Flirting with the satnav

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Writing in the *International Journal of Vehicle Noise and Vibration*, UK researchers have investigated how drivers are affected emotionally by the sounds in their car other than the noise of the engine and the road in particular the voice of their satellite navigation system (satnav).

In the 2009 Christmas special of well-known British situation comedy, The Royle Family, saw protagonists - Denise and Dave - arguing about whether Dave had been flirting with the satnav "lady" giving him directions to Prestatyn. It's a humorous take on our current obsession with being led along the highways and byways and our intolerance of map books, cartophobia, and pours scorn on how many of us adopt such novel technologies without even a basic understanding of their inner workings.

There is nevertheless a serious side to understanding how we interact with technology that can improve design of hardware, software and interfaces. Improved design might lead to greater understanding and accessibility. While it might not preclude in-car arguments with back-seat drivers, it might ultimately reduce the number of drivers losing their way.

Writing in the International Journal of Vehicle Noise and Vibration, UK researchers have investigated how drivers are affected emotionally by the sounds in their car other than the noise of the engine and the road. They point out that the almost ubiquitous satellite navigation system (satnav) provides realistic vocal utterances during driving. Most devices allow one to change the voice from male to female and vice versa, to

have accented voices and even to choose from celebrity voices who have recorded the range of driving instructions, presumably for a well-negotiated vocal fee.

Engineers David Large and Gary Burnett of the Human Factors Research Group at the University of Nottingham, UK, recruited fifty volunteers to test their preferences and responses to different satnav voices. The tests were carried out in the safety of the scientific laboratory rather than while the volunteers were driving. They tested 12 satnav voices from the well-known Garmin and TomTom systems, vocalising 36 messages. They asked the volunteers to complete a psychometric test known as a seven-point Likert-style scale to categorise the different vocalisations - male, female, character and celebrity - according to how their perceived clarity of speech, their assertiveness, trustworthiness, annoyance level, how distracting they were and whether or not the volunteers would choose a particular voice for everyday use in their own satnav while driving.

The researchers report that there was a strong positive correlation among the volunteers between the ratings for trustworthiness, assertiveness and clarity of the satnav voices and whether the volunteers would use that voice. Perhaps obviously there was a strong negative correlation between whether they would choose a particular voice if they considered it to be annoying or distracting in any way. Intriguingly, the team demonstrated that for their small group of volunteers, they certainly endowed the satnav voices with personality traits even though the device is not a real person and many of the voices were computer generated.

The voices included "Tim" and "Jane" the English UK default male and female voices. Garmin's default voice and popular celebrity voice downloads - John Cleese, Joanna Lumley, Kim Cattrall and Snoop Dogg. Two character voices "Knight Rider's KITT", a heavily synthesised character voice and that of Star Wars character Yoda with its peculiarity

of sentence structure in which object precedes subject, which in turn precedes verb. Most instructions would be of the form: "You must take the first exit" whereas for the latter character voice this would be "The first exit you must take". The team describes the Yoda voice as "unique and rich with character" and "having the potential to distract, entertain and annoy", hence its inclusion among more conventional satnav voices.

"The study has demonstrated that not only do people automatically assign human-personality type characteristics to voices, but that these responses can be initiated with minimal cues and even when the voice is of computer origin and delivering routine navigational instructions," the researchers say. "Furthermore, people respond differently to different voices and make attributions based on these responses. This suggests that the social rules governing human-human interaction may also apply to human-computer interactions," they add. Such findings could have implications for the safety of any driver using a satnav and in particular professional drivers. But there are wider implications too for the use of voices, human or synthesised, in technology and robotics and how people respond to and interact with those technologies.

More information: "Drivers' preferences and emotional responses to satellite navigation voices" in *Int. J. Vehicle Noise and Vibration*, 2013, 9, 28-46

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