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# Travel mode choice on regular journeys: identity centrality and salience

by

**Niamh Murtagh, Birgitta Gatersleben and David Uzzell**

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**Abstract**

Growing evidence supports a range of non-instrumental factors influencing travel mode. Amongst these, identity has been proposed but has not yet been systematically investigated. This study of 267 UK working parents used survey-based qualitative and quantitative data to find salient identities and to test their influence on travel mode choice in regular travel. The findings showed multiple salient identities, and regression analyses found social and transport-related identities to be significant in predicting travel mode to work, on escort education and on other regular journeys. The study demonstrated different patterns of identity motivations for different types of journey and found evidence for car use as embedded within social identities. The implications for approaches to changing travel behaviour are explored.

## 1. Introduction

In attempting to promote low energy behaviour in travel, understanding why people choose particular travel modes is a prerequisite for encouraging behaviour change. For example, private car use, in practical terms, moves people from point of origin to destination, and speed, convenience and comfort are salient attributes of this mode of travel (Flink, 1975; Gärling, Eek, Loukopoulos, Fujii, Johansson-Stenman, Kitamura, et al. 2002). However, such functional benefits have been suggested as being less important than psychological factors such as habit (Gärling & Axhausen, 2003; Verplanken, Aarts, van Knippenberg, & van Knippenberg, 1994), affective and symbolic needs (Gatersleben, 2007; Steg, Vlek, & Slotegraaf, 2001; Stokes & Hallett, 1992), privacy (Hiscock, Macintyre, Kearns, & Ellaway, 2002; Mann & Abraham, 2006) and autonomy (Hiscock, et al., 2002; Ory & Mokhtarian, 2005). The positioning of travel by car as 'derived demand', that is, as contingent on the primary goal of reaching a destination, has been argued to be fallacious: travel, including regular travel, can have positive utility in its own right for many people (Mokhtarian, Salomon, & Redmond, 2001). One aspect of such positive utility may be the importance of the travel mode to the individual's identity. A number of scholars have suggested such a link (Mann & Abraham, 2006; Marsh & Collett, 1986; Miller, 2001; Steg, et al., 2001) but there has been little empirical research to examine the relationship between mode choice and identity. The current study aims to address this gap and represents a novel contribution in applying an established theoretical framework on identity (sociological role theory, Stryker, 1987) to regular travel choices.

Much previous work has focused on the choice to drive, and several studies have argued for the salience to driving of different aspects of identity. Steg (2005) conceptualised the potential importance of car use to an individual as fulfilling symbolic as well as instrumental and affective needs, and these are argued to be overlapping rather than distinct factors (Lois & López-Sáez, 2009; Mann & Abraham, 2006). Dittmar (1992) argued that material possessions are imbued with symbolic meanings and these meanings relate to expression of self and of social category. Building on Dittmar's insight, Steg and colleagues (2001, p.164) argued that the car "satisfies the need to express yourself and your social position", and further categorised an underlying dimension of car use as the expression of self-identity that related to freedom. In Steg's valuable contributions to understanding the needs which a car can fulfil, the conceptualisation of identity is wide-ranging but ill-defined. Steg's identity-related terms appear to refer to self-expression, self-verification, self-presentation, social status, membership of a social group and autonomy. Other studies have demonstrated the relationship of cars to status (Davies, Halliday, Mayes & Pocock, 1997; Johansson-Stenman & Martinsson, 2006; Mann & Abraham, 2006), and their findings support Dittmar's (1992) argument that the ownership of possessions is a mechanism for social approval. Qualitative research has found that participants drew on identities such as 'motorist' and 'pedestrian' in describing their reaction to travel planning initiatives (Gardner & Abraham, 2007) and described customising their car or displaying bumper stickers as communicating their identity (Fraine, Smith, Zinkiewicz, Chapman, & Sheehan,

2007). In a relatively rare study on travel choices other than driving, Gatersleben and Haddad (2010) explored aspects of identity through stereotypical views of cyclists.

