Online information-sharing: a qualitative analysis of community, trust and social influence amongst commuter cyclists in the UK

Caroline Bartle (corresponding author) [a]
Erel Avineri [b]
Kiron Chatterjee [c]

[a, b, c]   Centre for Transport and Society
         Faculty of Environment and Technology
         University of the West of England, Bristol
         Frenchay Campus
         Coldharbour Lane
         Bristol BS16 1QY
         UK

Corresponding author:
caroline.bartle@uwe.ac.uk
Telephone +44 117 32 82086/ 07840 950109
Fax   +44 117 32 83899

Co-authors:
erel.avineri@uwe.ac.uk
kiron.chatterjee@uwe.ac.uk

Online information-sharing: a qualitative analysis of community, trust and social influence amongst commuter cyclists

Abstract

Research into the use and behavioural effects of travel information has concentrated on top-down information from transport providers, but little is known about the role of informal information, shared through word-of-mouth, in everyday travel behaviour. Social interactions about travel may exert not only an informational influence, whereby beliefs are updated based on the experience of other individuals, but also a more subtle normative influence: conveying information about norms of behaviour within a particular social milieu. This research aimed to explore, using a qualitative approach, the social processes which occurred when a group of 23 commuter cyclists interacted with one another through a specially designed, map-based website over six weeks, sharing their routes and other cycling-related information. Methods comprised observation of website interactions, participant questionnaires and semi-structured interviews; the analysis drew on the theory of normative and informational social influence, and self-categorisation theory. It was found that the process of sharing information could perform not only a functional role in diffusing instrumental travel information, but also a social one whereby perceived in-group membership and high levels of trust reinforced positive views of cycling as a commuter mode. Both roles were found to offer particular encouragement to those who were new to cycling or new to a particular workplace. This suggests that 'user-generated' information may hold potential as one of the tools for promoting sustainable travel within a group setting such as the workplace.

Keywords

Traveller information; word-of-mouth; social influence; cycling; qualitative case-study.

1. Introduction

Research in the fields of tourism and consumer studies has shown the significance of word-of-mouth information from family, friends and other social contacts in the process of decision-making with regard to holiday travel (e.g. Bieger and Laesser, 2004; Murphy, Mascardo and Brenckendorff, 2007; Um and Crompton, 1990). More recently, the phenomenon of 'digital word-of-mouth' (Dellarocas, 2003) has received growing research attention across a number of disciplines, including the expanding role of social media websites in leisure travel information-search and planning (e.g. Gretzel and Yoo, 2008; Pan, MacLaurin and Crotts, 2007). Little is known, however, about the ways in which word-of-mouth information - communicated through either face-to-face interaction or electronically via internet-based social media - might be used, and how it might influence the beliefs, attitudes, and intentions which contribute to everyday, utility travel behaviours such as choice of transport mode or route. Within transport studies, there has been research on traveller information which has focussed on top-down travel information supplied by, for

example, transport providers and governmental agencies (e.g. Chorus, Molin and van Wee, 2006a and 2006b; Kenyon and Lyons, 2002; Lyons, Avineri, Farag and Harman, 2007). However, national surveys in the UK show that word-of-mouth provides a further source of traveller information. For example, results from the 2005 and 2006 UK National Travel Survey showed that 24% of those who had sought travel information for a public transport journey during the previous six months had 'asked a friend', whilst 28% of those who had sought information to plan a car journey had done the same (Department for Transport, 2008). However, there is a lack of knowledge about the nature and effects of such 'social information'.

The role of social interactions is receiving growing attention in travel behaviour research as a means of elaborating current understandings of travel decision-making (Dugundji, Páez and Arentze, 2008; Dugundji, Páez, Arentze, Walker, Carrasco, Marchal et al., 2011). Social influence effects on decision-making in the context of modal choice have been investigated through laboratory experiments (Sunitiyoso, Avineri and Chatterjee, 2011), whilst a range of studies have combined spatial and social network models with specific application to activity-based transport modelling (e.g. Carrasco and Miller, 2006; Carrasco, Hogan, Wellman and Miller, 2008). However, the emphasis of such research on the quantitative and geo-spatial aspects of social interactions means that less attention has been paid to understanding the *nature* of the interactions and how this may affect both information diffusion, and the mechanisms through which social influence on travel behaviour might occur. In the field of traveller information, a greater understanding of the role of information which is shared between transport-users, rather than directed from a 'top-down' provider to the individual, has potential applications for both information provision as a policy tool, and the design of specific traveller information systems.

Recent exceptions to the quantitative emphasis of research into social interactions and travel behaviour are provided by qualitative investigations of: social influence and telecommuting (Wilton, Páez and Scott, 2011); social influences on driving speed (Fleiter, Lennon and Watson, 2010); and social influences on the purchasing of plug-in hybrid vehicles (Axsen and Kurani, 2011). For example, Wilton et al. (2011), using semi-structured interviews, found that interaction with other telecommuters can both inform an individual's decision on whether to telecommute, and validate a decision which has already been taken; positive information flow about telecommuting can thus help to normalise this practice within workplace culture. This paper reports on social processes which were observed within a different travel behaviour setting: amongst cyclists commuting to a group of neighbouring workplaces and interacting electronically.

Cycling information was the chosen focus of the study because word-of-mouth can provide a particularly useful source of local information for trips made by bicycle, especially with regard to route-finding (Bartle, Avineri and Chatterjee, 2009). In addition to conventional

(face-to-face) interactions, the development of 'Web 2.0' applications, such as online maps which allow users to mark routes and share them with others, has increased the opportunities for digital word-of-mouth in this area. For example, in the US, Priedhorsky, Jordan and Terveen (2007) identified an unmet need amongst cyclists for a comprehensive and up-to-date web-based information resource. This led to the development of the editable online map *Cyclopath*, on which cyclists are invited to *"share (their) cycling knowledge with the community"* (www.cyclopath.org). There has so far been no exploration of the social influence effects of this form of information-sharing amongst cyclists, although there is limited evidence for the influence of social norms on the propensity to cycle to work. Dill and Voros (2007) found that individuals are more likely to commute by bicycle if their co-workers also cycle, whilst Heinen, Maat and van Wee (2009) found that the decision to cycle to work is influenced by the perceived opinions of others over short, but not longer distances.

This paper reports on qualitative research which aimed to explore the social processes that occurred when a group commuter cyclists interacted with one another through a specially designed, map-based website, sharing their routes and other cycling-related information. Research questions were kept deliberately open to allow themes to emerge from the data (rather than test specific hypothesis or analyse relationships between variables). The questions were: what form (if any) would social influence take in this specific context, and what contributory social-psychological factors might be identified? The analysis was informed by theoretical concepts relating to social influence within group settings, and drew predominantly on qualitative interviews.

