Hoody, goody or buddy? How travel mode affects social perceptions in urban neighbourhoods

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A B S T R A C T

When travelling through a new environment people can and do make very quick judgments about the local conditions. This paper explores the idea that such judgements are affected by the travel mode they use. We hypothesise that drivers generate a more superficial impression of the things they observe than those who walk because they are exposed to less information. This prediction is based on social psychological research that demonstrates that information that becomes available in “thin slices” affects superficial judgements. A survey study (n = 644) demonstrated that perceptions of a less affluent area are indeed negatively related to more driving and positively related to more walking, but only for those who do not live there. Perceptions of a neighbouring affluent area are positively related to more driving. Two experimental studies (n = 245 and n = 91) demonstrated that explicit (but not implicit) attitudes towards a group of young people in an ambiguous social situation are more negative when they are viewed from the perspective of a car user in particular in relation to a pedestrian perspective. These findings suggest that mode use may affect communities by influencing social judgements.

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1. Introduction

In most modern societies car use is increasing whereas walking and cycling is steadily declining. In the UK, for instance, the number of trips made on foot declined by 24% between 1995/1997 and 2008 (Department for Transport, 2010). Similarly in Canada, 68% of people aged 18 and over travelled everywhere by car in 1992 and this had increased to 74% in 2005. In the same period the proportion of people who made at least one trip by bicycle or on foot declined from 25% to 19% (General Social Survey, 2010). It is evident that these changes impact on local communities by affecting air quality and road safety. But, increasing car use may also affect communities by affecting social perceptions and community cohesion. This paper explores whether the mode by which people travel through a neighbourhood affects the views they form of the environment and the social situation. In particular, we hypothesise that drivers may form more superficial judgements than other mode users. Consider for instance the following scenario:

‘An urban road passes alongside a park. Three youths are in the park. Someone drives past in a car and sees ‘a few lads who are up to no good’. A passenger on a bus that stops at the local stop notices them and wonders: ‘What are they up to?’ Someone cycling through the park hears them making fun of each other and a person walking past recognises their neighbour’s son and says: ‘Hi’.’

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People may be more likely to form negative perceptions (e.g., Hoodies, who are up to no good) of an ambiguous social situation when they drive past at speed than when they witness this situation from slower and less enclosed modes of transport such as a bicycle or on foot. This is because people who walk past are exposed to more individually detailed information of that situation than people who drive.

There is plenty of evidence that people are able to make accurate social judgements on the basis of very little information (e.g., Patterson, Tubbs, Carrier, & Barber, 2009). For instance, only very brief exposure to facial expressions or body postures can result into accurate perceptions of trustworthiness (Todorov, Pakrashi, & Oosterhof, 2009; Willis, Palermo, & Burke, 2011). This has been referred to as ‘thin slicing’. ‘Thin slicing’ refers to people’s (unconscious) ability to form judgements of others with very thin slices (100 ms) of information (Gladwell, 2005; Willis & Todorov, 2006).

The tendency and ability to make quick social judgements has an important function. One of the most basic judgements people need to make when confronted with others is whether those others can be trusted or are likely to pose a threat (Wojciszke, 2005). When entering a new neighbourhood, for instance, individuals will have to quickly judge whether it is safe to approach other people without coming to harm or whether it is better to avoid contact and leave (O’Brien & Wilson, 2011). The importance of being able to make rapid judgement of social threat for survival needs is supported by research in a range of psychological subdisciplines including cognitive, psychophysiological, neuropsychological, and neuroimaging (Green & Phillips, 2004).

Although quick judgements on the basis of thin slices of information tend to be (perhaps remarkably) accurate there is also some work to suggests this is particularly likely for negative judgements. For instance, negative affect has been shown to be rated accurately after only five seconds of exposure, whereas positive affect took 20 s or more (Carney, Colvin, & Hall, 2007). This may make perfect sense if one considers the relative importance of judging whether a situation is safe or not. Wojciszke (2005), argues that in particular for negative judgments people may err at the side of caution. After all a misjudgement of threat will be more costly than a misjudgement of beauty or pleasantness.

The accuracy of social judgements with thin slices of information can be distorted by existing views such as stereotypes (e.g., Crawford, Jussim, Madon, Cain, & Stevens, 2011). Generally people tend to rely on specific individuating information as well as stereotypes when making social judgements (Crawford et al., 2011). Stereotypes are beliefs about the attributes of groups and their individual members (Ashmore & Del Boca, 1981). They can be activated unconsciously when people are exposed (very briefly) to features that are typical of a group (e.g., skin colour, gender features; Bargh, Chen & Burrows, 1996). The influence of stereotypes becomes more prominent when less detailed individuating information is available or can be processed (for instance due to time constraints) particularly when judging ambiguous situations or behaviours (Bodenhausen & Wyer, 1985; Sagar & Schofield, 1980). When more detailed information is available or accessible stereotypes are less likely to have a strong effect on social perceptions. With longer exposure to a social situation more information becomes available and judgements are therefore less likely to be influenced by (unconsciously activated) stereotypes. Kunda, Davies, Adams, and Spencer (2002), for instance, found stereotype activation after 15 s exposure to a video of an interview with a black person but not after 12 min of exposure.