In the transport literature then, the term 'identity' incorporates many facets: some of these aspects, such as autonomy, relate to a personal identity, while others, such as self-presentation may relate more to a social identity. The proposition that personal and social identities may be considered as varying aspects of the same underlying construct, as argued by Deaux (1992) , Breakwell (1986) and others, brings some theoretical coherence to disparate aspects of identity. Nevertheless, we would argue that clearer theoretical conceptualisation of identity is necessary to make progress in understanding its relationship to driving behaviour.

We suggest that sociological role theory (Breakwell, 1986; Stryker, 1987) offers clarity in terms of conceptualisation of the constructs and processes surrounding identity. Role theory defines an identity as the internalisation of a social role, together with its concomitant norms and expectations. Thus an identity is shaped within social networks, and has a personal or subjective reality as the meaning individuals ascribe to their experience of social interactions. People move between a multiplicity of social roles and thus must manage multiple identities  Specific identities may be conflicting (Burke, 2006), requiring strategies for resolution, such as modifying the meaning of one or more identities (Stets & Harrod, 2004), gradual change to reduce discrepancies (Burke, 2006) or other means. Identities are proposed as being maintained in a salience hierarchy. Identities such as 'parent' or 'woman' are likely to be chronically salient while identities such as 'football fan' may be contextually salient. Because social rules and expectations around a social role are internalised as part of an identity, behaviour, as expression of the identity, will normally be congruent with the role. However, an identity is a subjective interpretation of role expectations and thus an individual's behaviour, although likely to be consistent with social norms, is not determined by them. Further, individuals are motivated to seek verification of central identities (Burke & Tully, 1977). Sociological role theory therefore potentially offers a theoretically coherent account of processes of self-expression, self-verification, self-presentation and membership of social groups as they may apply to travel choices and, crucially, links processes of identity with behaviour.

The conceptualisations of identity salience, centrality and importance are focal in sociological role theory and merit further definition. Identity salience has been defined as the likelihood of an identity being activated (Burke, 2003) and related to the frequency of activation across situations (Burke, 2006; Stryker & Burke, 2000). However, salience does not require reflection and, because of its dependence on subjective meaning, salience cannot be inferred for an individual in a situation (Stryker & Burke, 2000): importance of an identity to an individual must be measured. Rosenberg (1979) equated importance and centrality, and argued that measuring the relative position of an identity for an individual as central versus peripheral provided an evaluation of subjective importance. James (1890/1950) had suggested that more central aspects of the self are more closely related to self-esteem. Centrality then represents an individual's perspective on the subjective importance of an identity whereas salience represents the frequency of invocation of an identity

in an individual's behaviour. Both are measures of importance of identities, and Stryker and Serpe (1994) argued that both should be assessed as complementary constructs.

A relationship between identities and behaviour has been explored in a number of recent studies. Identities of a 'healthy eater' and being health conscious have been shown to influence food-related intentions (Dennison & Shepherd, 1995; Sparks & Guthrie, 1998; Sparks, Shepherd, Wieringa, & Zimmermanns, 1995). Oyserman, Fryberg and Yoder (2007) argued that eating behaviours are 'identity infused', that is, not of-the-moment choices but guided by identity. Research on more general consumer behaviour has found evidence for a 'green consumer' identity (Sparks & Shepherd, 1992) and a body of empirical evidence supports the influence of identity on recycling behaviour (Castro, Garrido, Reis, & Menezes, 2009; Mannetti, Pierro, & Livi, 2004; Nigbur, Lyons, & Uzzell, 2010). In behaviour relevant to blood donors (Callero, 1985) and first-time mothers (Nuttbrock & Freudiger, 1991), identity salience was found to be related to behaviour. A critical theoretical point from these studies is that identities are not passively experienced or reactively influencing perception but can actively guide behaviour, that is to say, the evidence suggests that knowledge of salient identities can aid prediction of behaviour at a theoretical level. Sparks and Guthrie (1998) argued for identity as an independent predictor of behavioural intention, over and above the constructs of attitudes, social norm and perceived control in the Theory of Planned Behaviour (Ajzen & Fishbein, 1977). We propose that identities may guide choices of mode of transport.