2. Theoretical Background

The theoretical background to the study is provided by two related areas of social psychology theory: the dual process theory of social influence (Deutsch and Gerard, 1955), and self-categorisation theory (Turner, Hogg, Oakes, Reicher and Wetherell, 1987). Deutsch and Gerard (1955) reinterpreted some of the 'classic' experimental studies of social influence of the 1930s to 1950s by differentiating between *informational* and *normative* social influence. Self-categorisation theory, a development of Tajfel and Turner's (1986) social identity theory, adds the concept of *referent informational influence* to those of normative and informational influence. These theories offer a fresh approach to travel information-use by locating it within a social context, in contrast to more conventional accounts which view information-use from the perspective of individual, cognitive processing. They offer insights into how travel information, when communicated through word-of-mouth, might comprise not only instrumental 'facts', but also social messages about the participants in the interaction, which may, in turn, affect the influence of such information on travel behaviour.

It may be useful to clarify at this point that, in drawing on this area of social-psychological theory, we use the term *information* in its broadest sense – that is, raw data which require interpretation in order to derive meaning (Floridi, 2010). Thus, we encompass the diverse forms of information, both 'factual' (for example, "the cycle path starts here") and 'social' (for example, "people like us cycle to work") which are communicated through social interaction, and not just the factual 'semantic information' such as one finds in a railway timetable (Floridi, 2010). The latter definition is the one which is usually associated with 'travel information', so it is perhaps unsurprising that the theories used to conceptualise the current research have rarely been used in the analysis of travel information use. Exceptions can be found in the fields of tourism, business and information systems research; for example, the concept of informational and normative influence was investigated in recent studies of online (leisure) travel information use by Arsal, Woosnam, Baldwin and Backman (2010); Casaló, Flavián and Guinalíu (2011); and Mendes-Fihlo and Tan (2009). Dholakia, Bagozzi, and Klein Pearo (2004) built a social identity variable into their social influence model of consumer participation in virtual communities. In this research, we use the term 'attitude' as defined by Eagly and Chaiken (1998): a psychological tendency which is expressed by evaluating a particular entity with some degree of favour or disfavour. Beliefs are assumptions or convictions that are held to be true about the entity, and therefore form a cognitive foundation of attitude (Lyons, Goodwin, Hanly, Dudley, Chatterjee, Anable, et al., 2008).

With reference to cycling, social identity was found by Gatersleben and Haddad (2010) to affect cyclists' perceptions of other cyclists; that is, they believed other people who cycled to be like themselves. Other authors have explored the existence of different 'cyclist in-groups'. Skinner and Rosen (2007) found that cyclists within a specific workplace felt in-group identification with other cyclists in their workplace but regarded other cyclists as out-groups, whilst Fincham (2007) found strong feelings of group identity and community amongst a niche group of cyclists: bicycle messengers.

According to Deutsch and Gerard's dual process theory (1955), informational influence is based on the acceptance of information obtained from others as *evidence about reality*, whereas normative influence is based on the need to *conform with the positive expectations of others,* particularly in a group environment. In the field of word-of-mouth travel information, an individual might accept information from cyclists about the lighting levels on a particular cycle route as evidence of reality (informational influence), because these cyclists have experience of using the route after dark, so their opinion is to be trusted. However, they may also be subject to a more subtle normative influence – that it might be perceived as a 'normal' behaviour within this group of cyclists to use this route after dark.

Tajfel, Turner and colleagues were interested in what happens to people's *identity* in group settings (e.g. Tajfel and Turner, 1986; Turner et al., 1987). They argued that people can

maintain their identity as unique individuals in interpersonal comparisons where idiosyncratic, personal characteristics are most salient. However, they may also perceive themselves as members of a social group with the characteristics of that group, and may modify their attitudes and behaviour to comply with norms within the in-group (reference group). Perceptions of group membership are fluid, allowing an individual to categorise him or herself as a member of, and identify with, different groups, at different levels of abstraction, as they become more or less salient (Turner et al., 1987; Turner, Oakes, Haslam and McGarty, 1994). Thus, an individual may categorise him or herself, for example, as a man or woman, a student, a parent, a car-driver or a cyclist at different times in different circumstances, and may alter his or her behaviour depending on the saliency of a particular social identity. Self-categorisation theory incorporates a form of social influence called *referent informational influence*, whereby people adjust their identity, attitudes and behaviour to correspond with the collectively defined attributes of their social groups (Wetherell, 1996). Self-categorisation theorists argued that processes of normative and informational influence were not as easily distinguishable as Deutsch and Gerard's theory suggested, and that referent informational influence integrated both concepts: the basic influence process is one where the normative position of people categorised as similar to self tends to be subjectively accepted as valid (Turner, 1991). Thus, it is not just the informational content *per se* of others' opinions and actions which matters, but the extent to which it is validated by in-group consensus (Turner et al. 1987).

In this analysis, we explore ways in which factors such as group identification and trust, expressed within a discourse of 'community', play a role in a specific travel information-use context. By framing the present research within the theories discussed in this section, we offer an alternative, social influence perspective which complements conventional, individualist understandings of travel information use in which the individual user is seen as an 'information processing unit', applying instrumental reasoning but with little or no interaction with, or influence from others.

3. Methods

A qualitative approach was appropriate because the research sought exploratory understanding of social processes which could be studied most effectively through observation of behaviour in a natural (non-laboratory) environment, supplemented by an exploration of people's own understandings through interview. Qualitative research is recognised as an important tool for improving understanding of the complexity of human behaviour within specific, real-life contexts and where 'key variables' may still be undefined (Clifton and Handy, 2003; Goulias, 2003).

An innovative methodology was developed to explore social factors within the context of (on-line) travel information-use, using a specially designed website to act as a case-study

'traveller information system'. A case-study system needed to exhibit a number of features in order to make it suitable for the study of the social processes involved in the exchange of information. Users should be free to interact with one-another electronically, and the case-study should be limited to a specific community in order to facilitate the sharing of instrumental local knowledge, as well providing an opportunity for the study of factors such as trust and in-group identity. As an existing traveller information system which met these criteria had not been identified, it was necessary to create a Web 2.0 platform specifically for the study, and recruit participants to use the system for an experimental period. Thus, this was not a case-study in its purest form, which necessitates a natural, rather than an artificial research setting (Yin, 2009), but rather a case-study with 'experiment-like' features (Robson, 2002).

The task of creating a case-study setting was conducted collaboratively with the designer of a local map-based website, http://bristolstreets.co.uk, which provides a variety of community information, including transport in the city of Bristol, UK. A distinctive feature is that all the information is based on a map, overlaid with different categories of information (e.g. a cycling layer, a bus layer, an events layer). The transport component combines 'top-down' travel information, such as bus routes and timetables, with an interactive cycling layer on which people may mark routes and add comments. A secure layer of the website, with a number of bespoke, interactive features, was created for the purposes of the current research. As user-generated information about cycling had been selected as the focus for the study, the project was given the name *Cycology*. Three methods were used to obtain qualitative data on the use of the *Cycology* system: observation of interactions on the website; questionnaires comprising open questions administered to the participants at the end of the project, followed by in-depth, semi-structured interviews. This provided an opportunity to analyse both observed behaviour and participants' own accounts of the experience of using the information system. Observation of website interactions was used to explore the content and patterns of interaction within the group, as well as to obtain some insight into the possible influence of these interactions on participants' attitudes, intentions and cycling behaviour. However, the interviews, supported by preliminary questionnaires, served as the main method for obtaining data on social influence effects and the social-psychological mechanisms which might explain them. Further details of the research methods are provided later in this section.

