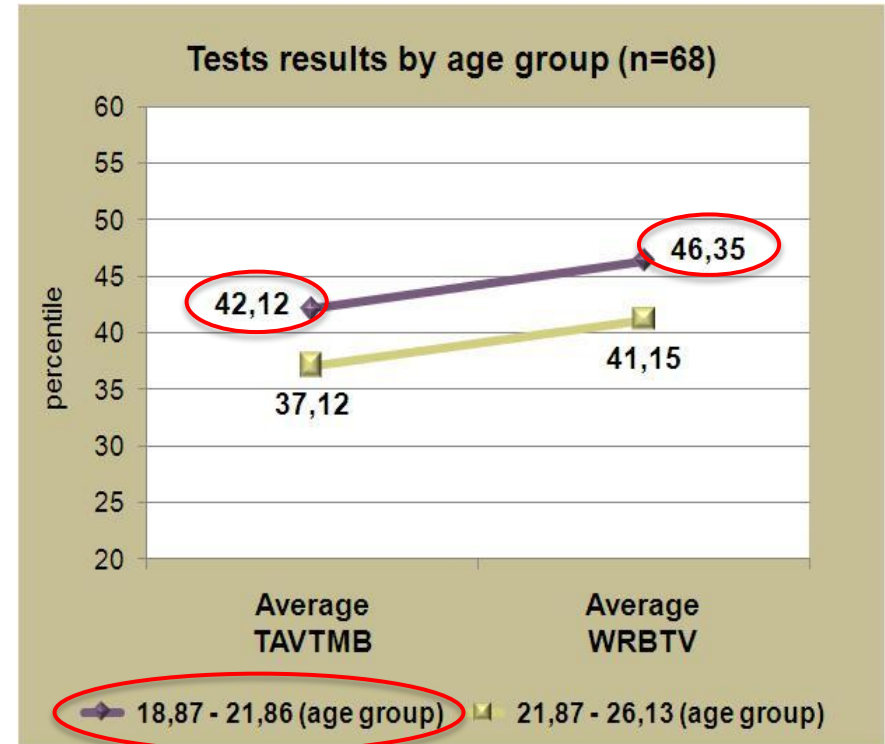
Driving experience

The higher the driving experience (measured in years of driving license, driving hours/week; km driving/week) the higher the performance in both tests (TAVTMB and WRBTV)



Age

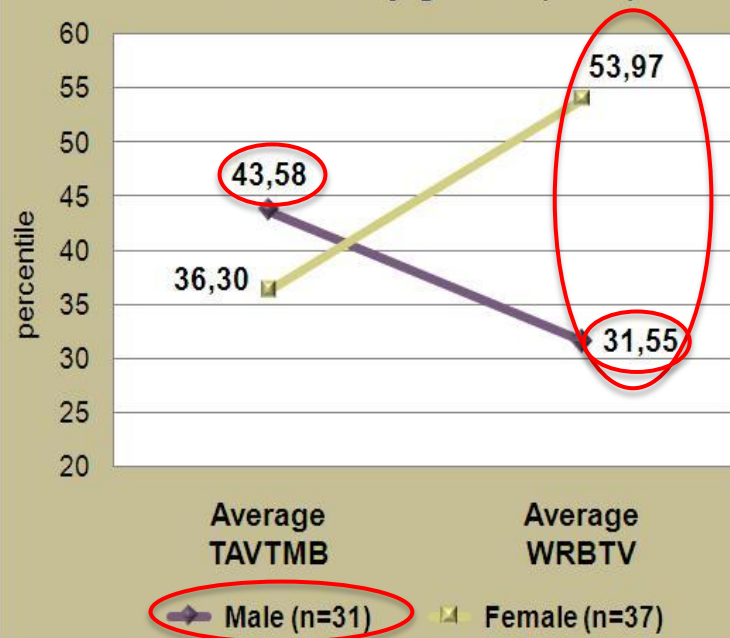
- ✓ Drivers age range 18,87 to 21,86 years (n=34) shows higher performance in both tests (TAVTMB and WRVTB)
- ✓ Younger's have more accurate overview of traffic situations and less willingness to take risks, compared to the age group from 21,87 to 26,13 years



Gender

- ✓ Gender shows an ability to forecast Vienna risk taking test
- ✓ Men have higher willingness to take risks, while they have better performance in TAVTMB – more accurate overview of traffic situations
- ✓ The performance in WRBTM test was significantly lower in men than in women

Tests results by gender (n=68)



Results show that

- Participants have average levels in risk perception skills and, in general, feel that driving schools give importance to areas related to risk perception. However, after obtaining the license, most of them indicate difficulties in driving related to the acquisition and development of these higher skills
- The results do not permit to establish the influence of the training process on the acquisition and development of risk perception skills
- The results show that as the driving experience increases, the risk perception skills also increases, both in the ability to perceive a traffic situation accurately and quickly, or in the decrease of the accepted level of risk. The same is not true for the variable age

Results show that

- ⊕ The results suggest that there is a bias in driving training, which benefits men, but does not seem to promote the acquisition and development of the higher skills of risk perception
- ⊕ Male drivers, having more developed skills of visual perception and perceptive speed, may feel a sense of self control and self-confidence. This may explain a significant higher willingness to take risks in traffic situations, when compared to female drivers

Next steps



- Increase the sample to determine or confirm eventual correlations between independent variables and the psychological tests applied
- Study other populations and age groups
- Specific training and assessment of hazard perception in Portugal may be an asset

Acknowledgements

- University students that participated and professors who took available academic time for this research
- To IMT, for all the support in the study
- Universities that supported the study:
 - ❖ University of Lisbon
 - School of Economics & Management (ISEG)
 - School of Social and Political Sciences (ISCSP)
 - ❖ ISCTE/IUL - Lisbon University Institute
- Professors Ricardo Ramos Pinto (ISCSP) and Maria Ana Vitorino (Carlson School of Management, University of Minnesota) for their collaboration in the statistical analysis
- Susana Paulino (Driving Training Department, IMT), for having challenged us to investigate this area, Elsa Caldes and Flávia Campos, who assisted in the sample collection, and all the colleagues from IMT, for their support and review

Thank you for your
attention

Ana Milhano – aiantunes@imt-ip.pt

Cláudia Alves – mcalves@imt-ip.pt