Our approach to this research question was a study which combined qualitative data on identities with quantitative data on regular travel. The objective of the study was to investigate what identities are salient for individuals in their regular travel, to work, accompanying children to school (escort education) and on other regular trips, and if these identities have a significant relationship with mode of travel. Identities were drawn from existing literature in addition to free format descriptions by the participants. Whereas the social psychological literature recognises such identities as gender, race and sexual orientation, a transport-related role such as 'driver' is more problematic. Here, to differentiate between such transport-derived roles and "consensual" social roles (Kuhn & McPartland, 1954), we have labelled them as 'transport identities' and 'social identities' respectively. This is not to equate transport-related roles with social identities: further theoretical development is needed to explore how nouns describing social categories such as 'driver' or 'pedestrian' may relate to social identities. The labelling of such as transport-related identities was a convenience to allow the exploration of relationships with travel behaviour, as a first contribution to such theoretical development.

The study aims to address two gaps in the travel literature: What identities are salient in travel, and are identities related to the choice of travel mode? The importance of identities was measured using centrality and salience, for the reasons outlined above. Travel mode choice was measured as the proportion of regular journeys made by car. The research hypotheses were:

H1   Multiple identities are central or salient in mode choice for regular travel.
H2   Important identities, as measured by centrality and salience, are related to mode
      choice in regular travel.

> H2.1 Important transport identities, as measured by centrality and
>        salience, are related to mode choice in regular travel.
> H2.2 Important social identities, as measured by centrality and salience,
>        are related to mode choice in regular travel.

## 2.  Method

### 2.1 Participants

The research focus on travel to work and on escort education determined a target sample that worked and had school-age children. Target participants were working parents earning over £25,000 per annum (approximately €30,000), owning a car and living in urban or suburban locations. The requirement for an urban or suburban location and car ownership was to increase the likelihood of locally available public transport and choices in travel mode. A national team of field researchers collected the data, by visiting random households in locations with socioeconomic categories of skilled manual, clerical, junior and intermediate occupations. Response rate was estimated at 10%. Finally, the requirement for personal earning at or above the national average was based on the possible influence that disposable income may have on flexibility in identity-related behaviours (Tsushima & Burke, 1999) and on the availability of choice in determining transport mode.

Of the 267 completed questionnaires, 62% were by women. Participants were aged between 20 and 61, with a mean age of 40. The age of the youngest child ranged from 2 to 17, with a mean of 10. Ethnicity was 93% White or White British, slightly higher than the proportion in England of 88% White or White British. 28% of the sample earned between £1,000 and £2,000 per month, approximately the national average, a further 58% earned between £2,000 and £3,000 and 14% earned over £3,000 per month. The above-average income from the sample was in line with the recruitment strategy of seeking relatively more affluent participants.

In this sample, 80% of work trips were made by car, which is slightly higher than the national average of 71% (DfT, 2007). 52% escort education journeys were by car: this is also slightly higher than the 2008 survey data from the Department for Transport (DfT, 2009) for primary school children (43% travelled by car). In this sample, 73% of other regular trips were by car and this is comparable with national figures for 2006 that approximately 80% of all distance travelled in Britain and 63% of trips made is by car (DfT, 2009).

### 2.2 Procedure

The study consisted of a paper questionnaire, completed by participants in their home. Participants were assured of anonymity, confidentiality and the right to opt out.

## 2.3 Measures

### 2.3.1 Identity Salience

Identity salience was measured using the Twenty Statements Test TST (Cousins, 1989; Grace & Cramer, 2003; Kanagawa, Cross, & Markus, 2001; Kuhn and McPartland, 1954). This long-established measure requires the participant to complete up to 20 statements beginning "I am…". The wording of the introductory paragraph, proposed by Kuhn and McPartland, was modified slightly to contextualise the measure with respect to personal transport. In line with Cousins (1989), identity salience was calculated as the proportion of identity statements referring to a transport mode out of the total identity statements per participant: for example five statements referring to driving out of ten identity statements by the participant gave a salience score for a driver identity of 0.5; two statements referring to public transport gave a salience score of .2 for an identity of public transport user.