Clearly people can and do make social judgements on the basis of very ‘thin slices’ of information. This ‘thin slicing’ results into superficial judgements where bad gets worse and good gets better. We argue therefore, that people’s perceptions of their environment and the people within it may be affected by the mode by which they travel. Car users are typically exposed to very little information as they travel through environments quickly and from an enclosed space whereas pedestrians travel slowly and are able to see and hear what is there. The social perceptions of people who see an ambiguous (potentially threatening) social situation only very briefly from a fast driving car may therefore be more negative than those who witness the same situation while walking past, despite the fact that car users view the situation from the safety of their car.

If mode use affects social perceptions it can have significant implications for community wellbeing and cohesion. From an individual perspective the ability to make rapid social judgements can be very useful in particular when there is a potential threat to safety. However, from a collective perspective this can be problematic as it may undermine community cohesion and social integration. When impressions are formed they are often difficult to change. Research in social psychology has demonstrated that once impressions are formed people tend to select evidence to support their views even when conflicting evidence is available (Chen & Bargh, 1997; Nisbett & Wilson, 1977; Rosenzweig, 2007). Moreover, once negative judgements have formed people are likely to avoid further contact with potentially threatening people and places and this may serve to further disconnect them from their social environment and confirm their views. This can be problematic, for instance, if it results into conflict between groups of people or when these processes serve to reinforce negative stereotypes. Bringing people together to create a better sense of community is unlikely to be easy in such circumstances. Increasing car use may therefore erode community cohesion by affecting perceptions of places and people. Increased walking, on the other hand may be beneficial in particular in areas where first impressions are likely to be negative.

We already know that people tend to walk less in their neighbourhood if they trust fewer people (Cleland, Timperio, & Crawford, 2008). And social interaction in neighbourhoods is significantly lower in streets with high volumes of motorised traffic (Appleyard, 1976; Hart, 2008). Walkable neighbourhoods can help tackle depression symptoms of elderly men not only because of increased physical exercise but also because those walkable environments bring people outside and promote social interactions (Berke, Gottlieb, Moudon, & Larson, 2007). There is plenty of evidence in social psychology that exposure to others can lead to more positive social responses and reduce threat perceptions (Allport, 1954; Bornstein, 1989; Claypool, Hugenberg, Housley, & Mackie, 2007; Harrison, 1977; Kunst-Wilson & Zajonc, 1980; Zajonc, Wolosin, 1989).
Wolosin, & Sherman, 1968) and therefore promote social interactions and wellbeing in communities. Increased car use may undermine such interactions whereas the promotion of walking in particular may help promote social interactions.

Taken together, this literature suggest that information that becomes available in “thin slices” affects superficial judgements where good gets better and bad gets worse. As different mode users are exposed to different levels of information when travelling through an urban environment we expect that mode use will be related to the impressions people form of their environment and the people within this environment. Those who drive at speed in an enclosed space may form more negative perceptions of a ‘poor’ environment and more positive perceptions of a ‘good’ environment than those who walk.

This paper presents three studies. A survey study in two neighbouring communities in a city in the North of England explored whether perceptions of people’s own and their proximal neighbourhoods, and the people in these neighbourhoods, are related to their travel through these neighbourhoods by different modes. An on-line experiment (Study 2) examined whether attitudes towards a group of young people in an ambiguous situation and unfamiliar urban environment are affected by mode use. Study 3 examined the effect of mode use on both explicit (conscious) and implicit (unconscious) attitudes thereby examining the potential role of unconsciously activated stereotypes.

2. Study 1

The first study explored whether there is a link between neighbourhood perceptions (in terms of safety, friendliness, upkeep, etc.) on the one hand and reported contact and travel on the other. For the study, we selected two areas along one road with very different levels of socio-economic status (SES). We hypothesised that superficial judgements of an area would be stronger among those who drive more and walk less through each area. Therefore, more driving and less walking would be associated with more negative perceptions of the low SES area and more positive perceptions of the high SES area. This may be particularly true for areas in which people do not live themselves but through which they travel regularly – for instance to get to schools or shops. People are less likely to have views of these areas which are based on personal experience (as they do not live there) and are therefore more likely to have to rely on cues and existing knowledge (such as stereotypes). The study also examined whether views of the area were related to reported social contact in the areas (e.g., talking to people, greeting people). This is likely to be major contributing factor influencing perceptions.

2.1. Method

2.1.1. Area of study

Two areas along one road in a city in the North of England were selected for the recruitment of participants. Area 1, near the city centre, has relatively low socio-economic status and is culturally mixed. Area 2 is located towards the outskirts of the city near a national park, is relatively affluent and residents are predominantly white middle class. The index of Multiple Deprivation (an index used to identify deprived communities, combining a number of indicators such as relative income, health, education, crime, housing conditions and living environment) in 2007 was 36.8 and 8.0 for the two areas respectively (Communities and Neighbourhoods, in Ballas, 2010). Moreover, 4.4% of the population in Area 1 claimed Job Seekers Allowance in 2007, compared to only 0.9% in Area 2 (Neighbourhood Statistics, in Ballas, 2010).

2.1.2. Participants

A total of 644 participants took part in the study: 209 from Area 1 (low SES) and 398 from Area 2 (high SES). Participants had lived for an average of 20 years in their neighbourhood. The sample consisted largely of White participants (86%), with very few participants belonging to the other racial and ethnic groups. This fairly accurately reflects the population in Area 2, but it less accurately reflects Area 1, which had a large Asian population (25.62%) and Black population (7.26%; 2001 census from CASWEB, in Ballas, 2010). There were slightly more female (62%) than male participants (36%). The average age of participants was 56 years, with the youngest participant aged 18 years and the oldest aged 93 years. Twelve percent of participants (n = 77) had a disability which affected their activities. The majority of participants were employed (28% full-time, 16% part-time) or retired (33%).

