

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



Green, J; Steinbach, R; Datta, J; Edwards, P (2010) Cycling in London: a study of social and cultural factors in transport mode choice: a final report to Smarter Travel Unit, Transport for London. Technical Report. LSHTM, London.

Downloaded from: <http://researchonline.lshtm.ac.uk/2852/>

DOI:

Usage Guidelines

Please refer to usage guidelines at <http://researchonline.lshtm.ac.uk/policies.html> or alternatively contact researchonline@lshtm.ac.uk.

Available under license: <http://creativecommons.org/licenses/by-nc-nd/2.5/>

Cycling in London: a study of social and cultural factors in transport mode choice

A Final Report to Smarter Travel Unit,
Transport for London

January 2010



**Judith Green, Rebecca Steinbach,
Jessica Datta, Phil Edwards**

London School of Hygiene and Tropical Medicine

Table of Contents

Acknowledgments	4
Summary.....	5
Introduction	9
The Policy Background.....	11
National policy	11
Regional policy	12
Policy tensions	15
Literature Review.....	19
Travel patterns and practices	19
Population differences	20
Attitudes towards cycling	21
Social and cultural factors and cycling.....	22
The Study	24
Findings 1: Population Differences	28
Travel diary analysis	28
Cycling training uptake	32
Findings 2: Qualitative Findings	36
A 'new' hierarchy of transport mode choices?.....	36
Coming to see the bicycle as providing 'automobility'	40
Becoming 'a cyclist': transport mode as identity	47
Cultural identities and cycling	55
Discussion	66
Conclusions.....	71
Implications for policy and practice	72
References.....	76

Acknowledgments

The authors are grateful to: David Rowe (TfL), Kim Noel (TfL), Veena Natarajan (TfL) and Richard Riddle (LBC) for their advice and input to this project; to Koy Thomson (LCC) for advice, input and helpful comments on a draft; to Dale Campbell (TfL) for access to LATS/LTDS data; Daniel Johnson and Veronica Pinto of Smarter Travel Richmond for advice on Richmond recruitment; to Michelle Jamieson in Camden, Patrick Field of London School of Cycling in Hackney, Cameron Stewart in Richmond and other cycle trainers for facilitating access to trainees; to Jane Stables and Pat Gannon of Cycle Training UK for access to cycle training data; and to Daniel Johnson and Rose Ades for their helpful comments on a draft. We thank Kate Nolan and Gemma Phillips for conducting the fieldwork in Richmond and Coralie Datta for the photo on the front cover. Particular thanks go to those residents and employees in Camden, Richmond and Hackney who were kind enough to talk to us about their transport choices.

This report draws extensively on a study funded by NHS Camden. We are grateful to NHS Camden, and in particular Suzanne Lutchmun and Anthony Kessel, for their support for that project.

This work was undertaken by the London School of Hygiene & Tropical Medicine, with funding from Transport for London's Smarter Travel Unit and NHS Camden. The views expressed are those of the authors, and not necessarily those of Transport for London or NHS Camden.

Green J, Steinbach J, Datta J and Edwards P. (2010) *Cycling in London: a study of social and cultural factors in transport mode choice*. A final report to Transport for London. London: LSHTM.

Summary

This report was commissioned to explore the reasons for differences in transport mode choice across population groups in London, to support the work of Transport for London and partner organisations in extending active transport in the capital. The report builds and draws on a study commissioned by NHS Camden¹. Transport for London commissioned an extension to this study in order to identify implications for London.

Background

Despite policy initiatives to encourage cycling to achieve transport, public health and environmental goals, it remains a minority transport choice in London. Further, there are social differences in the uptake of cycling, with women and some minority ethnic groups relatively under-represented. This has potential implications for ensuring that the whole population has equitable access to 'healthy' travel options, and that changing transport policies do not further marginalise some groups from access to transport. This report focuses on why cycling, as a transport choice, may be less available for women and those from minority ethnic communities.

Methods

The study drew on three sources of data:

1. A review of academic and policy literature related to cycling uptake;
2. London travel survey data from 2001, 2005, 2006 and 2007;
3. Interviews with 78 people who live or work in three London boroughs (Camden, Richmond or Hackney). Participants were sampled from settings including private and public sector workplaces and cycle training schemes.