### 2.3.2 Identity Centrality

Centrality of a number of identities was measured, using an item from Vignoles, Regalia, Manzi, Golledge and Scabini (2006). "How important to you is (…) in defining who you are?" The item was rated on a seven-point scale, anchored at 1 "Not at all important", 4 "Neither important nor unimportant" and 7 "Very important". Seven identities were each measured with the single item, four transport-related identities (motorist and pedestrian, based on Gardner & Abraham, 2007; cyclist, based on Gatersleben & Haddad, 2009; public transport user) and three social identities (community member, based on Gardner & Abraham, 2007; parent and worker, likely to be chronically salient for the target sample of working parents).

### 2.3.3 Travel Mode

Travel mode to work, on escort education and on other regular journeys (i.e. at least once a week) was measured by asking for the number of journeys of each type by mode. Travel mode was calculated as the proportion of journeys by car (journeys by car divided by the sum of journeys by car, bicycle, public transport, motorbike, walking and other), following Steg (2005).

### 2.3.4 Control Variables

Participants were asked if their locality had a bus, tram, train or tube service. Four participants did not have access to these services and were excluded from further analysis. All participants except one had at least one car. This participant was excluded from analysis so that all responses in the analysis below were from participants who owned a car and had access to local public transport. Additionally, we controlled for car value, calculated by dividing the original value of the highest price car in the household by the age in years.

## 2.4 Data Analysis

The original dataset of 267 was checked for completeness, outliers and normality of variables. Proportion of journeys to work and of regular journeys by car were negatively skewed, that is, most participants travelled by car. Centrality of the motorist identity was similarly skewed. Although a skewed dependent variable in a multiple regression can unduly weight the minority value, a sample size well above the minimum required can attenuate the bias (Tabachnick & Fidell, 2001). The minimum number of cases required for the multiple regression here was 110: the actual sample size of between 202 and 249, depending on the analysis, should be adequate to allow for skew and to detect a small-to-medium effect size. Very few values were missing and cases with missing values were deleted pairwise in the analysis.

### 2.4.1 Categorisation of identity statements

Cousins' (1989) coding scheme was extended to include transport identities within the Social Identities category. A set of social and transport-related identities was defined based on the data. Social identities were: parent, spouse, family member (sibling, adult offspring, grandparent, relative), friend, worker and gender. Transport identities were: driver, public transport user, cyclist and walker. "Taxi" was also included as a transport identity (where participants stated "I am a taxi") although this could be categorised as a social identity. For statements that did not explicitly or implicitly reference an identity but were travel related, six additional categories were created for positive and negative references to driving, public transport and walking or cycling.

Each statement was inspected for reference to the identity categories. Explicit references to transport or social identities, for example "I am a car driver" (Participant 31, coded as driver), "I am a mother of two" (P1, coded as parent), were coded accordingly. Where transport activities related to the enactment of social identities, for example, "I am a taxi, ferrying the kids" (P142), these were coded as both transport and social identities, in this example, 'taxi' and 'parent'. Cousins' differentiation of 'qualified identities' was not of relevance in this analysis: "I am a confident driver" (e.g. P184) was coded as 'driver'. Coding was conducted by the first author, and a random set was assessed by the second author and a doctoral student. Initial reliabilities ranged from $r = .82$ to $.98$ and all discrepancies were resolved following discussion.

A number of participants appeared to complete all identity statements referring to their thoughts, feeling and behaviour while in a car, e.g. "I am putting on my lipstick", "I am listening to CDs". For 39 participants, while all of their identity statements could have been interpreted as descriptive of their cognitions or actions while in a car, this context was implicit. These participants were omitted from analyses using identity statements: statements were not used in the quantitative analysis if the statement's context was not explicitly related to driving.