2.1.3. Materials

The questionnaire comprised an A5 booklet of 15 pages, with questions relating to experiences of the two areas. For each area, participants were asked to assess the area and how they use it by responding to questions on neighbourhood perceptions, travel behaviours and social contact. Other questions were asked of the participants relating specifically to their own area of residence, but these are not discussed in this paper.

2.1.4. Measures

Neighbourhood perceptions were measured with 14 items and included questions on neighbourhood satisfaction, attachment and efficacy (see Gatersleben, Clark, Reeve, & Uzzell, 2007). Respondents were asked to indicate to what extent they agreed with statements such as ‘People look after their property in this area’, ‘People in this area are well-educated’, ‘This is a safe area’, ‘I like the people in this area’ (1 = totally disagree, 5 = totally agree). One scale was created on the basis of these
items representing the overall perceptions of Area 1 ($\chi = .91, M = 3.02, SD = .65$) and of Area 2 ($\chi = .87, M = 3.86, SD = .47$). Perception did not differ significantly by age or gender.

To measure social contact respondents were asked to indicate to what extent they agreed with 8 statements ($1 = \text{totally disagree}$, $5 = \text{totally agree}$) such as ‘When I travel through the area on map 1 I greet many people’, ‘...I am usually in my own thoughts’, ‘...I often smile at people’, ‘...I talk to many people’. Social contact was slightly higher in Area 2 ($M = 3.71, SD = .52, \chi = .81$) than in Area 1 ($M = 3.28, SD = .55, \chi = .76$). Moreover, in Area 2 older people reported more social contact in their neighbourhood ($r = .25, p < .001$).

Travel mode use was measured by asking respondents to indicate on a 11-point scale how often they travelled through their own area as well as through the other area on foot, in a car, on the bus and on a bike (never (0), once a month or less (1), twice a month (2), 3–4 times a month (3) ... 3–4 times a week (5), 11–12 times a week (9), more than 12 times a week (10)).

2.1.5. Procedure

Questionnaires were distributed by hand to randomly selected homes in the two selected areas. One person per household was asked to complete the questionnaire and post it back to a freepost address. Around 3000 questionnaires were distributed. Householders were asked to nominate an adult over the age of 18 who would be the first to celebrate their birthday in that year. This was done to try to randomise the selection of participants from each household. Participants were offered the opportunity to enter a competition to win one of four £50 vouchers for a well-known UK supermarket. Participants were provided with information about the study and its purposes, instructions on how to complete the survey, and assured of their anonymity.

2.2. Results

A repeated measures ANOVA was conducted to examine whether perceptions of the two areas differed (within subject factor) and whether these ratings varied between those who did and did not live in the areas (between subject factor). Overall all people rated their own area more positively than the other area ($t = 15.41, p < .001$). Moreover, Area 2 was rated more positively than Area 1 ($F(1,445) = 428.55, p < .001$). A significant interaction effect ($F(1,445) = 215.67, p < .001$; see Fig. 1) demonstrated that those who lived in Area 1 (low SES) rated their own area and the other area very similar. Respondents who lived in Area 2, however, rated their own area significantly more positive than Area 1. In fact, the most negative perceptions were found for Area 1 (low SES) among those who lived in Area 2.

Regression analyses were conducted for each area separately to examine whether contact and mode use affected people’s perceptions of the neighbourhoods. A dummy variable was included in the analyses to examine whether this varied between those who did or did not live in the area. A total of 32% of the variance in perceptions of Area 1 (low SES) could be explained ($R = .58, adj. R^2 = .32, F(11,432) = 19.72, p < .001$). Level of social contact with the area was positively related to perceptions ($\beta = .35, p < .001$) and this did not vary between those who did or did not live there. Overall mode use did not affect perceptions. However, a significant interaction effect suggested that for residents of the high SES area amount of walking in the low SES area was positively related to perceptions of that area ($\beta = .15, p = .008$) and amount of driving was negatively related ($\beta = -.18, p = .048$) (see Table 1).

For Area 2 (high SES), results were weaker: 19% of variance in perceptions was explained ($R = .45, adj. R^2 = .19, F(11,486) = 11.48, p < .001$). Social contact was positively related to perceptions but this was not significant ($\beta = .24, p = .10$) and this was independent of where one lived. The level of driving was positively related to perceptions ($\beta = .30, p = .025$) independent of where one lived. Perceptions were more positive when people drove more. No other variables were related to perception of Area 2.

Study 1 partly confirmed our hypotheses. The study showed that higher levels of car use were associated with more negative perceptions of a low SES area (but only for those who did not live there) and more positive perceptions of a high SES area. This suggests that car use may indeed reinforce superficial perceptions of an area. The study also demonstrated that perceptions of Area 1 (low SES) were less negative (or more positive) among people who walked more through this area.

![Fig. 1. Neighbourhood perceptions of a low and a high SES area by residents of each area.](image-url)
confirming the idea that more exposure results into less superficial impressions. However, this was only found for perceptions of Area 1 and only among those who do not live in this area. Finally the study found a link between social contact and social perceptions demonstrating that social perceptions of neighbourhood are related to the extent to which people avoid or approach others.