Purposive sampling was used to recruit 23 people who cycled to work in North Bristol, UK. The participants worked at five neighbouring organisations: two private sector and three public sector employers. They were recruited via: announcements on the 'bristolstreets' website and the organisations' intranet websites; and posters, flyers and bicycle user group email lists within the organisations. Five workplaces were deemed sufficient to ensure that findings would not be distorted by contextual factors in a particular workplace, but a small enough number to allow for the study of in-group (social) identities among clusters of people

sharing the same workplace. Twenty to 25 active participants were judged to be required for the duration of the project in order to generate sufficient numbers and combinations of interactions, whilst keeping the group small enough to allow a sense of social closeness within the group (at the start almost all participants were unknown to one another). Some guidance on group size was found in the literature on online social interactions. For example, Hall and Widén-Wulff (2008) conducted a case-study of online information-sharing amongst six postgraduate students, finding high levels of social identity and trust within this small group, whilst Tu and McIsaac (2002) studied interactions amongst 51 students in an online learning environment, and found that "*Many students reported that they felt lost in the multi-thread discussion environment*" (p143). After some attrition, the final user group comprised 13 women and 10 men, aged between 21 and 54, selected in accordance with a number of criteria: gender, age, workplace, area of residence, and degree of cycling experience. A mix was sought independently for each of these attributes. Frequency of cycling to work varied from every day to very occasionally. The length of time people had been cycling to this location prior to the start of the project ranged from not at all (one participant was considering cycling to work but had not yet done so) to 12 years. Participants with differing degrees of experience were required to facilitate information-sharing, as some were expected to act more as 'information-givers' and some as 'information-seekers'.

Participants were asked to use the *Cycology* website over a period of 6 weeks. They were invited to mark their favourite cycling route/s on the interactive map, post comments or photographs, discuss local cycling matters, and respond to one another's questions. Each marker appeared on the map as a balloon identifying the person who had created it (see Figure 1). Clicking on the marker revealed a comments box, to which subsequent comments (posts) could be added, in the manner of a discussion thread. As well as the geographical markers, it was also possible to create 'floating markers' for comments and responses not relating to a specific location. To personalise the messages, participants could submit a thumbnail image such as a personal photograph or avatar. In the manner of an internet discussion forum, participants were sent an email digest every day, containing any markers which had been created, or comments added to existing markers during that day.

Figure 1: Screenshot from the *Cycology* website

All the interactions were observed and recorded. The first author also had site administration rights which allowed her to analyse participants' browsing activity: which markers they were looking at and when, which meant that descriptive statistics on usage of the website were also collected (e.g. frequency of logging-in and number of comments boxes opened by each participant). The participants were informed via the project information sheet that their posts

and browsing activity on the website would be recorded and analysed by the first author. The project received ethical approval from the Faculty's ethics committee.

A questionnaire comprising open-ended questions was issued to participants at the end of the case-study period in order to elicit their immediate thoughts on the experience of participating in the project. Questions included:

- *How far did you feel the information on the Cycology website was reliable, compared with, for example, routes marked on a normal cycling map? Please explain your answer.*

- *Did you consider doing, or actually do, anything different (e.g. try a new cycle route) as a result of reading comments on the website? Please explain your answer.*

Questionnaire responses helped to inform the subsequent one-to-one interviews with 21 participants (two being unavailable). An interview topic guide was developed as a template and amended for each interviewee to ensure that questions were related to each person's observed activity on the website (content and number of postings, date and number of log-in sessions and browsing activity). A computer was available during each interview so that the *Cycology* website could be consulted if appropriate. The interview structure and example questions are provided in the appendix.

Analysis was undertaken iteratively. As noted above, an initial reading of the website posts and the questionnaire responses contributed to the formulation of more detailed questions for the interviews. A file was created for each participant, initially comprising: a list of his/her log-in dates; markers opened and comments posted; and his/her questionnaire responses. This was then supplemented by a verbatim transcript of the individual's interview. This allowed a holistic (vertical) analysis of data sources relating to each individual, to understand, for example, how an individual's attitudes expressed at interview helped to explain observed activity on the website. However, thematic (horizontal) analysis across all participants constituted the main part of the analysis, and this was conducted once all the data had been collected. Website posts, such as those shown in Figure 1, were first categorised by theme (for example: geographic route description; comment on cycling infrastructure; sensory/aesthetic/affective description; notification of events). Interactions were analysed for evidence of social influence and related factors such as trust between participants, and these findings were repeatedly referred back to during the thematic analysis of the questionnaire responses and interview transcripts. This process comprised the following steps as recommended by the methods literature (e.g. Braun and Clarke, 2006; Mason, 2002; Ritchie and Lewis, 2003): firstly, reading through the texts and noting down initial ideas through a process of synthesis ; secondly, coding interesting features of the data in a systematic fashion across all transcripts and questionnaire responses, using NVivo software (some codes were 'theory-driven', i.e. guided by the research questions,

9

whilst others were 'data-driven', with themes emerging bottom-up from the data). Thirdly, codes were collated into potential themes and all data relevant to each theme was gathered together. For example, all references in the text to 'workplace community', 'cycling community', and 'solidarity' were gathered into a theme 'group identification'. Ongoing analysis to refine the specifics of each theme and the overall story the analysis told was an iterative process which continued through the writing-up of the research.

4. Findings

4.1 Content and impact of the *Cycology* website

The major topic of discussion on the *Cycology* website was cycle routes between the participants' areas of residence and their places of work. Other postings generally took the form of up-to-date warnings, such as an incidence of bike theft or broken glass on a roundabout, discussion of general cycling issues such as taking bikes on trains, notification of a cycling event, and observations about the cycling experience in general or specific occurrences on the journey to or from work. Representing a general view, one participant remarked that the mix of content made it feel *"more like a conversation between people than a formal exchange of data".* As well as providing their own information and observations, many participants also posted questions to other members of the group. One hundred and thirty two postings were contributed to the site over the six weeks, of which 67 elaborated on routes drawn on the map, and 65 comprised general comments, questions or responses. The number of posts to the *Cycology* layer was higher than the number of markers posted on the main website http://bristolstreets.co.uk - open to all), which totalled 50 during the same period. Eighty *Cycology* postings formed part of 29 short discussion threads. The mean number of posts by each participant was 5.8 (highest = 14, lowest = 1). The number of markers (posts) opened per individual ranged from 1 to 127 (mean: 46), totalling 1059 over the six weeks, and showing that the reading of posts outnumbered the writing of posts by 8:1.

A number of changes to participants' intentions and behaviours were revealed in the interviews, and to a lesser extent though website posts (for example when participants announced an intention to try out another person's suggested route, or reported back after they had done so). Most significantly, of the 23 participants, 13 people tried a new cycle route which they had seen on the site, two re-tried a route they knew but had not used for some time, and a further three said they intended to try a new route. This provided evidence that a degree of influence on behaviour had occurred through the online information-sharing. Many reported in the interviews that the project had also reinforced 'pro-cycling' attitudes and a corresponding enthusiasm for cycling:

"*I suppose I was more encouraged to cycle, and I think I probably cycle more now that I've found myself a route*". (female)

"*Being part of this project did improve my enthusiasm for cycling, and as it went on just as I have started cycling to work, it encouraged me to keep at it*". (female)

Other reported effects of the project were a greater propensity to take action on cycling matters, such as reporting problems along a route to the city council, or commenting on proposals relating to cycling infrastructure. For some, qualitative changes occurred to the way in which they experienced their regular cycle commute, as they looked out for features remarked upon by others, and also actively looked for interesting or 'newsworthy' aspects of their trip to report to others (for example recommending a scenic view, or warning others of broken glass).