## 3. Results

The measurement of identity centrality showed that transport, as well as social, identities were perceived as important to the participants' self-definition: Figure 1 displays the aggregate of the bottom three scale points, labelled as "Unimportant", the middle point "Neither important nor unimportant", and the top three scale points labelled as "Important". Although the social identities of parent and worker were more important to the participants than transport-related identities, more than 70% rated being a driver as important to their identity and 24.5% rated being a public transport user as important in self-definition.
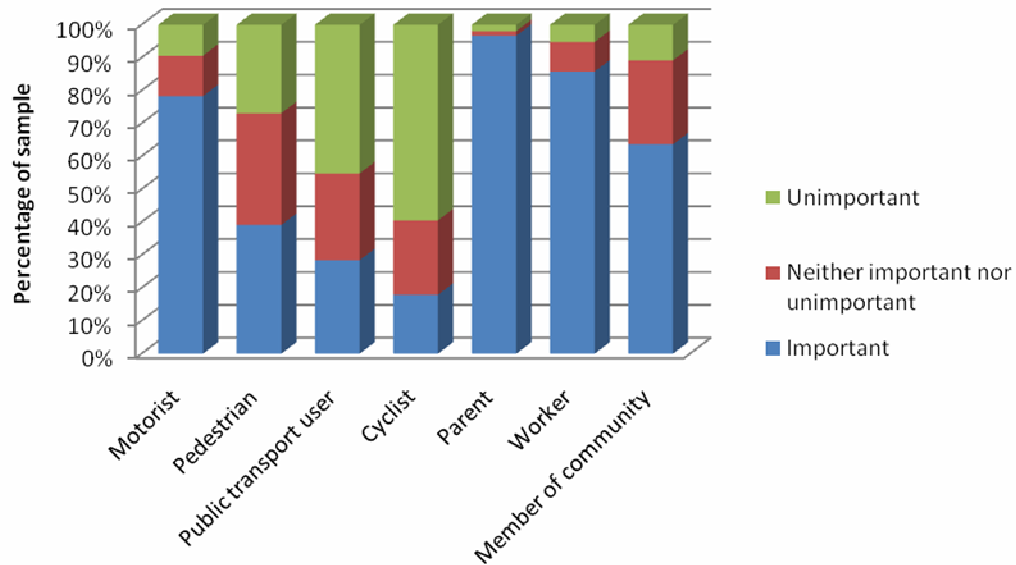


**Figure 1:** How important to you are the following in defining who you are?

Table 1 (overleaf) shows the means and standard deviations of number of identities, identity salience and the other main variables.

**Table 1:** Means and standard deviations of main variables

|  | N | Mean | Std. Dev. |
|---|---|---|---|
| Identity salience |  |  |  |
| Total number of identities per participant | 267 | 1.93 | 1.55 |
| Number of social identities per participant | 267 | 1.08 | 1.23 |
| Number of transport identities per participant | 267 | .85 | .99 |
| Worker | 258 | .47 | .81 |
| Parent | 258 | .60 | .97 |
| Driver | 258 | .77 | 1.11 |
| Public transport user | 258 | .06 | .27 |
| Identity centrality |  |  |  |
| Worker | 257 | 6.07 | 1.29 |
| Parent | 258 | 6.71 | .84 |
| Motorist[a] | 258 | 5.59 | 1.68 |
| Pedestrian | 258 | 4.06 | 1.79 |
| Public transport user | 258 | 3.21 | 1.98 |
| Cyclist | 257 | 2.70 | 1.90 |
| Member of the local community | 258 | 5.07 | 1.50 |
| Travel mode: |  |  |  |
| Proportion of journeys to work by car | 256 | .84 | .36 |
| Proportion of journeys to school by car | 256 | .45 | .49 |
| Proportion of other regular journeys by car | 257 | .85 | .30 |

[a] The identity centrality item used the term "motorist". On the TST, all participants except one used the term "driver".

Measures of identity salience, that is, the proportion of responses on the Twenty Statement Test that referred to a particular type of identity, also showed that participants referred to multiple identities in thinking about their self-concept with respect to regular travel. Across all participants, the mean number of identities referenced was 1.9. Excluding those participants who only implicitly but not explicitly referred to driving, the mean number of identities per participant rose to 2.17 (*SD* = 1.5, *N* = 219). Measures of both identity centrality and identity salience support Hypothesis 1, that multiple identities are central or salient in mode choice for regular travel.

Each of the three dependent variables (proportion of work journeys by car, proportion of school journeys by car, and proportion of other regular journeys by car) were regressed onto demographic and control variables, and centrality and salience of identities. Variables were entered step-wise in two blocks, to investigate the incremental contribution of identities. The first block of variables comprised gender, age, ethnicity, personal income and car value. For school journeys alone, the age of the youngest child was also entered. The second block comprised social and

transport identities (worker, parent, driver, public-transport user, pedestrian and cyclist). Because identity centrality and identity salience are overlapping constructs, separate regressions were conducted with each. For identity salience regressions, pedestrian and cyclist identities were combined due to relatively low numbers.