3. Study 2

Study 1 revealed a link between travel and perceptions, but it did not examine whether mode use affects social perceptions or whether those who have more negative perceptions choose different modes. Study 2 aimed to test the scenario described in the introduction in order to provide a more detailed insight into the nature of a possible relationship between mode use and social perceptions. We examined whether perceptions of an ambiguous (potentially threatening) social situation differed between mode users. Respondents viewed one of four videos showing an ambiguous social situation (a group of young people play fighting in an urban park) from the perspective of different mode users. We hypothesised that people who saw the situation from the perspective of a car user (only briefly from an enclosed space) would report less positive attitudes towards the young people and report feeling more threatened than people who witnesses the situation for a longer period of time and who were able to hear their voices (a pedestrian walking past). Perceptions of those who travelled fast but not in an enclosed space (cyclists) and those who travelled slowly but are in an enclosed space (bus passenger) would fall in between these two.

There are many stereotypes that may affect social perceptions in urban neighbourhoods such as those related to ethnicity or socio-economic status (SES). In this research we were particularly interested in the views of low SES areas and of young people. Young people are often seen in urban neighbourhoods ‘hanging out’. However, whereas research on perceptions of minority ethnic groups is relatively common, research on perceptions of young people is rare. This is despite the fact that there is evidence that in the UK nearly half of media stories about young people are negative and people believe that such media exposure confirms their everyday experiences (Bawdon, 2009). For instance, a strong existing negative stereotype of young people in the UK (and elsewhere such as the US) is the ‘Hoody’ – referring to a young person wearing a sweatshirt with a hood, who is generally up to no good. In some areas young people who wear hooded sweatshirts have been actively banned from shops. In ambiguous unclear situations such negative stereotypes may well affect social perceptions.

3.1. Methodology

3.1.1. Participants

A total of 245 people completed an online survey. Just over half of the sample (51%), were women and 46% were men (the remainder withheld this information). The mean age of the sample was 56 years (ranging from 18 to 93), and the majority (93%) were white. Approximately 70% of the participants reported being in employment, and around 16% reported being in education at the time of the study. A total of 30% of the respondents said they had regular contact with young people (through work or personal life).

3.1.2. Design

Four short video clips were developed for the study. Each video showed a journey along the same stretch of road. This was the same road that connected the two neighbourhoods examined in Study 1. Three young professional actors enacted a socially ambiguous scene: two teenage boys were play-fighting over an A4 sheet of paper near a bench, on which a teenage girl sat sending text messages on her mobile phone. The four videos were each taken from the viewpoint of someone using a different method of transport: walking, cycling, sitting on a bus or sitting in a car (see Fig. 2). As social judgements may be affected not only by the young people themselves but also by environmental cues (Caster, 2010, Wittenbrink, Judd, & Park, 2001) a relatively neutral environment was shown in terms of status and upkeep.
The method of transport was recognisable by some indicating feature, such as handlebars for the cycling video but also by virtue of the speed of travel. The videos were all taken of the same situation on the same day, but varied in travel speed, distance to the young people (with walking closest and driving furthest), travel speed, enclosure (through a window from bus and car). The length of the videos differed as each video covered the same distance (walking 18 s, cycling 14 s, bus 32 s (12 s standing still at bus stop), driving 13 s). The videos were made by a professional film company and the young people were professional actors.

The number of people viewing each video was roughly even, with approximately 60 participants for each (31% walk, 24% bicycle, 25% bus, 21% car).

3.1.3. Procedure

Data was collected via an on-line questionnaire. Potential respondents were recruited via a contact list provided by a research consultancy (who managed the research). A link was posted on the consultancy’s website and distributed via their contact list (including colleagues, clients, friends and family). Respondents could access the link to the questionnaire at any time and from any place using a personal computer. Upon entering the questionnaire they were given a brief introduction informing them that this study was part of a project which examined people’s perceptions of neighbourhoods and what people see when they travel through a neighbourhood with different modes of transport. They were told they would see a short film (15–30 s) of a journey through an urban environment and to imagine they themselves were making this particular journey. They were then randomly presented with one of the four videos. Immediately after seeing the video they were asked to write down any thoughts and feelings they may have had if they had actually made the journey (these answers are not reported here). They were then asked to indicate on Likert-type scales how they would have felt and what they thought about the young people. A five item check followed in which respondents were asked questions about clarity of the view and sound. Finally respondents were asked a range of questions about their own mode use and some demographic questions.

3.1.4. Measures

Anticipated feelings. Respondents were asked to indicate on a 7-point scale how they would feel if they had actually been making the journey (intimidated, stressed, relaxed, threatened, safe, scared, anxious, calm, worried, amused, annoyed, happy, irritated). Factor analyses (PCA) were conducted to explore whether any dimensions could be distinguished in these judgements. The initial analyses revealed 4 factors explaining 68% of the variance. However, a Scree plot revealed that the first two factors explained most of the variance. In a rotated factor solution (Oblimin) extracting two factors factor 1 explained 40% of the variance in the responses and factor 2 explained 20% of the variance. Factor 1 captured the extent to which respondents felt threatened as opposed to safe and calm. Items with factor loadings of .60 or higher were intimidated, stressed, relaxed (reversed), threatened, safe (reversed), scared, anxious, calm (reversed) and worried. The second factor captured the extent to which respondents felt annoyed as opposed to amused. Items with loadings of .60 or more were annoyed (reversed), happy (reversed) and irritated. New variables were created by calculating the mean score of all variables with a factor loading of .60 or higher on the respective factors. On average respondents indicated they did not feel threatened ($M = 2.07, SD = .77, \alpha = .90$) or annoyed ($M = 2.71, SD = .82, \alpha = .74$). The two variables were significantly correlated ($r = -.40, p < .001$).

