Adapting the *A*ttention *R*elated to *D*riving *E*rror *S*cale (ARDES) into British English

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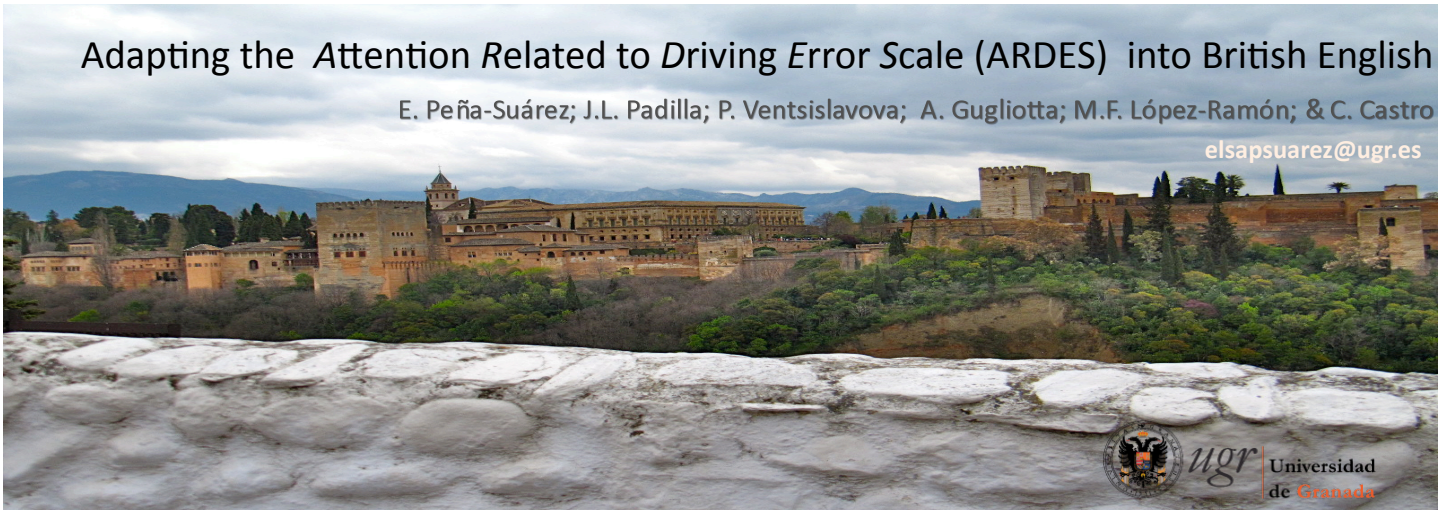
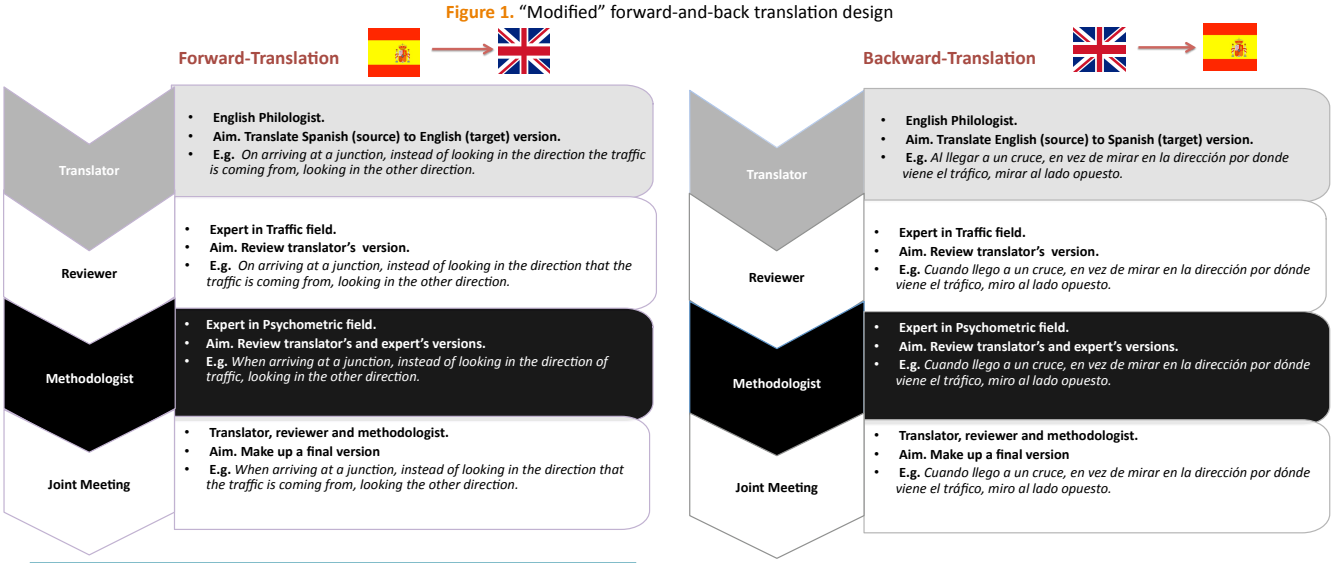


Figure 1. "Modified" forward-and-back translation design



Committee Review: Most experts participated in the Committee Review. Although experts in traffic field were adjudicators of the final decision

Aims. Compare two Spanish versions and decide which British English version is more appropriate.

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 t o 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

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.

Psychometrics

Method

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: Six 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.

Conclusions

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.

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.
- Peña-Suárez, E., Padilla, J.L., Ventsislavova, P., Gugliotta, A., López-Ramón, M.F. & Castro, C. (submitted). Adaptation and validation of the Attention-Related to Driving Errors Scale (ARDES) to UK. *Transportation Research, Part F: Traffic Psychology and Behaviour.*

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