Become a Member of the Last Gentlemen: Designing for Prosocial Driving

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ABSTRACT

We present Last Gentlemen a simple interactive in-car system designed to foster considerate driving. Based on interviews about considerate driving and general psychological research on prosocial behavior, we designed a concept revolving around the activation of according norms (i.e., to take responsibility for the “weaker”) and their internalization through subtle positive feedback. An in-situ exploration of an experiential prototype showed that participants actually enjoyed considerate driving and felt positively, but unobtrusively supported by Last Gentlemen in identifying potential situations and implementing appropriate behavior.

Author Keywords
User Experience; Experience Design; Automotive; Prosocial behavior; Considerate driving.

General Terms
Human Factors; Design; Measurement.

ON THE ROAD: LIVING UP TO ONE’S IDEALS

“I drove to a nearby supermarket for groceries. The parking lot was packed, but luckily I found a space close to the entrance. I had almost parked the car when I saw a woman with a toddler looking for an empty lot. I reversed out and drove to a space further afar from the entrance. I often behave like this. It is my contribution to friendly cooperation instead of the ubiquitous competition on the road.”

“I was under pressure, running a little late, when I saw an elderly man with a very old dog at a zebra crossing. I found the pair touching. I smiled and stopped for them to cross the road. The man smiled back and slowly got under way. I thought, I should do this more often, because it feels good. This was just a brief moment, but it made my day.”

Road traffic is marked by an atmosphere of competition rather than cooperation. ADAC Motorwelt, the members’ magazine of Germany’s largest motor club, recently reported a survey in which 93% of all participants claimed to have been victim of aggressive behavior [13]. Forty percent caught themselves being unnecessarily aggressive. In addition, the survey revealed that 75% of all incidents of aggressive behavior reported to police in Germany were committed by successful male drivers in powerful, premium company cars. This is in line with Piff and colleagues [9], who studied unethical behavior of upper-class (i.e., successful, wealthy, independent) people in naturalistic settings. They found drivers of premium cars to more frequently cut off pedestrians at a crosswalk or other vehicles by crossing an intersection instead of waiting their turn (Studies 1 and 2). One reason for the more “unethical behavior” is a more independent self-construal, which leads to inattention to the consequences of one’s actions on others or even feelings of entitlement. This is in line with Redshaw’s assertion that an atmosphere of competition has been created on the road by the “increased emphasis on the individual and individual desires” (p. 16 in [10]). But who created this atmosphere? It seems tempting to understand “aggressive individualism” (p. 15 in [10]) as an expression of “human nature” and cars as providing just another way of enjoying this nature for full. In this view, the car is just an expression of certain human needs and desires. In line with Redshaw, we assume a more reciprocal mechanism. Inevitably, social and individual meanings become inscribed into what she calls particular “articulations” of cars (p. 15). For example, a connection between racing car technology and road vehicles put emphasis on speed and power. These connections are “made” (deliberately or accidentally) and articulated through – among other channels – the car itself. An instructive example is the Sports Utility...
Vehicle (S.U.V), which is able to instill the perception of safety through its very design, although danger of roll-over is greater and its sheer weight increases stopping distance [4]. The mere perception of safety, however, may lead to certain behaviors and further perceptions, such as unsafe driving, the notion of a more dangerous world out there in general, and an even greater experienced distance between oneself and other traffic participants. The S.U.V. as a particular “articulation” of the car is not only a response to a human need for safety. It also produces new meaning and behavior through its very existence.

Obviously, we all have been victims of rude and inappropriate behavior on the road due to a culture of “aggressive individualism” and lack of empathy. Once, before the cars conquered them, roads were a social space. Juhlin claims: “emerging technologies could be used to reintroduce some of the socialization that used to occur in the streets” (in the preface of [5]). In line with Juhlin, Leshed et al. outline implications for navigation systems to “[s]upport the car as a social place” (p. 1682 in [8]). In fact, a few design cases exist, which explicitly understand the car as a social place and attempt to foster sociability ([6], [7], and [5]). However, these examples focus mainly on the social interaction among drivers and passengers, but not so much on the prosocial interaction among drivers and other traffic members.

While “aggressive individualism” seems to be in the fore on our roads, we nevertheless – at least occasionally – benefit from or even engage in cooperative and prosocial behavior. Handing over a good parking space to the needy or letting somebody cross the road although in a hurry are two obvious examples. Assuming that a “car”, in its widest sense, has the power to shape perceptions and behavior, the objective of the present paper is to explore, whether we can establish new “articulations” of the car, fostering prosocial rather than aggressive behavior. We started by exploring individual practices and motives for “driving considerately”, i.e. respectful and mindful driving beyond the rules of the road traffic act. (Note that we do not focus on ecological driving or mere accident prevention.) We then designed a first interactive system to “articulate” considerate driving in a car and explored its impact.