To measure social perceptions respondents were asked to indicate on 7-point scales to what extent they agreed with 14 statements about the young people. Questions related to intentions (up to no good, intimidating, threatening, irritating, unpleasant), personal factors (e.g. kind, intelligent, funny, considerate, intelligent, well-educated) as well as how they looked (well-dressed, scruffy, poor). An initial factor analysis (PCA) extracted 4 factors explaining 65% of the variance, but a Scree plot showed that the first two factors explained most of the variance: 31% and 28% respectively. Two new variables were created by calculating the mean score of all variables with factor loadings of .60. The first variable captured the extent to which respondent had a negative view of the young people and included the items: up to no good, intimidating, unpleasant, scruffy, threatening, poor and irritating ($\alpha = .80, M = 2.18, SD = .65$). The second variable captured the extent to which respondents had a positive view of the young people and included the items kind, funny, intelligent, well-educated, and considerate ($\alpha = .86, M = 2.24, SD = .81$). Positive and negative views of the young people were significantly related ($r = -.40, p < .001$).
There were no significant differences in the evaluations of the youths or anticipated feelings between men and women, those with different employment statuses, or between those who did or did not have regular contact with young people. Surprisingly age was negatively related to anticipated feelings suggesting that younger people felt more threatened \((r = -0.17, p = .01)\), annoyed \((r = -0.17, p = .009)\) and that younger people had stronger negative attitudes towards the young people \((r = -0.30, p < .001)\) and weaker positive attitudes \((r = 0.14, p = .036)\). Average age did not differ between the four scenarios so we did not control for it in further analyses.

Perceived clarity of view was measured to check the manipulation. Respondents were asked to indicate on a 5-point scale whether they felt they were going fast, felt distant from the scene, whether they had a clear view of the scene, clear sound and a clear image. As expected these items varied between conditions. In particular car users \((M = 4.78, SD = 1.06)\) and cyclists \((M = 4.02, SD = 1.06)\) felt that they were going significantly faster than walkers \((M = 3.24, SD = 0.99)\) and bus users \((M = 2.94, SD = 1.11)\); walkers felt closer to the scene \((M = 4.51, SD = 1.11)\) than cyclists \((M = 3.65, SD = 1.22)\), bus users \((M = 3.58, SD = 1.28)\) and car users \((M = 3.56, SD = 1.28; F(3,237) = 9.76, p < .001)\). Car users \((M = 2.24, SD = 1.10)\) and cyclists \((M = 2.86, SD = 1.33)\) also felt there view of the young people was less clear than walkers \((M = 4.96, SD = 1.44)\) and bus users did \((M = 4.00, SD = 1.52; F(3,237) = 48.11, p < .001)\). Sound was clearest for pedestrians \((M = 5.74, SD = 1.57)\), followed by bus users \((M = 5.00, SD = 1.58)\) and cyclists \((M = 4.04, SD = 1.80)\) and car users \((M = 4.10, SD = 1.93; F(3,232) = 14.13, p < .001)\). Finally, walkers felt they had a significantly clearer image of the young people \((M = 6.15, SD = 1.10)\) than cyclists \((M = 5.02, SD = 1.41)\), bus users \((M = 5.61, SD = 1.20)\) and car users \((M = 5.00, SD = 1.70; F(3,237) = 10.71, p < .001)\).

3.2. Results

Anticipated feelings. A multivariate analysis of variance was conducted. The main effect was significant (Wilks Lambda = .89. \(F(6,462) = 4.64, p < .001\)). Univariate test showed that the extent to which participants felt threatened and annoyed by the youths varied significantly across the four videos (Threatened: \(F(3,232) = 4.07, p = .008\); Annoyed: \(F(3,232) = 8.53, p < .001\)). Table 2 shows that car users felt significantly more threatened than those who walked or used the bus. Car users and bus users reported significantly more annoyance than walkers and cyclists.

Social perceptions. A MANOVA revealed an overall main effect suggesting that mode use is related to social perceptions (Wilks Lambda = .89. \(F(6,462) = 4.64, p < .001\)). Significant differences were found between the four conditions in the negative \(F(3,232) = 5.27, p = .002\) and positive \(F(3,232) = 6.26, p < .001\) views of the young people. Table 3 shows that car users reported significantly more negative views of the young people than walkers, cyclists or bus users. Walkers reported significantly more positive views of the young people than cyclists and car users.

Study 2 showed that anticipated feelings and explicit attitudes towards a group of young people in an ambiguous social situation varied depending on the travel mode from which the respondents witnessed the situation. It suggested that social judgements of an ambiguous situation were more negative when seen from the perspective of a car user.

4. Study 3

When people form judgements on the basis of very ‘thin slices’ of information, this is often not a conscious process. For instance, Kunda et al. (2002), found unconscious stereotype activation (Using a Lexical Decision Task) with 5 s of exposure to unfamiliar black faces but this effect had disappeared with 12 min exposure. Study 2 did not examine whether the effect on mode use was a result of a conscious or an unconscious process. Moreover, Study 2 did not examine the specific role of vision and sound on perceptions. Pedestrians would have been the only ones who may have picked up some of what the young people were saying. A final study was conducted to examine whether the findings from Study 2 could be replicated among a different sample (University students). In addition the study examined both explicit and implicit (unconscious) attitudes and explored the role of sound.

