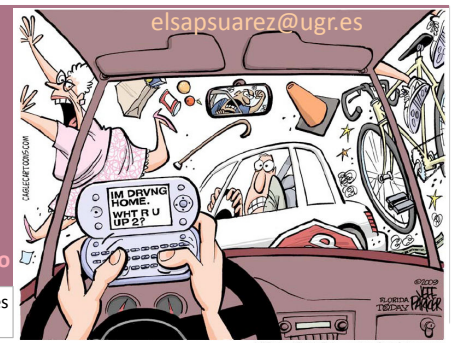


Unsecure Drivers are more prone to Attentional Errors measured with the British-Attention Related to Driving Errors Scale (English-ARDES)



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Aim To explore the proneness to make attentional errors while driving in British population, analyzing the differences according to socio-demographic and driving characteristic, using the final adapted English version of ARDES.

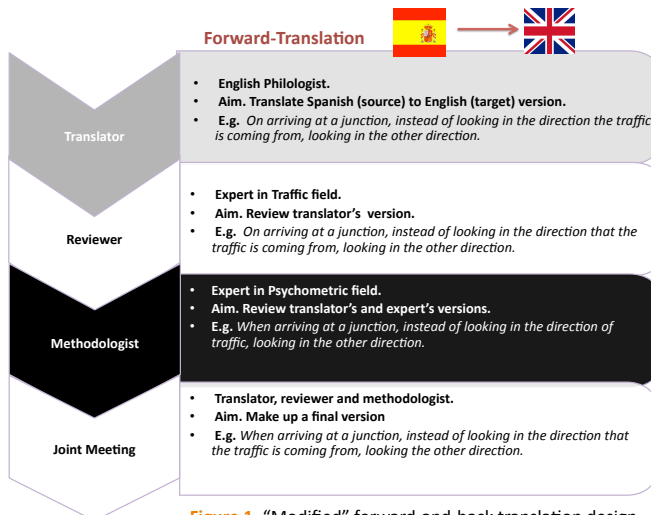


Figure 1. "Modified" forward-and-back translation design

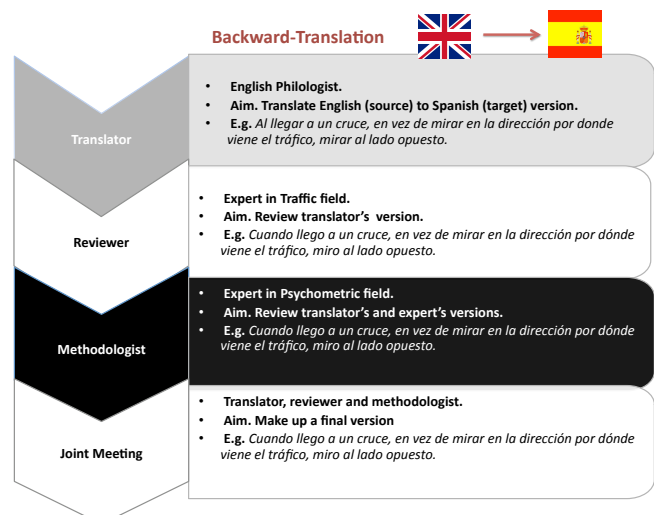


Figure 2. Mean of ARDES by number of accidents

Background



Driver distraction has been widely explored during recent decades, because driver distraction is a contributory factor in road traffic accident. The Attention Related Driving Errors Scale (ARDES) is a self-reported questionnaire to assess individual differences in the proneness to make attentional errors while driving. The aims of this research were to adapt the Spanish ARDES (Roca, Padilla, López-Ramón & Castro, 2013) to the culture, language, traffic regulations and driving habits of the UK; and provide new validity evidence of the cross-cultural equivalence of the scale.

Translation summary

The 52.63% of the final items were proposed by the expert in the forward-translation and 94.74% of the final items were proposed by the methodologist in the backward-translation. The most frequent changes were semantic (51.41%), then morphological (18.51%) and lastly syntactic and order changes (12.15%). Finally, two Spanish versions were compared. Only morphological changes were found: all verbs were expressed in the infinitive in the original version while all verbs were expressed in the first person of the present tense in the new version. The target questionnaire is showed in Table 1.

Joint meetings during the translations phases and the committee review can guarantee better translations into the target language by overcoming known drawbacks of the classic forward and backward translation design. Particularly, this modified translation design and psychometrics obtained in the current study suggest that the adapted version of the ARDES is a useful tool for evaluating proneness to attentional errors while driving in the British population.