In the following sections we consider some of the social-psychological factors which may account for these manifestations of influence amongst group members within the *Cycology* project, in the light of the theories reviewed in the previous section. Interviews and questionnaires provided the main sources of data for these findings. The analysis focuses on two areas which emerged strongly from participant accounts: the experience of a sense of community (interpreted as identification with salient reference groups), and corresponding levels of trust in information emanating from the reference group(s).

4.2   The experience of 'community'

Phrases such as "community-building"*,* "cycling community" and "virtual community" arose spontaneously in many participant accounts. A *sense of community* has been theorised and defined within community psychology as a concept which includes "sense of belonging" and "identification" (McMillan and Chavis, 1986), and it from this perspective that these findings were interpreted, informed by theories of social identity and self-categorisation. Three types of 'community' were identified within the accounts: a community of cyclists generally, a work-based community, and a community of cyclists within the project (including the idea of a 'virtual community'). Self-categorisation theory posits that group identification contributes to cooperation (in this case, the sharing of information) and allows referent informational influence to occur within the group. These different communities were often felt to overlap, although they were ascribed different levels of importance – or salience - by different people. For some participants, cycling was the common factor which generated a sense of association within the project (group identification):

"*I definitely feel that, being a cyclist, I definitely feel more of a community link with them somehow, because I know they're cyclists*". (female)

For others, a greater sense of community arose from the knowledge that the participants worked for the same organisation, or a small group of neighbouring organisations. Over half

of the participants worked for the same employer, and these people were most likely to attribute a sense of workplace identity to the project:

"I quite like the work thing, you know, ….. it gives you that connection to people if you work at a place, …. you've got that link with people". (female)

For others, a sense of community ensued from the project itself: *"I think the project gave it a sense of community. I think it transcended where you work or anything" (female).* Due to its online nature, the project was also described as a 'virtual community' by some. A virtual community can be defined as a group of people who share social interaction, social ties, and a common interactional format or location (Kozinets, 2010). One participant described *Cycology* as a "*virtual community of people who cycle which provides a space for collaboration and help on all things cycling" (female).*

Not all participants believed that a sense of community had been created within the project, but did make observations about a more general 'cycling community'. In a small number of cases there was little personal identification with this group – two such participants described themselves as being, by nature, unsociable or unattracted by the idea of belonging to a group. Significantly, the only person among the participants who had not yet cycled to work (although she cycled on other occasions) said she felt excluded from the project because she perceived the other participants to be confident and experienced cyclists. With reference to the theory of Turner et al. (e.g. 1987, 1994) she did not categorise herself as a member of the *Cycology* group, which did not, therefore, act as a reference group for her. This highlights the important effect of social comparisons and 'in-group' sensibilities on both the interactions within a group, and the likelihood of social influence occurring.

The high level group categorisation of *all cyclists* was more likely than the project or workplace group categorisations to generate a sense of intergroup contrast with the users of other transport modes (especially motorists). This could be detected in website posts such as the following excerpt from a route description:

"Note: I've been screamed at by motorists a few times along Stoke Avenue. No doubt for various injustices I have caused them." (male)

In interviews, several participants spoke of an 'us and them' mentality – a favouring of the cycling in-group accentuated by intergroup contrasts with other road-users - which some considered regrettable:

"And so you've become, you create this sort of 'us against them' mentality, just to keep yourself safe. So everybody then clamours together. Because of power in numbers and everything." (female)

"I think cyclists have a tendency to form quite a tight group, because there's a real "them and us" type of mentality to it, which I find very annoying, as I drive as well (….) Because there doesn't have to be this antagonism between cars and cyclists".(male)

This concurs with qualitative research carried out among road users in the UK by Musselwhite et al. (2010, 2011), which attributes the 'us' and 'them' focus of road users to the highly competitive nature of road space in the UK.

Two factors which contributed to the sense of community amongst cyclists, and a consequent willingness to share information, were a sense of solidarity and empathy with other group members:

"I mean, I kind of got a sense that everybody doing it, (…) everyone kind of had an attitude of, you know, being willing to share information, help each other. It was a nice feeling of solidarity in a way (…). So it was quite a nice feeling of community." (female)

Some types of posting to the website were particularly associated with building a sense of community, and these often involved sharing experiences and emotions rather than simply functional information, exemplifying the importance of emotional investment as a component of group identification (Tajfel, 1982):

"I think that, you know, if you're creating a sense of community, it's not only the information that is getting across, but also the feelings and motivations. You know, "I had a good day, I had a bad day". And those sort of shared experiences that make a sense of community. If it's just sort of "I go from point A to point B this way ", (…) it doesn't touch you as much." (female)

One person - the most active contributor to the website - reported that the process of interacting with other *Cycology* participants had, in itself, helped her to feel part of a wider cycling community, and that this had in turn encouraged her to continue cycling:

"When people responded to my comments I did feel quite excited about being involved in the cycling community, and was therefore encouraged to write more (…). Participation in this project made me feel part of the cycling community, which was quite nice. When I felt bad about it, e.g. in rubbish weather, I knew there were others who had gone through the same, which encouraged me to keep cycling- I am now an 'all-weather cyclist'!". (female)

This participant had started cycling to work only within the past six months; the sense of community in its various forms was indeed most likely to be expressed by those who had switched to cycling from other commuter modes relatively recently (within the past two years). Participants who had been cycling to work for many years implied that social support for cycling was not something they particularly required because cycling was simply part of their routine.

4.3   Trust in the reference group

Interviews and questionnaire responses revealed that all participants considered the information posted on the website to be reliable, and this was supported by the finding that the majority had used a cycle route suggested by another participant, having learned about it on the website. Participant accounts indicated that trust in the information was predominantly *calculus-based* – that is, an instrumental-reasoned form of trust based on rational choice and typical of short-term interactions (Rousseau, Sitkin, Burt and Camerer, 1998). For example, the knowledge that the informant is offering advice based on personal experience may be enough for it to be perceived as trustworthy by the recipient, even if the two people have never met before. However, forms of *relational trust* were also identified: where trust is based on information available to the truster from within the relationship itself, within which emotion may play a part (Rousseau et al., 1998). In the analysis, participants' explanations for trusting the information were grouped within two themes categorised as calculus trust, and two themes categorised as relational trust, depicted respectively to the left and right of Figure 2.