**MOTIVES AND PRACTICES OF CONSIDERATE DRIVING**

Research on prosocial behavior has a longstanding tradition in psychology [1]. It has revealed a number of intertwined mechanisms, which describe the when and why of prosocial behavior. The social learning perspective, for example, focuses on the rewards and costs of helping others and individual learning histories. For example, helping can be used as a self-reward to make yourself feel good. In our second introducing quote, the informant said: “I thought I should do this more often because it feels good.” Other theories emphasize norms, roles and principles. “It is my contribution to friendly cooperation instead of the

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a) Give way to a car coming from the opposite direction on a one-lane road.

b) Give way to a car pulling out of a parking lot.

c) Give way to a car exiting a driveway.

d) Give way to a pedestrian crossing the street.

e) Drive slowly through a reduced-traffic area respecting playing children.

Figure 1. Acts of considerate driving.
ubiquitous competition,” says the informant in the first introducing quote, revealing a personal norm.

While prosocial behavior is well researched, considerate driving is not among the typical prosocial behaviors studied. Even traffic psychology is more or less silent on the topic. Thus, to get an idea of the motivation and practices of considerate driving, we conducted a first exploratory study.

Fifteen participants (6 female, age: M=25, Min=22, Max=31) were invited to an open, semi-structured narrative interview (duration approximately 30 min.). We showed them four videos and one picture of potential acts of considerate driving (Figure 1, a-e).

After each scene, we asked participants whether they found the driver’s behavior considerate, whether they would behave similarly, and if so, why and when. The interviews were video and audio recorded for later analysis.

We categorized statements with the help of affinity diagrams [3] and clustered them in a group session with four individuals (the first, third, fourth author, and an external expert in psychology) into two thematic groups revolving around (1) social learning and (2) personal norms. In the following, we briefly summarize and illustrate each group with selected statements from the participants.

Social learning. Thirteen (of 15) participants mentioned “reciprocity” as reason for their prosocial behavior, e.g., “In the city, it’s often difficult to get out and, thus, I’m always happy when somebody leaves a gap.” (P4). Considerate driving is viewed as an act of exchanging benefits. Eleven participants reflected upon the importance of getting positive feedback from the beneficiary of the considerate driving, e.g., “It’s definitely a nice sign” (P13), “Yes, I think it would be nice if he’d say ‘thank you.’” Such a communication with other people is always kind of nice” (P3). Seven participants even saw considerate driving as strongly depending on positive feedback. As P15 claimed: “Why did I bother at all, if he doesn’t even say ‘thank you’?” Lack of positive feedback in one situation may keep participants from acting prosocially next time in a similar situation, hinting at the importance of the personal learning history to predict considerate driving. Four participants mentioned general time pressure, e.g., “I only don’t do it, when I’m under time pressure” (P13), which as well hints at a social learning perspective, where the time to be invested is perceived as a potential cost to be considered in the light of the expected benefits.

Personal norms and principles. Eight participants mentioned personal norms and principles revolving around considerate driving, e.g., “That’s my basic attitude, I hold open doors for others as well” (P15), “It just feels right” (P2). Besides general altruism, nine participants specifically mentioned their responsibility towards “weaker” road users, such as pedestrians, cyclists and children: “Pedestrians have priority in residential neighborhoods” (P12), “Well, from my point of view, the pedestrian is the weakest link – therefore you stop” (P15).

Personal norms and principles complement the more “economically-oriented” exchange of benefits à la “You scratch my back and I’ll scratch yours”. Accordingly, those participants with stronger personal norms described their considerate driving as more independent from positive feedback. Altogether, eight participants mentioned this: “It’s no big deal for me [to drive considerately], so actually it doesn’t matter [whether I get feedback or not]” (P14), “Well, of course it would be nice, but it’s not that important – often you don’t even notice” (P4). Participants also talked about particular traffic situations in which getting feedback was seemingly impossible, e.g., when the beneficiary was involved in a demanding traffic situation: “He has no time to say thank you because of the traffic situation, but it doesn’t matter” (P11).

Besides social learning and personal norms and principles, the participants mentioned a number of situational factors, which could prevent considerate driving. Fourteen participants mentioned the particular traffic situation, e.g., “By stopping in this situation, I obstruct the street for the traffic behind me” (P3).