Tables 2 and 3 present the results of the regressions for identity salience and identity centrality respectively and show the incremental explanation of variance attributable to identity factors ($\Delta R^2$).

**Table 2**: Proportion of Regular Journeys by Car regressed onto Identity Salience: β Values

|  | Work Journeys | School Journeys | Other Regular Journeys |
|---|---|---|---|
| *Block 1 – Control Variables* |  |  |  |
| Age | .08 | -.10 | -.07 |
| Gender | .03 | .06 | -.04 |
| Car value | .03 | .03 | -.02 |
| Child age | -- | -26** | -- |
| $R^2$ (Adj. $R^2$) | .01 (.00) | .11 (.09)*** | .01 (-.01) |
|  |  |  |  |
| *Block 2 – With Identity* |  |  |  |
| Age | .11 | -.10 | -.03 |
| Gender | .06 | .07 | -.02 |
| Car value | .11 | .07 | .05 |
| Child age | -- | -.26** | -- |
| Identity salience: |  |  |  |
|   Worker | -.15* | -.01 | -.13 |
|   Parent | .14* | .04 | .03 |
|   Driver | .15* | .06 | .16* |
|   Public transport user | -.29*** | -.13 | -.26*** |
|   Walker/cyclist | -.01 | -.02 | .00 |
| $R^2$ (Adj. $R^2$) | .15 (.12)*** | .13 (.09)** | .11 (.08)** |
| $\Delta R^2$ | .14*** | .02 | .10*** |

**Table 3**: Proportion of Regular Journeys by Car regressed onto Identity Centrality: β Values

| | Work Journey | School Journeys | Other Regular Journeys |
|---|---|---|---|
| *Block 1 – Control Variables* | | | |
| Age | .08 | -.10 | -.07 |
| Gender | .02 | .06 | -.04 |
| Car value | .03 | .03 | -.02 |
| Child age | -- | -.28*** | -- |
| $R^2$ (Adj. $R^2$) | .01 (.00) | .12 (.10)*** | .01 (-.01) |
| | | | |
| *Block 2 – With Identity* | | | |
| Age | .10 | -.08 | -.06 |
| Gender | -.01 | .02 | -.07 |
| Car value | .06 | .05 | .01 |
| Child age | -- | -.31*** | -- |
| Identity centrality | | | |
|   Worker | .00 | .12[a] | .07 |
|   Parent | -.07 | -.05 | .05 |
|   Member of community | .01 | -.04 | .01 |
|   Driver | .17* | .01 | .17* |
|   Public transport user | -.32*** | -.14 | -.17* |
|   Pedestrian | -.03 | -.10 | -.04 |
|   Cyclist | .00 | -.08 | -.16* |
| $R^2$ (Adj. $R^2$) | .16 (.12)*** | .19 (.18)*** | .15 (.10)*** |
| $\Delta R^2$ | .16*** | .08** | .14*** |

[a] $p=.07$

Tables 2 and 3 show a similar pattern. In all cases, models including identities were statistically significant, explaining between 6% and 12% of variance in use of the car on regular journeys. In all cases except for the regression of school journeys onto identity salience, the inclusion of identities added significantly to the variance explained. This supports Hypothesis 2, that important identities, as measured by centrality and salience, are related to mode choice in regular travel.

Although the models for travel to work, school and on other journeys show significant explanation of variance, different patterns of influence were apparent. For work and other regular journeys, identities of driver and public transport user were significant, with a public transport user identity contributing negatively to mode choice of car for both types of journey. This supports Hypothesis 2.1, that important transport identities are related to the mode choice for regular journeys. Additionally, worker and parent identity contributed significantly to work journeys (identity salience only) and a worker identity was borderline significant for school journeys

(identity centrality only). This supports Hypothesis 2.2, that important social identities are related to mode  choice on regular journeys. In the analysis, social identities show different patterns of relationships for different journey types. Further, differences are apparent between school and other journeys: for school journeys, a worker identity is the only identity related to use of the car, and the strongest predictor for school journeys is child's age. The next section considers these differences further.