Figure 2: Factors contributing to trust in the information posted on C*ycology*

The first calculus trust theme incorporated factors relating to: the intrinsic quality of the information; and positive comparison with participants' own experience. In the former, information was regarded as high quality because: the other participants had real experience of the routes; information was up-to-date and inaccuracies could quickly be corrected by others; and finally, because a level of detail could be provided which was absent from other (formal) information sources such as static cycle maps. 'Real' was a frequently used term; for example:

"Reliable because it was current, real and open to comments - so if there were inaccuracies someone would pick it up, or if there was a better alternative then that would be suggested." (female)

"I appreciated the 'real', personal comments that people made – about what they personally enjoyed or found difficult about a route (…..) I was inclined to trust the information given because I knew it was from real cyclists…." (female)

Statements of this nature were interpreted as an acceptance of other people's advice as evidence of reality, so influence ensuing from them might be categorised as informational influence (Deutsch and Gerard, 1955). However, the link made between group consensus and information reliability also suggested a process of accepting agreed norms of opinion within the group, more congruent with referent informational influence (Turner et al., 1987). In this sense, an online group format such as the *Cycology* website was thought to offer advantages over one-to-one interactions because inaccurate information could be swiftly

corrected by others, and in cases where opinions differed, the reader might be guided by the consensus or majority view:

"It becomes a discussion, doesn't it, of things. So in a sense, if somebody put something that is outrageously incorrect, it's not a bad thing, because it does encourage other people to refute it. And give you good information". (male)

Many participants were also able to compare some of the posted information with their own experience, or were prepared to test the reliability of information by simply trying out a suggested route. This was aided by the opinion that trying out a new route in a familiar area is a low risk activity, so it is easy to try out people's suggestions. This corresponds with Deutsch and Gerard's (1955) assertion that greater trustworthiness is possible where the reliability of other group members' judgements can be checked.

However, Turner (1991) later argued that group formation, and social categorisation of others as an appropriate reference group, produces shared expectation of agreement *prior* to any process of influence, so trust in other group members should *precede* any validation of their reliability. This position is congruent with trust factors identified in the *Cycology* study which were interpreted as 'relational trust' (Rousseau et al. 1998), located on the right of Figure 2. Relational trust arose from participants' relationship with the rest of the group. Sometimes this involved a judgement being made about attributes (especially fitness level) of an individual participant – the greater the perceived similarity between the giver and receiver of information, the greater the credibility attributed to it by the latter. However, more usually trust was based on assumptions about the good intentions (in other words, benevolence) of the group as a whole:

"There's nothing to be gained from putting any misleading information in there. Everyone is actually trying to help each other really and trying to improve their own experience of cycling, I suppose". (male)

"Knowing that these are real people and that it was a relatively small group, I felt in no way that I needed to doubt any information". (female)

An association between the small size of the participant group and an 'automatic' trust in others - despite not knowing the individuals involved - was made by a number of people, although most also thought that the *Cycology* group could have been larger without losing its sense of 'intimacy' and corresponding sense of community and reliability.

"I didn't really know anyone in advance. Because it was such a small group of us, in a sense, (….) well, I automatically trusted them, really, and their advice." (female)

This was also connected to forms of group identification previously discussed, arising, for example, from a sense of association with others in the same workplace:

"To be honest, I think perhaps, the fact that it was (other) staff that were doing it as well. I don't know why, but I found that more reassuring, that they were people that worked at the same place as me". (male)

An interpretation based on self-categorisation theory (Turner et al., 1987) would suggest that trust was enhanced through positive expectations about the reliability of a reference group of co-workers, through which referent informational influence might ensue. Although trust did not, for most people, appear to move beyond a heuristic, generalised trust in the group as a whole, some people remarked that they began to recognise individual names and came to trust particular contributors, largely through experiencing their routes and observations firsthand. Hence, trust could be detected as both a function of the group *per se* (c.f. Turner, 1991), and as a consequence of the experience of using information provided by others – that is, a form of 'reality checking'. Normative social influence, in the form of compliance to seek approval and acceptance within the group (Deutsch and Gerard, 1955), provides an unconvincing explanation, *on its own,* of the mechanisms of trust and influence within the *Cycology* case-study, but would seem, nonetheless, to be an intrinsic element of several trust factors. For example, the concept of 'reputation building' within the group (upper right, Figure 2) implied a normative pressure to provide trustworthy information and to be regarded, as one participant articulated, *"as a trusted member of the community"*.

One consequence of the perceived reliability of information emanating from a reference group was that it appeared to inspire greater confidence than formal or 'official' sources of information, such as travel websites provided by transport providers. One participant summarised her impression of the *Cycology* website as:

"*Not a corporate site if you see what I mean so I trusted it more". (female)*

Contrasting user information from other cyclists with official cycling information provided by the City Council, another participant commented that:

"The Council always seems, in my mind, to have ulterior motives, to get you to go a certain way, and maybe to ignore the fact that their other roads have potholes". (female)

Another person, comparing online, automated cycle route planners (similar to the "get directions" function on www.google.co.uk/maps) with a 'social site' - as he termed *Cycology*, said:

"I think I still trust social sites more. Just because I don't think, I don't know enough about the information they (i.e. route planners) *use to plan it." (male)*

However, many also pointed out the practical advantages of an automated route planner over the Cycology site, such as the ability to acquire information instantly rather than waiting for a response from other users, plus the wider geographical coverage of many automated traveller information systems. This suggested that the perceived *social* advantages of a

small-scale, local system comprising user-generated information – such as processes of community-building, trust and associated potential for intra-group influence - might be weighed against some *instrumental* disadvantages compared with larger-scale, conventional traveller information systems.

5. Discussion

In this study we applied theories of social influence to explore the use and effects of traveller information from a perspective which has hitherto been neglected: the role of information transmitted through social interaction; the intra-group influences on everyday travel behaviour; and the social-psychological processes which might underpin such influences. Whereas conventional understandings of travel information focus on factual information ('facts') about, for example, times, routes and costs, provided by official sources to help the individual make utility-maximising travel choices, this analysis has conceptualised travel information as something broader in which 'facts' are overlaid with normative messages as they are communicated between people. The addition of a 'social layer' to the travel information means that social processes are also in operation alongside well-documented processes of individual, instrumental reasoning. Self-categorisation theory (Turner et al., 1987) provided a convincing framework for understanding why information received from others within a reference group of travellers (in this case, cyclists commuting to neighbouring workplaces) might be perceived as subjectively valid and therefore likely to influence the beliefs, attitudes and behaviour of others within the group.

In the study, processes of group identification and trust were found to be associated with strong positive attitudes towards cycling as a commuter mode among the participants - particularly amongst those who had started cycling to work within the previous two years. Although the study did not test casual effects, it can be hypothesized that group identification and trust might have contributed to changing a specific element of travel behaviour (using new cycle routes) for the majority of participants. Thus, information-sharing was found to be performing a social role alongside its more obvious function of diffusing practical travel information. Both roles were thought to offer particular encouragement to those who were new to cycling or new to a particular workplace, when identification with other cyclists appeared to be especially salient. We suggest that the more long-standing cyclists in the *Cycology* group were less likely to be affected by a sense of community because cycling to work was routine and hence required little reflection; therefore, attitudes (and intentions and behaviours) were likely to be more stable and less likely to be influenced by others. In social identity terms, it appeared to be the case that people's 'cyclist social identity' becomes less salient as it becomes a more routine transport choice.