Two of the four videos from Study 2 were used, showing the pedestrian and the driver’s view. Videos were shown with and without sound. It was expected that those who saw the car video would have more negative explicit attitudes towards the young people than those who saw the pedestrian video, thereby replicating findings from Study 2. In addition we expected to find activation of (unconscious) implicit negative attitudes among car users but not among pedestrians. We further explored whether perceptions were more positive among those who saw the videos with sound then among those who saw the videos without sound as sound is an important source of information. Only on the pedestrian video with sound could the voices of the young people be heard (although the viewer could not make out what they said). Finally, a question was added

| Table 2 | Anticipated feelings when making a video journey on foot, a bike, by bus or in a car. |
|---------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|         | Walk M (SD) | Bike M (SD) | Bus M (SD) | Car M (SD) |
| Threatened | 1.99 (.75) | 2.13 (.69) | 2.04 (.80) | 2.46 (.84) |
| Annoyed | 2.43 (.72) | 2.69 (.68) | 2.89 (.97) | 3.13 (.72) |

Note: Means with different subscripts in one row differ significantly \((p < .05)\).
to examine the extent to which respondents indicated they would approach or avoid the young people. This question aimed to tap into the concept of personal threat more specifically. It was expected that those who saw the video from a car user perspective would be less inclined to approach the young people because they had developed a more negative perception of them.

4.1. Method

4.1.1. Participants

A total of 91 students participated. Potential respondents were recruited via an on-line recruitment system at the university and via posters advertising the study displayed throughout the university. Participants came from a range of disciplines and departments across the university. The average age of the respondents was 22 (ranging from 18 to 53). Almost 80% were White or White British and 77% were women.

4.1.2. Design

Two short videos from Study 2 were used in the study: the pedestrian video and the car user video. Each video was shown either with or without sound. The number of people in each condition was roughly even: 22 people saw the pedestrian video with sound or the car video without sound and 23 people saw the pedestrian video without sound or the car video with sound.

4.1.3. Procedure

Data was collected over a period of 4 weeks in December 2011 and January 2012. Participants were offered £5 (approximately €6 or $7.70) for participating in a series of three contiguous studies, of which this was the second. The first study was on perceptions of colour in gardens. The three studies were introduced as research on people and their environments. Upon entering the laboratory, respondents were seated at a computer, given brief instructions and then left alone for the duration of the study. Participants were told they would see a very brief video after which they would be asked a few questions about what they had seen. After seeing the video respondents were asked to complete a lexical decision task which was followed by the same questionnaire as used in Study 2.

4.1.4. Measures

Implicit attitudes. To examine whether unconscious negative attitudes were activated when viewing the videos a Lexical Decision Task (LDT) was used (following Kunda et al., 2002). The LDT tested whether respondents distinguish words more quickly and accurately from non-words when these words relate to an unconsciously activated stereotype or mental model (young people who are up to no good – target words) as compared to words that are not related to this stereotype (neutral words). The Lexical Decision Task was programmed in the software package PEBL (Mueller, 2009). Respondents were asked to identify words and non-words. The stimulus appeared in the centre of a black screen and respondents pressed specific marked keys on a keyboard for words and non-words. The stimuli were presented in random order. Before the actual task they were given a short practice trial. For the main study respondents were presented with 20 non-words and 20 words of which 10 were target words. The ten target words were: threat, scruffy, poor, irritating, intimidate, annoyed, mischievous, worried, bad, and nuisance. The target and neutral words were carefully balanced in terms of word length and frequency in the English language. Non-words were matched in length to real words. Error rates and response times were recorded for non-words (Nr correct M = 17.7, SD = 2.26; Response time M = 1644 ms, SD = 796), neutral words (Nr correct M = 9.43, SD = .83; response time M = 1107 ms, SD = 400) and target words (Nr correct M = 9.67, SD = .72; Response time M = 1124 ms, SD = 559). Three very high response times were deleted and these responses were omitted from the analyses, resulting in an average response time of 1040 ms. The average number of correct responses was very high 74% got all 10 correct and a further 23% got 9 correct, only 4 people gave fewer correct responses. This variable was therefore dichotomised into: 10 correct or fewer than 10 correct.

Anticipated feelings. As in Study 2 respondents were asked to indicate on a 7-point scale how they would feel if they had actually been making the journey they had seen. For consistency the same variables were created as those used in Study 2. However, whereas threat formed a highly reliable scale (x = .92) reliability for the annoyance scale was not satisfactory (x = .63). A factor analysis was therefore conducted to examine whether a different structure underlies the responses. The analyses initially unveiled three factors explaining 69% of the variance, but the third factor only included one item (intrigued). A two factor solution uncovered a slightly different solution as was found in Study 2. Rather than distinguishing between threat and annoyance the two factors distinguished between negative (intimidated, stressed, annoyed, threatened,
scared, anxious, worried and irritated) and positive feelings (amused, relaxed, safe, happy, and calm). Two reliable scales were computed on the basis of these findings: negative feelings ($\alpha = .94, M = 3.02, SD = 1.44$) and positive feelings ($\alpha = .87, M = 2.90, SD = 1.34$).

