

Psychological Road Audits

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Initial Development: Combining Human Factors, Safe Design and Traffic Psychology

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Research Aim

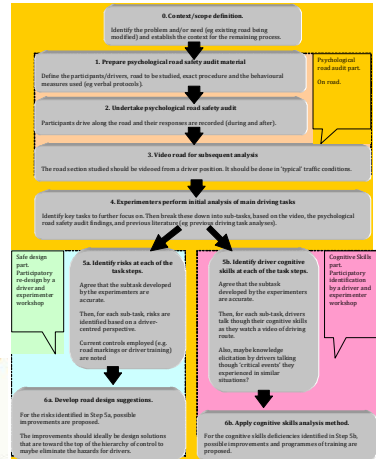
The approach used here aims to provide a structured means of gathering end-user opinions by combining a safe design methodology with a targeted naturalistic driving study from a newly-opened stretch of road, to produce potentially valuable new results.

Procedure

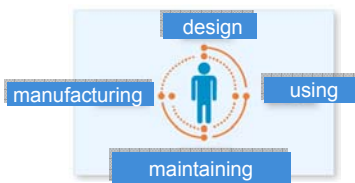
First, we gave them a map of the route and asked them if they understand where they should drive. Then, we told them the following :

"Please drive safely along our test route. Drive as normally as you would do. We are interested in your verbal responses and opinions as you drive along the route - especially your thoughts, feelings and views about the roadway. Please just say the first thing that you think of - there is no need to think too long before you speak. For example, if you cannot see a direction sign clearly then please say this. We also have a video of the route, so if you have any additional thoughts then we can show it to you and record your answers there too."

Methodology Flowchart



Human Factors



Safety in design

- Task Analysis
- Critical Decision Making (CDM)
Crandall, Klein y Hoffman (2006)
- SIDE (Safety in Design Ergonomics)
Horberry (2012)



Psychological Road Audit: Granada A44 and Distribuidor Norte (Spain)

Road length: 19 km

Good mixture of

Merging Roads, Roundabouts and intersections

Changing lanes

High Accident Rates



Instructions

The procedure consisted of getting participants to drive along the road and record their verbal impressions as they drove; then they also watched the video of it to note their subsequent thoughts. A group of 16 experience drivers (8 males and 8 females), with more than 8 years of driving experience, and 16 novice drivers (8 males and 8 females) near to get their driving license, took part on this research. To carry out this assessment and develop the general method, the road selected had a good mixture of driving tasks, such as intersections and multi-lanes, plus had a comparatively high accident rate.

Ongoing Research

In the ongoing analysis we are focusing on several complex driving tasks such as changing lanes, following a route, negotiating a roundabout or stopping when needed.

Focus Group

Task Analysis
Cognitive Skills Analysis

Finally, a small workshop/focus group will be carried out with some of these drivers, to identify the driving sub-tasks, find design deficiencies and develop possible user-centred design improvements. For instance, we have focused on one or two tasks on the route (e.g., approaching an intersection), showed the participants a task analysis of it - and got them to both talk about the cognitive processes involved (e.g. using Critical Decision Method) and identify potential design problems with the roadway and help develop potential solutions. This ongoing research is still in its early stages.



Introduction

Road safety audits are becoming increasingly important around the world. They are often used to assess the safety of a new road before it is opened to the public, or to audit an existing stretch of highway. However, such audits generally focus on technical aspects such as road surface, visibility distances and junction design. Whilst these are of critical importance, it is hypothesized that a driver-centred approach by means of 'psychological safety audits' could be a beneficial addition to the road auditing process. At present, end-user/driver opinion on the design, building and eventual opening of a new road is often not explicitly focused on by highway engineers. As part of this, a naturalistic study was carried out to psychologically audit the road. The drivers had no additional tasks.



References

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