Information shared within the group was reported to have inspired greater trust amongst participants than 'official' cycling information, largely because it was seen as emanating from the experience of 'real people'. This involved both calculus trust, arising from the intrinsic quality of the information (e.g. detailed and up-to-date), and relational trust, associated with the relationship between information-giver and -receiver (Rousseau et al., 1998), although the former trust mechanism was primary. The users of the *Cycology* system considered the information to be more reliable (although less comprehensive) than the information they might acquire from a standard cycling map or online route-planner. Although not tested in this research, this raises the possibility that the incorporation of user-generated information may generally increase the perceived reliability of traveller information systems, which may, in turn, enhance the effects of such systems on travel behaviour. This is of particular interest from a perspective of a continued policy discourse around better information provision as a means of supporting 'active' and environmentally sustainable travel behaviours (e.g. DfT, 2011). The current study suggests that user-generated information may be perceived as particularly trustworthy, and hence more likely to be acted upon, if delivered through a 'localised' information system which allows processes of group identification to occur amongst users – for example by linking journey planning services or real-time travel updates (incorporating user comments) to the websites of individual organisations ('white-labelling'), or encouraging discussion groups to form alongside top-down, open-access information services. Hence, it offers one of the tools which might be effectively employed within the context of 'travel plans' – packages of measures put in place within organisations such as workplaces or schools to promote sustainable travel choices. Online information-sharing amongst communities of users might offer potential not just for cycling, but for other transport alternatives to single occupancy car-use, such as car-sharing, public transport and walking.

The research had a number of limitations. Firstly, this was not a study of a 'naturally occurring' online community, but of an online environment which was set up specifically for the research. Participants' behaviour might therefore have been affected by the artificial nature of the research environment and the fact that they had volunteered to take part. This could be addressed in future research by setting up a similar web platform within organisations, offering it as a tool open to all employees, and observing the effects among people who are 'normal users' rather than 'research participants'. Secondly, if a larger number of people had been involved, this might have extended the breadth and quantity of information exchange.

Further research would be required to ascertain whether or not there is a direct and significant relationship between the social factors we have discussed and people's propensity to follow the travel advice of others. However, this exploratory research showed that web-based information-sharing can stimulate social processes which support cycling in a specific, small group environment. As technological possibilities in the field of user-

generated content continue to grow, the effects of this form of travel information warrant further investigation.

Acknowledgements

References

Arsal, I., Woosnam, K.M., Baldwin, E.D. and Backman, S.J. (2010). Residents as Travel Destination Information Providers: An Online Community Perspective. Journal of Travel Research. 49 (4), 400-413.

Axsen, J. and Kurani, K.S. (2011). Interpersonal influence in the early plug-in hybrid market: Observing social interactions with an exploratory multi-method approach. Transportation Research Part D: Transport and Environment, 16, 150-159.

Bartle C., Avineri. E. and Chatterjee, K. (2009). Exploring Word-of-Mouth Influences on Travel Behaviour: Applications in the field of advanced traveller information. Paper presented at the 12th International Conference on Travel Behaviour Research, December 2009, Jaipur.

Bieger, T., and Laesser, C. (2004). Information Sources for Travel Decisions: Towards a Source Process Model. Journal of Travel Research, 42, 357-371.

Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, **3:**77-101.

Carrasco, J.A., Hogan, B., Wellman, B. and Miller, E.J. (2008). Collecting social network data to study social activity-travel behavior: an egocentric approach. Environment and Planning B: Planning and Design, **35** (6) 961–980.

Carrasco, J.A. and Miller, E.J. (2006). Exploring the propensity to perform social activities: a social network approach. Transportation, 33 (5), 463-480.

Casaló, L.V., Flavián, C., and Guinalíu. M. (2011).Understanding the intention to follow the advice obtained in an online travel community. Computers in Human Behavior, 27 (2), 622-633.

Chorus, C., Molin E., van Wee, B (2006a). Use and Effects of Advanced Traveller Information Services: A Review of the Literature. Transport Reviews, 26 (2), 127-149.

Chorus, C., Molin E., van Wee, B (2006b). Travel information as an instrument to change car-drivers' travel choices: a literature review. European Journal of Transport and Infrastructure Research, **6**, (4), 335-364.

Clifton, K.L. and Handy, S.L. (2003). Qualitative Methods in Travel Behaviour Research. In P. Stopher and P. Jones (Eds.), Transport Survey Quality and Innovation, pp. 283-302, Pergamon.

Dellarocas, C. (2003). The Digitization of Word-Of-Mouth: Promise and Challenges of Online Feedback Mechanisms. Management Science, 49 (10), 1407-1424.

Department for Transport (2008). Transport Statistics Bulletin: National Travel Survey 2008. HMSO, London.

Department for Transport (2011). Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen. TSO, London.

Deutsch, M. and Gerard, H.B. (1955). A study of normative and informational social influences upon individual judgement. Journal of Abnormal and Social Psychology, 51, 629-36.

Dholakia, U.M., Bagozzi, R.P. and Klein Pearo, L. (2004). A social influence model of consumer participation in network- and small group-based virtual communities. International Journal of Research in Marketing, 21 (3), 241 -263.

Dill, J. and Voros, K. (2007). Factors affecting bicycling demand: initial survey findings from the Portland, Oregon, region. Transportation Research Record: Journal of the Transportation Research Board, 2031, 9-17.

Dugundji, E., Páez, A. and Arentze, T. (2008). Social networks, choices, mobility, and travel. Environment and Planning B: Planning and Design, 35 (6), 956-960.

Dugundji, E.R., Páez, A., Arentze, T.A., Walker, J.L., Carrasco, J.A., Marchal, F. and Nakanishi, H. (2011). Transportation and social interactions. Transportation Research Part A: Policy and Practice, 45 (4), 239-247.

Eagly, A.H. abd Chaiken, S. (1998). Attitude structure and function. In D.T. Gilbert, S.T. Fiske and G. Lindzey (Eds.), The Handbook of Social Psychology (4th ed., pp.269-32). McGraw-Hill, New York.

Fincham, B. (2007). Bicycle Messengers: Image, Identity and Community. In D. Horton, P. Cox, and P. Rosen, (Eds.) Cycling and Society, Chapter 9. Ashgate Publishing Ltd, Hampshire.

Fleiter, J.J., Lennon, A. and Watson, B. (2010). How do other people influence your driving speed? Exploring the 'who'and the 'how' of social influences on speeding from a qualitative perspective. Transportation Research Part F: Traffic Psychology and Behaviour, 13 (1), 49-62.

Floridi, L. (2010). Information: A Very Short Introduction. Oxford University Press, Oxford.

Gardner, B. and Abraham, C. (2007). What drives car use? A grounded theory analysis of commuters' reasons for driving. Transportation Research Part F: Traffic Psychology and Behaviour , 10 (3), 187-200.

Gärling, T., Loukopoulos, P. and Lee-Gosselin, M. (2002). Public attitudes. In. K. Button and D. Hensher (Eds.), Handbook of Transportation. Volume 4: Transportation and the Environment.

Gatersleben, B. and Haddad, H. (2010) Who is the typical bicyclist? Transportation Research Part F: Traffic Psychology and Behaviour,13 (1), 41-48.