*Explicit attitudes* were measured with the same items as in Study 2. Consistent with Study 2, two reliable scales could be created representing the extent to which respondents had a negative view of the young people ($\alpha = .85, M = 3.83, SD = 1.23$) and the extent to which they had a positive view ($\alpha = .84, M = 2.41, SD = .88$).

*Approach-avoidance.* Respondents were asked to indicate how likely they would be to stop to talk to the young people shown in the video (1 = very unlikely, 5 = very likely; $M = 2.18, SD = 1.16$).

Feelings and perceptions were not related to gender or study subject. Age was significantly related showing that, as in Study 2, younger people were less likely to hold positive views of the young people than older respondents ($r = -.21, p = .046$).

*Manipulation checks.* As in Study 2 respondents were asked to indicate (on 5-point scales) how clear the images and sounds of the videos were. Analyses of variance were conducted to check whether this varied between conditions. Respondents who saw the scene from the perspective of a car user felt that they were going faster ($M = 4.71, SD = 1.06$) than those who saw the video from a pedestrian perspective ($M = 3.12, SD = 1.42, t = 37.87, p < .001$). They also indicated they felt less closer than pedestrians ($M = 3.76, SD = 1.24$ vs. $M = 4.58, SD = 1.14; t = 9.66, p = .003$) and pedestrians indicated they had a clearer view of what was going on ($M = 4.60, SD = 1.43$ vs. $M = 3.46, SD = 1.42; t = 13.32, p < .001$). No significant differences were found in the rating of clarity of the image on the computer. As expected sound was perceived clearer when people were given sound ($M = 4.57, SD = 1.61$) than when they were not ($M = 3.70, SD = 1.14; t = 8.67, p = .004$).

### 4.2. Results

*Implicit attitudes.* A repeated measures multivariate analyses of variance was conducted to examine whether response time was shorter for target than for neutral words (within subject factor) and whether it differed between the sound and the no-sound condition. No significant effects were found suggesting that response time did not differ between mode use conditions ($F(1,83) = 1.05, p = .39$) and sound conditions ($F(1,83) = 1.59, p = .21$). Because the variable measuring number of correctly identified target words was dichotomised a Chi$^2$ test was performed to examine differences between mode use and sound conditions. Again no significant effects were found (Chi$^2 = 2.86, p = .09$).

*Feelings.* A two by two multivariate analysis of variance was conducted to examine whether anticipated positive and negative feelings differed between conditions (view and sound). No significant effects were found for mode condition (Willik’s Lambda = .01; $F(2,83) = .45, p = .63$) or sound condition (Willik’s Lambda = .01; $F(2,83) = .59, p = .55$).

*Explicit attitudes.* A similar analysis was conducted to examine whether positive and negative social perceptions varied depending on mode and sound. A significant multivariate main effect was found for travel mode (Willik’s Lambda = .89; $F(2,83) = 5.29, p = .007$). As expected respondents who saw the video from a pedestrian perspective had significantly more positive attitudes towards the young people ($M = 2.60, SD = .90$) than respondents who saw the video from a car user's perspective ($M = 4.22, SD = 1.14$) than respondents who saw the scene from a pedestrian perspective ($M = 3.47, SD = 1.22; t = 8.87, p = .004$). A significant multivariate effect was not found for sound (Willik’s Lambda = .94; $F(2,83) = 2.59, p = .091$). Only the univariate effect for positive views was significant ($F(1,84) = 3.60, p = .026$). Respondents who saw the videos without sound had less positive views of the young people ($M = 2.21, SD = .80$) than respondents who saw the videos with sound ($M = 2.61, SD = .91$). The interaction effect did not reach significance.

*Approach-avoidance.* The extent to which respondents said they would be likely to stop and talk to the young people did not depend on mode use or sound. However, regression analyses showed that respondents were significantly more likely to talk to the young people when they held less negative views of them ($β = -.34, p = .002; R = .43, adj. $R^2 = .17, F(2,85) = 9.79, p < .001$). The effect for positive views was not significant ($β = .19, p = .08$).

Study 3 confirmed the findings of Study 2 and demonstrated that car users form more negative perceptions of a group of young people play-fighting than cyclists did, although we did not find an effect on anticipated mood. We did not find support for the idea that car use may affect perceptions through unconsciously activated stereotypes. Study 3 also found that the extent to which respondents formed negative perceptions of the young people was related to their intention to approach these young people, although it did not show that people in the car condition were less likely to approach the young people.

### 5. General discussion

The travel mode people use to travel through an urban environment affects the perceptions of that environment and the people in it. In this paper we demonstrated that perceptions of a relatively poor neighbourhood were more negative among those who drive more through that neighbourhood and more positive among those who walk more (Study 1). Perceptions of a relatively affluent area were also more positive among those who drive more through that area. Studies 2 and 3 showed that perceptions of an ambiguous (potentially threatening) social situation in an urban environment were more negative and less positive when people witness the scenario from the perspective of a car user, especially in comparison to pedestrians.
Study 3 confirmed these findings but did not find that implicit or unconsciously activated attitudes towards the young people were affected by mode use. This may suggest that the effect of mode use on perceptions may not be a result of unconscious cognitive processes but rather a more rational justification. Taken together the studies supported our hypothesis that car users form more superficial perceptions of an urban environment, in particular compared to pedestrians, because they are exposed to less details information. These findings are in line with social psychological research that suggests that information that becomes available to people in ‘thin slices’ results into more superficial judgements in which bad becomes worse and good becomes better (Gladwell, 2005; Willis & Todorov, 2006).