Method

Psychometrics

Participants: The sample was composed by 302 British drivers ($M_{age} = 52.86$; $S.D. = 6.28$), which were recruited in the access to Alhambra and in Granada-Jaén Airport. Fifty-two percent of the sample were female and 48.0% male. The average experience was of 32.15 years since obtaining a class B driving license.

Instrument: 6 experts were enrolled in Modified forward-and-back translation design, Figure 1.

Results

All items showed positive loadings, ranging from .44 to .62, on a first factor. This factor explains 33.84% of the total variance. The corrected item-total correlation values varied between .25 and .54. Cronbach's alpha coefficient value was .89.

- ✓ Drivers who reported traffic collisions with material damage were more prone to attentional errors while driving than drivers who did not report such events ($p < 0.01$), Figure 2.
- ✓ It was not found statistical differences between gender or educational level ($p > 0.01$).
- ✓ A partial correlation between ARDES total scores and the number of years since passing the driving test, controlling for age, was significant ($r = .21$).
- ✓ It was found significant correlations between ARDES-UK and participants' perception of their driving ability ($r = .39$) and safe driving ($r = .45$).

Conclusions

These results suggest that the reported positive correlation between ARDES and drivers' experience was not affected by drivers' age; there are positive relationships between ARDES and participants' perceptions of their driving ability and safe driving; and significant differences were found between drivers with and without traffic accidents and their proneness to attentional errors while driving. Looking to the future, we intend to integrate an approach of countermeasures that combines a study of the sources and the consequences of driving inattention.

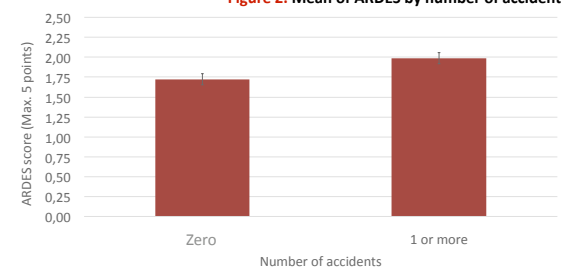


Table 1. Final adapted English version ARDES

The following questionnaire describes situations that can happen unintentionally while a person is driving a vehicle. We ask you to indicate to what extent these things happen to you as a driver. To answer, mark with a cross (X) the number that fits your response in each situation using the scale below.	
1 = never or almost never ; 2 = Rarely; 3 = Sometimes; 4 = Often; 5 = Always or almost always	
1. Heading towards a known place, becoming distracted, and then going several streets beyond it.	1 2 3 4 5
2. Signalling a manoeuvre, but unintentionally making another one (for example, switching on the indicator to turn one way but instead turning the other).	1 2 3 4 5
3. Being distracted when reaching a junction, and as a result failing to see a car approaching the junction.	1 2 3 4 5
4. Suddenly realising that I'm lost or that I've taken the wrong road on a familiar route.	1 2 3 4 5
5. When arriving at a junction, instead of looking in the direction the traffic is coming from, looking in the other direction.	1 2 3 4 5
6. On arriving at a junction, not realising that a pedestrian is crossing the street.	1 2 3 4 5
7. Not realising there is an object or a car behind me and hitting it unintentionally.	1 2 3 4 5
8. Not realising that the vehicle in front has slowed down and having to brake sharply to avoid a collision.	1 2 3 4 5
9. Another driver sounding their horn because I'm distracted and haven't noticed that the traffic lights have changed to green.	1 2 3 4 5
10. Forgetting my lights are on full beam until another driver flashes their lights to warn me.	1 2 3 4 5
11. Forgetting for a brief moment where I'm driving to.	1 2 3 4 5
12. Taking a roundabout route to arrive at a place I know how to get to.	1 2 3 4 5
13. Going through traffic lights when they've just turned red, not realising they had changed because I was blindly following the preceding traffic.	1 2 3 4 5
14. Trying to drive off and realising I'm not in first gear.	1 2 3 4 5
15. Intending to use one device, but using another instead (for example, meaning to switch on the windscreen wipers and instead switching on the lights).	1 2 3 4 5
16. Leaving for one destination and suddenly realising I'm going somewhere else.	1 2 3 4 5
17. Due to distraction, realising that I haven't even noticed the traffic lights.	1 2 3 4 5
18. Unintentionally turning in the wrong place or going in the wrong direction	1 2 3 4 5
19. Unintentionally crunching the gears or going into an unsuitable gear.	1 2 3 4 5

References

- Roca, J., Padilla, J.L., López-Ramón, M.F. & Castro, C. (2013). Assessing individual differences in driving inattention: Adaptation and validation of the Attention-Related to Driving Errors Scale to Spain. *Transportation Research, Part F: Traffic Psychology and Behaviour*, 21, 42-51.
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