Goulias, K. (2003). On the role of qualitative methods in travel surveys. In P. Stopher and P. Jones (Eds). Transport Survey Quality and Innovation, pp.319-329. Pergamon.

Gretzel, U. and Yoo, K.H. (2008). Use and Impact of Online Travel Reviews. In P. O'Connor, W. Höpken and U. Gretzel (Eds), Information and Communications Technologies in Tourism, 2008, pp 35-46. Springer, Wien New York.

Hall, H. and Widén-Wulff, G. (2008). Social Exchange, Social Capital and Information Sharing in Online Environments: Lessons from Three Case Studies. In M-L. Huotari and E. Davenport (Eds),

From Information Provision to Knowledge Production. Proceedings of the international conference for the celebration of the 20th anniversary of Information Studies, Oulu, Finland, pp.73-86..

Heinen, E., Maat, K. and Wee, B.v. (2011). The role of attitudes toward characteristics of bicycle commuting on the choice to cycle to work over various distances. Transportation Research Part D: Transport and Environment. 16 (2), 102-109.

Kenyon, S. and Lyons, G. (2003) The value of integrated multimodal traveller information and its potential contribution to modal change. Transportation Research Part F: Traffic Psychology and Behaviour, 6 (1), 1-21.

Kozinets, R.V. (2010). Netnography: Doing Ethnographic Research Online. Sage, London.

Lyons, G., Avineri, e., Farag, S. and Harman, R. (2007). Strategic Review of Travel Information Research. Technical Report. Department for Transport, London.

Lyons, G., Goodwin, P., Hanly, M., Dudley, G., Chatterjee, K., Anable, J., Wiltshire, P. and Susilo, Y. (2008). Public Attitudes to Transport: Knowledge Review of Existing Evidence. Report to Department for Transport, London, UK.

Mason, J. (2002). *Qualitative Researching* (2nd edition). Sage, London.

McMillan, D.W. and Chavis, D.M. (1986). Sense of community: A definition and theory. Journal of community psychology, 14 (1), pp.6-23.

Mendes-Fihlo, L. and Tan, F.B. (2009). User-Generated Content and Consumer Empowerment in the Travel Industry: A Uses & Gratifications and Dual-Process Conceptualization. PACIS Proceedings, 2009. Paper 28.

Murphy, L., Mascardo, G. and Brenckendorff, P. (2007). Exploring word-of-mouth influences on travel decisions: friends and relatives vs. other travellers. International Journal of Consumer Studies, 31, pp. 517-527.

Musselwhite, C.B.A., Avineri, E., Susilo, Y.O., Fulcher, E., Bhattachary, D., Hunter, A. and Stockley, R. (2010). Understanding public attitudes to road user safety: final report. Road safety research report No.111, Department for Transport, London.

Musselwhite, C.B.A., Avineri, E., Susilo, Y.O., Bhattachary, D., (2011). Public attitudes towards motorcyclists' safety: A qualitative study from the United Kingdom. Accident Analysis & Prevention, in press (http://dx.doi.org/10.1016/j.aap.2011.06.005).

Pan, B., MacLaurin, T. and Crotts, J.C. (2007) Travel blogs and the implications for destination marketing. Journal of Travel Research, 46 (1), 35-45.

Priedhorsky, R., Jordan, B. and Terveen, L. (2007). How a personalized geowiki can help bicyclists share information more effectively. Geowiki '07: Proceedings of the 2007 international symposium on Wikis, ACM, New York.

Ritchie, J. and Lewis, J. (2003). Qualitative Research Practice. Sage, London.

Robson, C. (2002). Real World Research: A resource for social scientists and practitioner-researchers (2nd edition). Blackwell.

Rousseau, D.M, Sitkin, S.B., Burt, R.S. and Camerer, C. (1998). Not so Different After All: a Cross-discipline View of Trust. Academy of Management Review, 23, (3), 393-404.

Skinner, D. and Rosen, P. (2007). Hell is other Cyclists: Rethinking Transport and Identity. In D. Horton, P. Rosen, and P. Cox, P. (Eds.), Cycling and Society, pp.83-96, Ashgate, Hampshire..

Sunitiyoso, Y., Avineri, E. and Chatterjee, K. (2011. The effect of social interactions on travel behaviour: An exploratory study using a laboratory experiment. Transportation Research Part A: Policy and Practice, 45 (4) 332-344.

Tajfel, H. (1982). Social psychology of intergroup relations. Annual Review of Psychology, 33, 1-39.

Tajfel, H. and Turner, J. (1986). The social identity theory of intergroup behaviour. In S. Worchel and W.G. Austin (Eds), Psychology of Intergroup Relations, 2nd edition, pp.7-24, Nelson-Hall, Chicago.

Tu, C.H. and McIsaac (2002). The Relationship of Social Presence and Interaction in Online Classes. The American Journal of Distance Education, 16 (3), 131-150.

Turner, J.C. (1991). Social Influence. Open University Press, Buckingham.

Turner, J.C., Hogg, M.A., Oakes, P.J., Reicher, S.D. and Wetherell, M.S. (1987). Rediscovering the Social Group. A Self-Categorisation Theory. Blackwell, Oxford.

Turner, J.C., Oakes, P.J., Haslam, S.A. and McGarty, C. (1994). Self and collective: Cognition and social context. Personality and Social Psychology Bulletin, 20 (5), 454-463.

Um, S. and Crompton, J.L (1990). Attitude Determinants in Tourism Destination Choice. Annals of Tourism Research, 17 (3), 432-448.

Wetherell, M.S. (1996). Identities, Groups and Social Issues. Sage, London.

Wilton, R.D., Páez, A. and Scott, D.M. (2011). Why do you care what other people think? A qualitative investigation of social influence and telecommuting. Transportation Research Part A: Policy and Practice, 45 (4), 269-282.

Yin, R.K. (2009). Case study research: Design and methods. Sage.

Appendix: *Cycology* interview structure and example questions

Warm-up questions

Examples:

1. *How would you describe your current level of cycling activity? (e.g. occasional, "fair weather", committed)*

2. *Turning to the Cycology project, can you describe how you used the website/email digests?*

Main questions: social-psychological mechanisms

These questions aim to reveal, inter alia, different types of trust (e.g. relational trust, calculus trust) in the information and information-giver.

Examples:

3. *In your questionnaire, you said you liked this comment. Can you expand a little on why this was? (if none was identified, ask them to browse website for a few moments to find an example – encourage them to "think aloud" while doing so).*

4. *Were there any comments you did not like? If so, what didn't you like about them?*
    Was there a participant (or a number of participants) whose contributions made a bigger impression on you than others?- why was this?

        - what impression did you gain of that person?
        - how reliable would you consider their postings to be, and why?

Motivations for providing information to others

These questions aimed to reveal, for example, pro-social motives, 'community spirit', or wishing to influence others.