The findings of Study 1 appear to suggest that this effect may be stronger for negative perceptions than for positive perceptions. The analyses explained more variance in perceptions of a relatively poor area (Area 1) than a relatively affluent area (Area 2). This may be because the poorer area is on route to the city centre and is likely to be visited more by people who do not live there. People from Area 1 may be less likely to travel through Area 2. However, it is also possible that these effects are stronger because they relate to negative perceptions, confirming the idea that negative judgements are made more quickly on the basis of thin slices of information than positive judgements (Carney et al., 2007; Wojciszke, 2005). Study 2 and 3 only focused on negative perceptions as the respondents were shown an ambiguous scenario which could have involved some level of threat. Further research may want to examine the effect of driving on positive perceptions of people and places.

A surprising finding was the weak effect for sound in Study 3. Although it was difficult to make out what the young people were saying, the tone of voice of the young people that could only be clearly heard in the pedestrian video suggested that there was unlikely to be a specific threat and that the young people were simply ‘mucking about’. This would suggest then that the visual information – the behaviour of the young people – was a more significant source of information to form social judgements upon, than the auditory information.

We did not find evidence of automatic unconscious stereotype activation. There may be several reasons for this. First, that such automatic activation simple did not take place. Respondents were asked to form judgements of the young people and may have only done so because they were asked to do so. And their interpretation of the situation was affected by one of the most important dimensions of social cognition: threat (Wojciszke, 2005). It is also possible that among the sample in this study a strong stereotype of the young people simply did not exist. Most research on stereotype activation focuses on very clear groups with very distinct features (e.g., gender, ethnicity). The young people in this study did not represent such a group. Therefore a clear cognitive schema may not have been present in the respondents’ minds. Instead the judgements that they were asked to make were more a rational and conscious judgement of the situation. It is also possible, that the time period of exposure was too long and unconscious processes had already dissipated. Unconscious cognitive priming research typically studies very short term or subliminal exposure to stimuli in milliseconds rather than seconds (Gladwell, 2005; Willis & Todorov, 2006). Moreover, Kunda et al. (2002) demonstrated that unconscious priming effects disappear with longer exposure, although they did still find an effect for 15 s exposure. In order to draw reliable conclusions on this it would be useful to repeat the study and verify the findings. We found very small error rates in the lexical decision task and therefore it is therefore worth repeating this work (e.g., Mc Connell, Rydell, Strain, & Mackie, 2008). Moreover, it may well be worth repeating the study with clearer stereotypical groups – such as a group of young black people.

An unexpected finding was reported in Studies 2 and 3 where older respondents appeared to have more positive attitudes towards the young people. This is somewhat surprising as it is often suggested that older people feel more threatened than younger people by ‘loitering youths’. However, no respondents in our samples could be labelled as elderly. Younger people may well have had the more negative views because they could imagine themselves more easily as being part of the scenario and therefore be under threat or annoyed.

In Studies 2 and 3 respondents had no choice over the mode they used, they were randomly assigned to a condition. In real life, people choose their travel mode. They choose their route and they can choose the direction in which they are looking. In studies 2 and 3 participants did not have this control. Waggoner, Smith, and Collins (2009) showed that active exposure may lead to very different social perceptions than passive exposure. A field study examining different mode user’s perceptions of a similar scenario in the field may be useful to examine the strength of the findings in these studies for everyday travel. Study 1, however, does point to the potential validity of the findings for everyday perceptions.

People are motivated to make accurate social judgements. Given resources and opportunity they will make judgements as accurate as possible and be less guided by potentially irrelevant contextual and social cues. With limited information, however, people rely on quick and superficial judgements. This paper demonstrated that these processes are important to study in relation to travel by different modes in urban neighbourhoods.

This work is important in a world where car use is rapidly increasing and where increasing worry is expressed over disengagement in local communities and loneliness. The way in which we travel through our environment affects how we perceive that environment which in turn influences how we interact with that (physical and social) environment. Study 1, suggests that this may particularly affect communities which are already struggling with social issues (areas with low socio-economic status (SES)). People who do not live in such communities or are new in the area are more likely to develop negative views of the people there when they drive, which can only serve to (further) disconnect the outsiders or newcomers from these areas. This may not only be relevant for residents and visitors but can also have wider implications. For instance,
police patrols are increasingly undertaken in cars. If police judgements about young people's intentions and behaviours are affected by their mode use this can have major implications for relationships between the police and local youths.

It is important that these findings are considered when developing or regenerating urban areas. Measures that promote walking and cycling, such as pedestrianising streets can have major benefits for local communities not only because they may help create safer and cleaner neighbourhoods but also because they can help develop better social cohesion. Traffic calming measures, that significantly slow down cars can also have significant benefits for social perceptions. The idea of 'Shared Spaces', 'Naked Streets' (Hamilton-Baillie, 2008) or Home Zones, may be particularly useful to mention here. The concept of 'Shared Spaces' has been proposed as an alternative approach to traffic calming. The idea behind it is that safer spaces can be created by removing street furniture and common traffic regulation furnishings (traffic lights, crossings) to promoted interaction between different mode users. By doing this different mode users will have to pay more attention to each other, look more closely and anticipate each other's movements. It is suggested that this will create safer spaces for different mode users. We would suggest it could also benefit communities by promoting interaction between mode users and addressing potential superficial social judgements.

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