In sum, our exploratory study shed light on the motivation for and circumstances of considerate driving. In line with well-accepted research on prosocial behavior [12], benefits (e.g., positive feedback) and costs (e.g., time to be invested), the exchange of benefits (reciprocity) and personal learning histories play a crucial role. However, people also internalize considerate driving and become motivated by personal norms (e.g., helping the weaker) rather than situational benefits and costs [1]. While the latter become more independent of positive feedback, feedback is still enjoyable and able to confirm and strengthen the norm.

Based upon these findings, we developed an interactive system to instill and facilitate considerate driving.

CONCEPT: BE A MEMBER OF THE ALLIANCE OF THE LAST GENTLEMEN

Based on our findings from the interview study and general recommendations [12], we combined two approaches to cultivate more considerate driving. On one hand, we attempted to shape social learning by providing an additional source of positive feedback for prosocial driving, besides the response of the actual beneficiary. This should facilitate social learning even in the (likely) situation that the beneficiary does not provide the positive feedback hoped for by the driver. Furthermore, we attempted to create feelings of responsibility and obligation (e.g., activate norms). Obviously, a number of ways are imaginable to create feelings of obligation. In the present case, we built on the first author’s interest in graphic novels and used a particular cover story to provide additional meaning to prosocial driving.
The final concept features Sir William Worcestershire, founder of the Alliance of the Last Gentlemen (Figure 2b). Sir William is a combination of a classic super-hero, who helps people without expecting any form of reward, and of a gentleman, that is a caring, polite person with polished manners.

Before the trip, the general storyline is introduced: “It is a dark time on the streets of Motham City. Those streets, where once politeness and care for one’s fellow man prevailed, are now consumed by a nightmarish blend of aggression and ignorance. […]” (Fig 2a). Then, Sir William has his first appearance (Fig. 2b). He declares his mission to bring virtues, such as mindfulness and respect, back to the road. He further states that, to accomplish his mission, he chose the driver as the newest member of his exclusive Alliance of the Last Gentlemen. This is definitely a great honor, which calls for modesty and considerate driving. We chose this cover story to playfully invoke facilitating norms, e.g., by subtly reminding the driver of his or her responsibility towards “weaker” persons, who are to be protected by the Alliance of the Last Gentlemen at all costs.

To get the driver into this role more quickly, the newly appointed hero is provided with hints of what to look for in traffic: situations, such as giving way to oncoming cars or letting pedestrians cross the road. This is to increase the awareness of potential situations for considerate driving.

During the trip, the system applauds acts of considerate driving by showing specifically adapted comic-like praises. In line with the cover story, these declare the driver’s behavior to be “splendid” or “marvelous” (see Fig. 2c). This feedback is meant to facilitate social learning by recognizing the drivers’ prosocial actions even in situations, where the real beneficiary out there will not. Note that through the cover story this feedback does not become an external, unrelated “reward” (such as receiving money or a badge for considerate driving). In the contrary, it facilitates internalization: It is Sir Worcestershire, who is admiringly recognizing his new apprentice’s efforts in making the road a better place.

THE PROTOTYPE AND IN-SITU EXPLORATION
To test the Last Gentlemen concept in-situ, we created an experiential prototype. It consisted of a touch-sensitive display, installed in the center of the dashboard (see Fig. 3). Interaction with the system was only necessary for clicking through the introduction. During the trip, an examiner in the back seat triggered the feedback every time the driver drove considerately by pressing the corresponding button on a laptop, connected to the display.

With this prototype, we ran an in-situ exploration. Twelve individuals (4 female, Age: $M=34$, $Min=25$, $Max=58$) used Last Gentlemen during a trip of about 30 km lasting approximately 60 minutes. We set a particular route with a high potential to encounter situations for prosocial driving. For example, the route featured some narrow, single lane streets where the driver can let other drivers coming from the opposite direction go first. The route also contained two...
residential neighborhoods, providing opportunities to give way to other drivers or pedestrians. We recorded (see Figure 4 for an example) each trip on video and concluded it with a semi-structured, narrative interview. We first asked participants about the most important aspects of the experience they just had. Subsequently, we explored more specific issues based on these initial responses.

Table 1 shows the type and frequency of acts of considerate driving per participant and type of act. On average, participants spontaneously engaged in 5.25 acts of considerate driving in the 60 minutes, with a minimum of 0 and a maximum of 11. The most frequent act was to give way to a car coming from the opposite direction. The least frequent was to give way to a car pulling out of a parking lot. All in all, all participants except one engaged in repeated acts of prosocial driving during the study. While it is impossible to tell whether the system led to more acts of prosocial behavior due to the lack of a formal control group, this result at least shows that the participants’ later reflections in the interviews were based on actual behavior.

