How can new technology help older car drivers?

Applying participatory approach to design innovation

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Understanding older drivers needs and aspirations

Creating opportunities for participation in design development

*Racer software programmed by Ruud van Gaal, www.racer.nl

Why research older car drivers?

- Changes to the numbers of older drivers (UK 1975-2005)
  - 50-59 up from 50% to 82%
  - over 70's up from 15% to 51%
- Changes in research focus of older driver
  - From physiological and cognitive change, to safety issues, to social issues of mobility
- Changes in car design

Aims of the study

- Aim of study:
  - To explore the socio-technical factors affecting the older driver
  - To create opportunities to elicit latent needs, coping strategies, unmet needs, and issues with current vehicle technology interfaces
  - To explore the practicalities of applying a participatory approach to design research
    - User is perceived as expert
    - Designer is facilitator

Driving characteristics

	50-9 N=51	60-9 N=78	70-9 N=76	80+ N=25
Annual mileage				
0-4999	25%	28%	38%	58%
5000-9999	24%	38%	45%	23%
10000-14000	35%	24%	11%	8%
15000+	12%	5%	1%	4%
Frequency of driving				
Daily	65%	72%	62%	54%
Weekly	33%	28%	34%	27%
Monthly	2%		1%	12%
Other			3%	4%

Our approach…towards participation

- Challenge of diversity in older age groups
- Active participation of the users
- Iterative design process
- Interdisciplinary representation

"Each generation will have developed different sets of technological skills, knowledge and experience"
Keates et al, 2004.

Critical issues (1): parking

- Parking found to be a recurring issue:
  - Some awareness of new developments with parking sensors
- High frequency activity - affected high and low mileage drivers
- Opportunity to identify how well parking technology supports needs of older drivers

I'm not as good at parking as when I was younger, is more difficult to judge smaller spaces.

As you get older you can't turn round, your shoulders stiffen up.

Reverse parking is the most hairy thing about driving – I find it difficult to judge where I am.

Familiarity and novel experiences

1. Supporting discussions
   - Retrospective accounts of regular parking experiences
2. Familiar contexts
   - Observation of parking with familiar technology (their car, our car park!)
3. Familiar patterns in a new context
   - Familiarisation with new car
4. Novel technologies
   - Observation of use of car with novel technologies: rear view camera, sensors and automatic systems

Critical issue (2): Speeding

- Concern for speeding a recurring issue
- Changes caused by introduction of digital 'safety' cameras on major routes
- High frequency activity - affected high and low mileage drivers

"I feel in control of the car even when I exceed the speed limit"

"I like to have a powerful car so I can drive fast."

"I think it is important for safety"

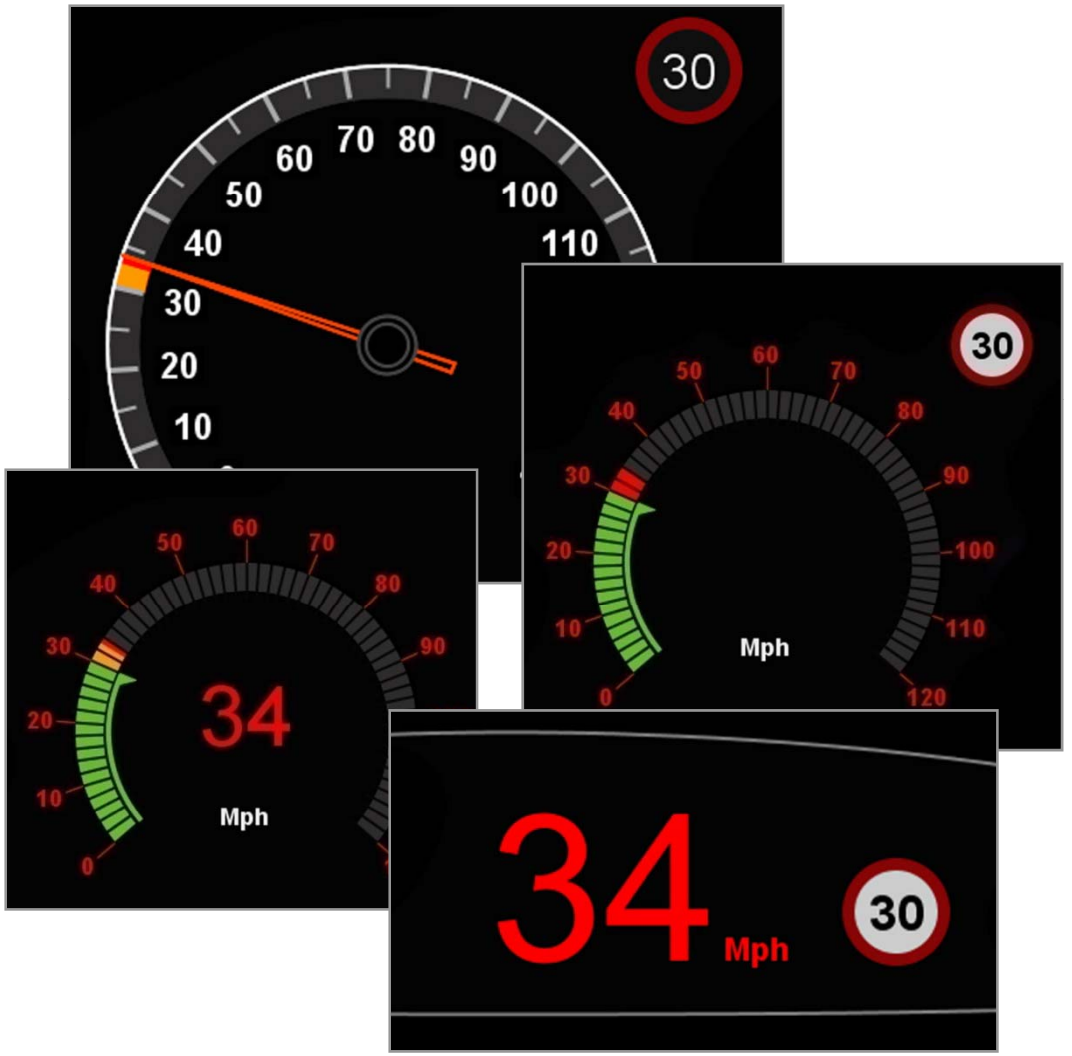
" It's becoming much easier to break the law"

"I would be mortified if I were prosecuted for speeding"

"I check my speedometer all the time"

Alternative design detailing

- Simple display
- Inform of speed-limit
- Inform of compliance
  - Distinguish between ok/too fast easily
- Consistent display
- Familiar and intuitive



Conclusions

- The practical lessons:
  - Advanced drivers assistive systems may help to reduce anxiety and prolong safe driving practice
  - 'Designer as facilitator' - need to create positive opportunities for strategies and expertise to emerge from the older adult
  - 'User as expert' - need to encourage more older people to take part in training and education in design research

- **Project Team:**
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www.cs.mdx.ac.uk/research/projects/modat/project.php

- **Funding body:**
  - A SPARC (EPSRC/BBSRC) funded research project: An investigation into older drivers advanced technology desires, needs and requirements www.sparc.ac.uk
  - Executive summary of this project is available from the SPARC website