Designing for Frustration and Disputes in the Family Car

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ABSTRACT

Families spend an increasing amount of time in the car carrying out a number of activities including driving to work, caring for children and co-ordinating drop-offs and pick ups. While families travelling in cars may face stress from difficult road conditions, they are also likely to be frustrated by coordinating a number of activities and resolving disputes within the confined space of car. A rising number of in-car infotainment and driver-assistance systems aim to help reduce the stress from outside the vehicle and improve the experience of driving but may fail to address sources of stress from within the car. From ethnographic studies of family car journeys, the authors examine the work of parents in managing multiple stresses while driving, along with the challenges of distractions from media use and disputes in the car. Keeping these family extracts as a focus for analysis, we draw out some design considerations that help build on the observations from our empirical work.

Keywords: Car, Family Life, Frustration, Interaction, Media Practices, Video Ethnography

INTRODUCTION

The car continues to be a popular and seemingly necessary part of conducting family life. HCI studies of the car have extended from efforts focused on the driver-to support in driving and way finding (Brown & Laurier, 2012) to efforts that target the experience of car travel of the passengers (Juhlin, 2010; Wilfinger, Meschtscherjakov, Murer, Osswald, & Tscheligi, 2011).

Studies of collaboration in the car, highlight the significant role played by passengers in providing driver support (Cycil et al, 2013; Brown & Laurier, 2011) as well as in managing assistive technologies (Forlizzi & Barley, 2010; Perterer, Sundström, Meschtscherjakov, Wilfinger, & Tscheligi, 2013) on journeys. There is, then, a growing interest in how passengers have an impact on the wider experience of car travel. Based on recent travel data, on average more trips were made by people living in households containing two adults with children than any other household type (Dft, 2012). The same report found that the car is the most frequent mode of transport for children aged

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5-10 years. Despite these figures, families in cars still remain a neglected part of most HCI studies with the exception of a few (Wilfinger et al., 2011; Eardley, Hyams, & Sellen, 2004). Our work is therefore placed to further understand how frustrations develop and emerge in the context of family car travel.

In this paper, the first sections set the background for the study-discussing driving as a source of frustration, the demands of family roles and the infusing of technology into the car. In the data and analysis, we draw on examples of frustration from empirical data of families and finally, we conclude with some design considerations based on the needs of families identified from our findings.

FRUSTRATION AND DRIVING CONDITIONS

Research on frustration in the car in the past has focused on studies of cognitive overload (Uchiyama, Kojima, Hongo, Terashima, & Wakita, 2002) and the effects of aggression and mental state on driving behaviour. Therefore it is observed as an interplay between the mental state of the driver and the prevailing road conditions (Underwood, Chapman, Wright, & Crundall, 1999). Difficult driving conditions have been more often associated with drivers’ angry or aggressive responses in the car while encountering congested roads and long journeys. Therefore, the focus of past inquiries has been based on the driving activity itself. In our study we do not directly measure frustration in the car (as this would be challenging to do in real time driving), instead we describe from empirical ethnographic data some of the sources of frustration that can contribute to stress for drivers in the family car. Previous studies in the HCI literature have spoken in detail of the distractions experienced in cars and have led to useful insights on how technology and car design may support drivers better (Burnett, 2011).

Frustration in driving contexts has also been further explored in the context of ‘road rage’ or ‘aggressive driving’. Brewer, (2000) provides a comprehensive framework of factors that contribute to the frustration for drivers. In his model, he points to a combination of travel and personal demands, moderated through difficult conditions in the road and their affective responses as giving rise to aggressive driving. What’s useful from his framework for our own study is that we are concerned with the first part of it, which refer to the personal and travel-related demands—our own study, we see that pointing to parenting and care duties that are carried out through the family car. While frustration in general (Uchiyama et al., 2002) and commercial contexts driving and has been explored, the needs of the family car has been neglected in HCI with the exception of a few explorative design studies (Eardley, Hyams, & Sellen, 2004; Cycil et al, 2013) and studies around safety aspects of parents driving with children (Koppel, Charlton, Kopinathan, & Taranto, 2011). We further build on this gap by exploring the family car as an inspiration for technology design against frustration and disputes.

BEYOND DRIVING: BALANCING WORK, FAMILY, AND ROLES

Cars have changed the way families experience everyday routines with an ‘imposed’ flexibility which enables parents to organise trips and plan errands based on their availability and expectation of traffic flows rather than being dependent on the fixed schedules imposed by public transportation (Dowling, 2000). In the past, authors have described the experiential aspects of driving such as driving in difficult conditions (Watson, 1999) as well as the social relations between drivers and their cars (Dant, 2004). These often focus on the driver’s engagement with the road and driving conditions. While
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