## 4. Discussion

This study of 267 working parents in England found evidence for the relationship of identities to mode of travel. Specifically, the hypothesis that individuals manage multiple identities around their choice of transport for regular journeys was supported. Further, both transport and social identities were shown to influence the choice of driving on regular journeys; including travel to work and on escort education, and the pattern was similar for measures of identity centrality and identity salience. The pattern of the relationship between identities and choice of transport varied across types of journey.

The study's use of the Twenty Statement Test allowed free-format statements describing the self in relation to regular travel. From these statements, identities relating to driving in particular, but also pedestrian and public transport user, emerged. This supported the findings of Gardner and Abraham (2007) whose qualitative study noted salient identities of motorist, pedestrian and public transport user. The current evidence also adds to the findings of Steg et al. (2001) on the influences of symbolic factors on car use. Steg and colleagues found that symbolic factors were related significantly to use of the car to commute to work. Here, we have shown that identities are related to the use of the car on different regular journeys, including commuting. However, the results here suggest complex relationships between identities and travel mode.

The pattern of factors influencing escort education differed from that of work and other regular travel. For school journeys, the strongest predictor of driving was the child's age: the younger the children, the more likely it was that the parent drove them to school. Previous findings that protecting children is a factor in escort education by car (DiGuiseppi, Roberts, Li, & Allen, 1998; Gatersleben, Leach & Uzzell, 2001) may explain this result. Alternatively, or in addition, the physical capacity of young children may be a factor. In the UK, children tend to live further from school than 20 years ago (DiGuiseppi, et al., 1998) and the proportion of 3- and 4-years-olds in education has risen from 21% to 64% over the past 30 years (ONS, 2010). In general, therefore, motivations may differ by type of journey and specific instrumental factors may be significant for specific travel types. Although the discussion following focuses on identity motivations in travel, this is with recognition that other instrumental, affective and symbolic influences on mode of travel choice have been proposed (Gatersleben, 2007; Steg et al., 2001).

The parent identity was significant for work journeys, which is consistent with studies which have found that school and work journeys may be 'chained' (Bradshaw, 1995; Granville, Laird, Barber, & Rait, 2002; O'Fallon & Sullivan, 2001), and that parents may explain their use of the car for work with reference to the need to drop off or collect children from school (Wen, Fry, Rissel, Dirkis, Balafas, et al. 2008; Wilde, 2000). Taken together with the worker identity approaching significance as a predictor of car use for school journeys, this suggests a cross-influence, of worker on escort education journeys and of parent on work journeys. Such a relationship exemplifies the management of multiple identities and implies that behaviour in one domain, such as travel to work, may be influenced by identities that are most salient in other domains. This speaks to the proposal that driving a car contributes to multiple identity needs and that understanding of the embeddedness of driving within identities is a necessary precursor to changing behaviour. In particular, the findings here suggest that the car may offer a way of satisfying the requirements of both worker and parent identities, at certain times. More generally, where identities have potential for temporal conflict, the car may offer a way for avoidance of conflict and for successful management of multiple identities. This understanding leads then to other possibilities for meeting such identity needs: policies on flexibility of work start times for parents and school start times for children could offer alternative means of avoiding temporal identity conflicts.

Significant relationships had been anticipated between travel within a domain and identities likely to be salient in that domain, that is, between the parent identity and travel on escort education, and the worker identity and travel to work. The finding of a negative relationship between the worker identity and work travel, and the absence of a significant relationship between parent identity and school travel, may point to methodological challenges in examining identity motivations (Deaux, 1992). Over 85% of the sample rated centrality of parent and work identities as important: restriction of range therefore may result in Type II errors. Worker salience may have been stronger when travel to work was more time-consuming or difficult, which could explain the negative relationship between commuting by car and worker identity. In general, identity motivations can be difficult to surface and require a capability for self-reflection. The findings here provide an illustration of the methodological issues surrounding reflexive ability, with reference to travel behaviour rather than identity. Although the Twenty Statement Test asked for self-relevant statements with respect to regular travel, 10.5% of the sample made no reference to any mode of transport even though their statements appeared to describe their thoughts or behaviours while driving: for example, "I am talking to myself" (Participant 140), "I am taking part in [a] competition on [the] radio" (Participant 139). It can be suggested that their typical travel behaviour was implicit in their responses and that the Twenty Statement Test had not triggered explicit reflection on their behaviour: when asked about their regular travel, 10% did not indicate their mode or modes of travel. If an indicative ten per cent of a sample did not reflect on overt behavioural practices such as driving, it appears likely that some individuals may not reflect consciously on such abstract concepts as identity motivations. Restricted range, and Type II errors, may be a risk in studies seeking explicit acknowledgement of identities. The implication merits further research