We grouped similar statements made in the interviews. Eight of the 15 participants explicitly mentioned that their motivation for considerate driving had been increased through the system. One participant (P2) said: “It motivates in situations in which you normally would drive on”. Another participant (P11) explained: “Well, without the system, I probably wouldn’t have stopped in this situation”. Eleven participants believed that Last Gentlemen would make them drive more considerately in the long run. In addition, seven participants mentioned a stronger awareness for situations that afford considerate driving. One participant stated: “It takes some time with the system until you are again able to judge the situation properly” (P12), and another one explained: “You are now more aware [of considerate driving]” (P2). All in all, at least half of the participants experienced a greater motivation to drive prosocially and an increased attention to according situations.

Six participants explicitly mentioned that considerate driving led to positive emotions. One, for example, explained: “After that, I actually felt good. I was happy to have done this” (P12). Positive feelings were mainly triggered by the act of considerate driving itself and not so much by the system’s feedback. One participant said: “In any case you feel good when you help somebody” (P7). As expected, Last Gentlemen was rather seen as compensating missing positive feedback from the beneficiary, and not so much as replacing real feedback. Participants said: “It was comforting when the other hadn’t said thank you” (P4), “Even when the other road user doesn’t say anything, at least the system does” (P8). As intended, the feedback did not replace the enjoyment gained from a positive feedback by the beneficiary. It merely compensated missing feedback and made lack of feedback a little less negative.
SUMMARY AND LIMITATIONS

_Last Gentlemen_ was a first attempt to articulate and provoke prosocial driving by appealing to relevant norms (i.e., through the cover story), making the driver more aware of opportunities to act prosocially (i.e., by presenting model situation), and by providing a feedback that soothes moments in which the true beneficiary did not respond appropriately.

We based our design on an exploratory study of motivations of and influences on considerate driving and general knowledge of the determinants of prosocial behavior from psychology [1, 12]. An in-situ exploration was in line with our expectations. Especially important to us was the observation that we seemed to have succeeded in appealing to personal norms and principles rather than establishing a simple reward system. Although Sir Worcestershire applauds, which is perceived as enjoyable, his feedback does not replace the intrinsic motivation for driving considerately. This is different from typical attempts of _Gamification_, where game-like reward systems (e.g., [2]) often replace real world motivations instead of strengthening them. There is simply a huge difference between walking 10,000 steps a day as a consequence of a story related to conscious self-care or to earn an according badge.

Obviously, the _Last Gentlemen_ is only a first example of a design case focusing on provoking prosocial driving through an in-car system. While prosocial driving is certainly an important topic, the predominant approach taken is the explicit education of the driver through appeals. A disadvantage of this is the apparent lack of situatedness. While people may in principle know how to behave, they may still be incapable of activating this knowledge in crucial situations. In contrast, _Last Gentlemen_ is a situated, meaningful reminder of the adequacy of prosocial behavior in traffic.

The present in-situ study obviously took a qualitative and exploratory approach. We were primarily interested in the general notion of prosocial driving, whether it can be mediated through technology and whether it can be pleasurable. All in all, we found our results encouraging enough to develop this topic further. Future studies may feature fully functional systems to avoid potentially induced social desirability due to the experimenter on the back seat. In addition, we will attempt to quantify effects of systems such as _Last Gentlemen_ by employing a control group. Furthermore, a stable and fully-functional system could be used in more longitudinal studies to estimate learning or fatigue effects. Obviously, this poses the challenge of building a system to automatically detect prosocial behavior. Before doing so, more exploratory studies seem necessary to better understand the creation and mediation of prosocial behavior through interactive systems.

CONCLUSION

Prosocial behavior is noble. It emphasizes cooperation, trust, togetherness – all important sources of pleasure and well-being (e.g., [11]). We believe that cooperation and helping should be encouraged in everyday life whenever possible and that traffic is an ideal arena for this. Following Verbeek [14] who assumes that “when technologies are used, they inevitably help to shape the context in which they function. They help specific relations between human beings and reality to come about and co-shape new practices and ways of living” (p. 4), we believe in the power of small inventions such as _Last Gentlemen_. It is meant as a specific articulation of a car to counteract competing narratives of “streets as jungles” and “aggressive individualism” [10]. Through this, we might get a little closer to restoring streets as the social places they had been before cars conquered them (cf. [5]).

REFERENCES


