Too Much of a Good Thing:
When In-Car Driver Assistance Notifications Become Too Much

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Research Goal: what are in-car notification needs based on driving styles?

Take Away: drivers desire different types of in-car notifications based on their driving style. Although driving styles provide indicators of notification types, the cognitive load during driving plays a bigger role. Especially when it comes to indicators for notifications to be mute

INTRO

Recent years have seen a lot of efforts in developing driving monitoring and assistance systems (DMAS). DMAS systems are created to provide assistance in safety and comfort by warning and informating the driver.

We conducted focus groups to get a better understanding what kind of assistance notifications are needed in different driving situations based on the driving styles of drivers.

STUDY DESIGN

Two focus groups (n=22):
- Jonkoping University, University of Primorska
- Eligibility criteria, demographics

MSDI simplification:
- Recklessness/carelessness/angry/hostile (low/high)
- Patient/careful/anxious (low/high)

Videos of driver scenarios with distractions:
- An easy driving scenario
- A visually demanding scenario
- An auditory demanding scenario
- A psychomotor demanding scenario

Questions:
- What kind of notifications would you like to receive?
- How would you like to receive notifications?
- How many notifications would you consider to be good?
- When and when not would you like to be provided with notifications?

RESULTS

Reckless/careless/angry/hostile dimension
High:
- Identify themselves as more aggressive than low
- Tries to maximize safety despite higher aggressiveness
- Prefers info about traffic conditions
- Prefers visual notifications to auditory
- No notifications when situations are demanding

Low:
- Prefers info about opportunities (e.g., empty parking spaces, alternative routes)
- Prefers visual notifications to auditory
- No notifications when situations are demanding

Patient/careful/anxious dimension
- Little difference between high and low
- Prefer a mixture of audio and visual notifications
- Desired notifications are more about driving assistance (e.g., emergency breaking)

CONCLUSION

- Although there are specific notification types connected to driving styles identifiable, there is less distinction than expected
- Cognitive load plays a more distinctive role in what kind of notifications are desired
- Participants expressed a desire for notifications to be muted when cognitive load is high
- Future research should focus more on when notifications should be muted instead of developing new types of notifications. A better understanding should be created on when notifications become annoying and too much

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