Designing Effective Feedback: Understanding Driver, Feedback and their Interaction
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Background

- Human error is the sole cause in 57% of all traffic crashes and a contributing factor in over 90% of them (Treat et al., 1979).
- Unsafe driving behaviors such as inappropriate speed choice, close car following, distraction and inattention have been identified to increase crash risks (e.g., Klauer et al., 2006).
- Providing effective feedback to drivers as countermeasures to unsafe driving behaviors may improve immediate response to road events and induce long-term positive behavioral changes (e.g., Donmez, Boyle & Lee, 2008).
- Successful design of effective feedback builds on a comprehensive understanding of the driver, the feedback, and their interaction.

Driver

Demographics
- age
- gender

Perceptual and cognitive abilities
- distractibility
- memory

Personality
- self-efficacy
- locus of control

“When”
- timing
- trigger
- duration

“What”
- modality
- reinforcement type
- content

“Where”
- location

Literature Review
Model
Experiments

Feedback

A General Model of Driver-Feedback Interaction

Drivers

Feedback

Demographics
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Attentional Process

Memory Process

Mechanisms of Feedback

References:

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