Examples:

5. *How did you feel about posting comments yourself? (can you expand on what you said on your questionnaire? I note that you were an active contributor/I note that you only made a few comments but you looked at other people's contributions…..).*

6. *How would you feel (or did you feel) if/when someone said they were going to try your route or otherwise follow a suggestion you had made? (show examples in cases where this had actually happened).*

24

Social identity

Examples:

7. *Did it matter that many participants worked at (x) like you? OR: did it matter that few participants worked in the same organisation as you? If yes, would you have felt differently about the project if it had been internal to your own organisation?*

   If participant mentions a "sense of community", probe further. If not, ask:

8. *Did the Cycology project help engender any sense of belonging to a 'cycling community'? – please expand.*

Influence on self-reported attitudes, intentions and behaviour

Examples:

9. *Did your participation in the project lead you to do anything different (e.g. trying a new route) /think about doing something different/ provoke any new thoughts about cycling or travel more generally? (refer to questionnaire responses). Did you learn anything new? Please expand.*

10. *If you acted on someone's advice within the project, or are thinking of doing so, can you say why you considered their advice to be reliable?*

Wind down Questions

11. *What is your overall assessment of the Cycology project?*

   - *what worked well and did not work well?*
   - *what would you improve?*
   - *do you think it has the potential to encourage prospective and hesitant cyclists?*

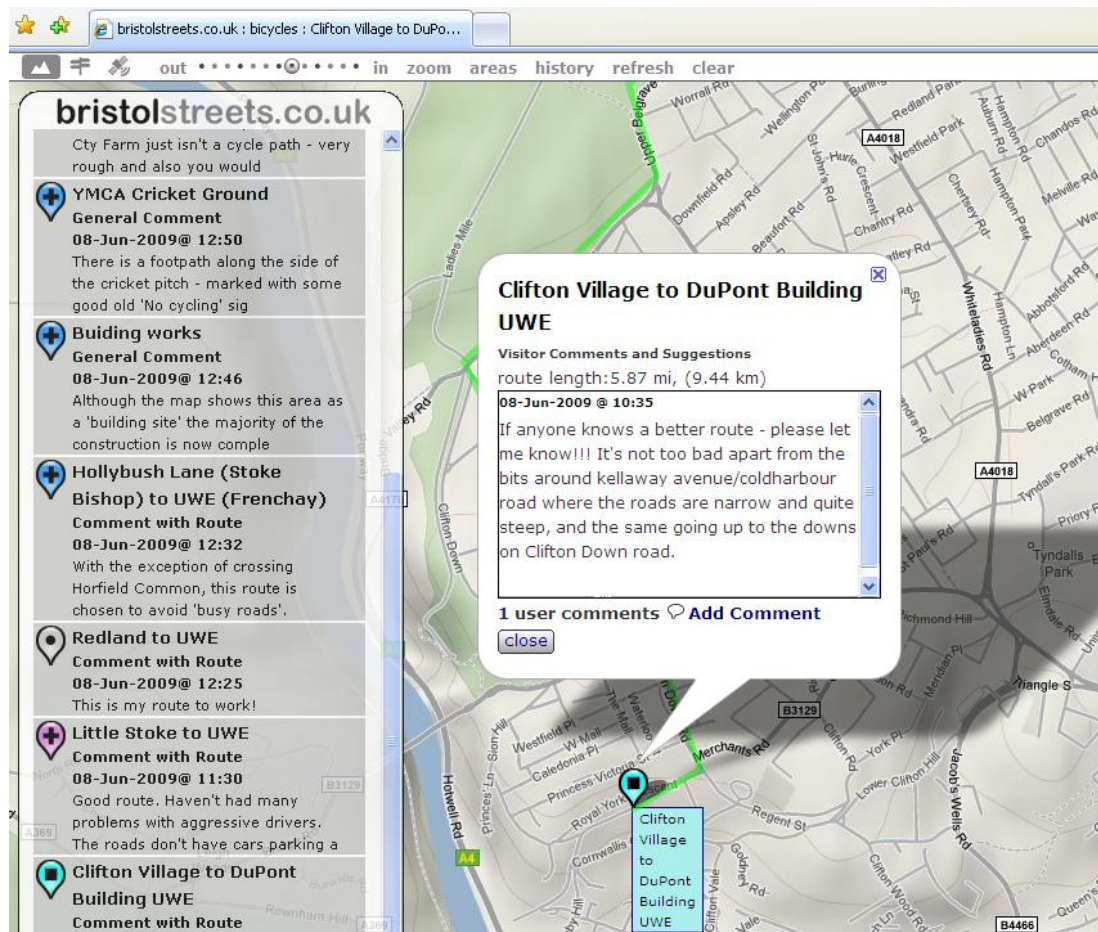12. *What suggestions might you make to a website designer?*
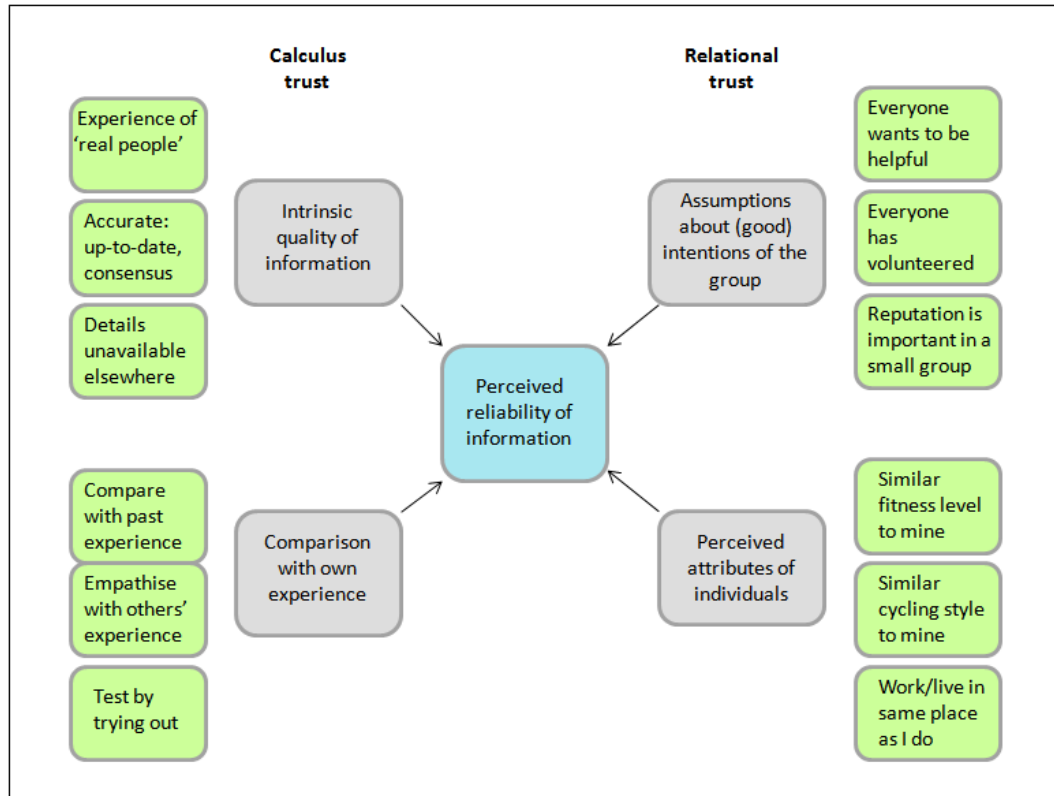
Figure 1: Screenshot from the *Cycology* website

Figure 2: Factors contributing to trust in the information posted on C*ycology*