Findings

Population differences in cycling

Between 2001 and 2005-7, the percentage of trips made by bicycle in London doubled, but the number of adults who cycle did not increase by the same proportion, suggesting that most of the increase in cycle journeys reflects cyclists making more journeys by bike, rather than more of the population taking up cycling for transport. Men remain about three times more likely to cycle than women. Those from Black and particularly

¹ Steinbach R, Green J, Datta J and Edwards P. (2009) *Cycling in Camden: a study of social and cultural factors in transport choices*. A final report to NHS Camden. London: LSHTM.

Asian minority ethnic populations are less likely than those from White ethnic groups to cycle, with the distribution by ethnicity unchanged between 2001 and 2005-7.

Transport mode choices

Qualitative findings suggest that moral as well as practical criteria underlie decisions about transport choices, and that many Londoners feel an obligation to travel responsibly, in ways that minimise impact on the environment and maximise potential health gains. This view, which was more commonly expressed in inner compared to outer London, sees cycling as the mode most likely to provide many advantages prized by Londoners: independence, speed, efficiency and health benefits. We summarise these advantages as 'automobility'. To consider how the choice to cycle might be linked to social identities, we explored how it is possible to see the bicycle as providing automobility in principle, and then how individuals come to see themselves, specifically, as being the kind of people who could take advantage of this automobility: how they 'become cyclists'. We suggest these processes are made more or less likely by different social and cultural identities.

Travelling around London

Efficiency was not always the most valued criterion. Some preferred transport modes that enabled them to switch off, or enjoy the view. Cycling, walking and using buses all provided opportunities for those in inner London to demonstrate their local knowledge in identifying quick or interesting routes around the city. Learning 'good' (safe, pleasant or fast) routes for cycling was important. Independence was valued by many professionals, but less critical for those who travel with others (such as children). Maximising health gain was important for most but, whilst cyclists prioritised future fitness, others prioritised immediate safety. In general, cycling was seen as a potential alternative to public transport in the inner London boroughs, and an alternative to car use in Richmond, where there was more interest in leisure, rather than commuting, cycling.

General barriers, facilitators and triggers to cycling

The reported barriers to cycling identified in this study reflect those from wider literature: perceived road danger, lack of infrastructure (bike storage at home and/or work, cycle paths), work roles that involved carrying heavy loads or arriving looking 'smart'. The latter was a particular issue for participants from Richmond, suggesting that what is accepted in workplaces may change in response to the needs of cyclists. Those who had recently started to cycle tended to report that barriers such as road danger or the 'hassle' of bringing a change of clothes were not as significant as

anticipated once they had routinised journeys. Peers were important in travel choices. Positive local cycling 'cultures', in workplaces or residential areas, were reported as facilitators of taking up cycling. In some areas of Hackney, for instance, residents reported positive peer pressure to cycle. Conversely, if no role models exist, cycling was a less likely choice.

Triggers to take up cycling included the desire to improve health; reactions to chronic or short-term public transport disruption (e.g. strikes); (for women) wanting to cycle with the family. Environmental concerns were important, but not a trigger to take up cycling.

Social identity and cycling

Only a small number of participants saw cycling as an inherently inappropriate mode of transport (citing factors such as difficulty in cycling while wearing a jilbab, or inappropriateness for women). A few, from Richmond, cited insurmountable practical disadvantages with lifestyles that were perceived to require a car. Most, however, saw cycling as a *potentially* preferable mode of transport. However, the positive associations of cycling had less resonance for some population groups. For some women, the level of 'aggression' that was perceived to be required to cycle safely in London was off-putting. For others, coping with this was a source of pride, enabling them to demonstrate a valued independent, confident identity. Black residents reported that cycling was less common in their communities, and Black women, in particular, reported that they were less likely to have learnt to ride a bike in childhood. Developing a new skill was an incentive for some to attend cycle training. Some also reported that cycling was associated with low social status. Across all population groups, seeing 'people like yourself' cycling was an important facilitator in seeing yourself as a potential cyclist.