because of its consequences for future empirical investigation of the influence of identity on behaviour.

For travel to work and on regular journeys, the use of the car was predicted by a public-transport user identity: a negative, significant relationship was found in models measuring both centrality and salience. The results suggest that the stronger an identity as a public transport user, the lower the likelihood of using a car to travel to work or more generally. Policies aimed at developing identities as public transports users is thus suggested as an approach to moving travel mode away from the car. It is worth noting that 64% of participants made no reference to public transport in their identity statements, thus there is extensive scope for seeking to increase the importance of identities relating to use of public transport. The data also suggest the possibility of 'negative identities' relating to transport: 5% of participants had negative identities about public transport, for example, "I am a person who will only travel by car, not public transport" (Participant 2). Although utilitarian aspects of public transport, particularly cost, were mentioned by a number of participants, the results suggest that identity issues may influence the choice of private car over bus, train or tube. This presents additional areas for future research: How are 'negative public transport user' identities formed? How can positive identities around public transport use be developed?

Of particular importance in the findings was the influence of social identities. The Twenty Statement Test allowed participants freely to answer the question "When it comes to how I travel, who am I?" and, in their responses, more than half of participants referred to one or more social identities. Identities of parent and worker were referenced by over a third of the sample and spouse, other family member, friend and gender were also cited. The evidence points to regular travel as embedded in social behaviour, and the role of the car in particular in the enactment of social identities. From the participants' statements, being a worker meant getting to work on time and travelling to meetings. Being a parent meant being a taxi for their children. Being a friend meant being the 'designated driver' and being available to give lifts. The car was part of the set of behaviours that supported important social roles. Thus the meaning of driving for individuals was a component of their identities. Further, driving behaviour was influenced by social networks: for many participants, it was more than an individual decision about getting from point of origin to destination. McMillan (2005) argued that driving is a household, rather than an individual, activity: the findings here suggest the driving is a social activity, in the sense that social networks, of family, friendship, employment and other, may influence its choice. Attempts at behaviour change then, which focus on individual rather than socially-influenced behaviour, are less likely to be successful. Approaches are needed which recognise how driving supports social roles.

The limitations of the current study relate primarily to the theoretical and methodological challenges mentioned above. Although transport-related identities were measured in the same way as social identities, further exploration of the theoretical similarities and distinctions between such types of identity is needed. Also, given the difficulty of accessing motivational identities, other ways of

measurement should be considered in future research. Finally, recognising that identities may be situationally triggered (Burke & Franzoi, 1988), the study attempted to position identities in the context of regular travel through the wording on the Twenty Statement Test. However, it is acknowledged that people may describe their identities differently, on a paper-based survey administered in their home, from identities that they experience when travelling on regular journeys.

It is suggested that the current study makes a novel contribution to the travel literature: the theoretical focus on identity and empirical findings offer opportunities for new approaches to encouraging sustainable travel behaviours. Campaigns should appeal to social as well as transport identities and different approaches should be used for different types of journey. Role models could show desired travel identities; programmes to facilitate the development of new transport identities could be trialled, and threats to specific social identities could be investigated as a means to prompt behaviour change.

In conclusion, the study demonstrated that multiple identities may influence travel mode choice on regular journeys. As such, identity motivations should be included in the complex mix of factors affecting travel behaviour. Identity motivations, as well as instrumental factors, may vary across type of journey. The application of a theoretical focus on identity offers additional strategies in attempting to change travel behaviours towards sustainability.

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