Conclusions

Attitudes towards cycling were positive and most participants reported aspiring to maximise their own health and the environment through transport mode choice. In inner London, there was little evidence of attachment to car-dominated transport systems, and cycling was seen as an alternative to public transport. In Richmond, cycling was seen as a potential alternative to car use, but practical barriers were more salient, and few saw commuting by bicycle as a realistic aim. Adult cycle training provision was important for both teaching basic skills to those who had not learnt as children, and improving the confidence of those wanting to manage London's roads. However, the 'assertiveness' needed to cycle in London was a barrier. Most Londoners see cycling as a potential choice, although few do cycle. Road danger is the primary

disincentive, and transport systems should therefore be designed to make cycling a safer as well as an easier choice. A key factor was 'critical mass' in all population groups, which would reduce both actual and perceived road danger, and provide role models across London's population.

Introduction

The study

This report presents the findings of a study funded by NHS Camden and Transport for London which aimed to explore why the uptake of cycling differs across population groups. The study focuses on the health implications of cycling uptake and population differences in cycling uptake, and draws on detailed fieldwork in three London boroughs (Richmond, Camden and Hackney) where levels of cycling are relatively high compared with the rest of London. This report draws extensively on research funded by NHS Camden and a previous report (Steinbach et al 2009) to the public health directorate.

Background: why promote cycling?

Encouraging walking and cycling has been central to Transport for London's policies to reduce congestion and environmental damage from private car use (Transport for London 2007b), and cycling in particular has been a 'key element of the new Mayor's transport vision for London' (Transport for London 2009). From a public health perspective, achieving modal shift to cycling and walking is an important component of strategies to address increasingly sedentary lifestyles, and the threatened 'obesity epidemic' (Department of Health 2004; Health Development Agency 2004; Wanless and Treasury 2004). Increasing the proportion of journeys made by active alternatives to motorised transport, and the resulting contribution to reducing global warming and enhancing social cohesion, will also potentially meet wider public health targets (Department for Transport 2006a).

Traditionally, transport has not been central to considerations of health gain or health equity, and the focus has been on avoiding transport-related injury, rather than on the health promoting possibilities of transport interventions. With increasing NHS attention on the broader determinants of public health, there is a growing potential role for health partners in developing strategies for active transport. Watkiss and colleagues, in a detailed study to inform transport-related health impact assessment in London (Watkiss et al. 2000), estimate that the health gain for increased levels of cycling would outweigh the risks of increased injury, although more research is needed to identify precisely how modal shift would impact on overall health gain and on inequalities.

There is an increasing recognition that transport systems play a key role in health and health inequalities through a number of causal pathways (Morrison et al. 2003; Watkiss et al. 2000). These include: access to goods, services and social networks, with

transport poverty a key factor in maintaining inequalities (Social Exclusion Unit 2003); the levels of active transport encouraged; in addition to the risks of transport related injuries (Edwards et al. 2007).

There are already examples of collaborations between transport organisations, local authorities and the health sector which are building on these policy synergies. Examples include a jointly funded post to encourage active transport shared between Tower Hamlets local authority and PCT, and the Smarter Travel Sutton pilot project, jointly managed and delivered by Transport for London and the London Borough of Sutton. Given positive early evaluations of these projects, this is a timely point for transport providers and commissioners to consider how they can work with health and other partners, to maximise the impact of active transport strategies.

Despite policy support across the arenas of environment, transport, sustainability and health to encourage active transport (Department for Transport 2007; The Stationery Office 2004), the gains so far have not been as great as expected. Across Britain as a whole (Department for Transport 2006a; Department for Transport 2006b), recent decades have seen a decline in the proportion of people cycling regularly and, even in London, where cycle journeys have gone up, there is potential for greater gain. This report focuses particularly on possible equity issues, given the reported population differences in transport mode use across London's diverse population. The equity issues are twofold. First, if there are systematic barriers to the uptake of active transport by particular groups, this may suggest structural discrimination in access to health promoting activity. Second, if active transport is to increasingly become the preferred mode of travelling around the capital, we need to ensure that a focus on cycling, walking and other active forms does not further contribute to transport poverty through the exclusion of some population groups.

This report first reviews the national and regional policies which have aimed to influence cycling uptake and the infrastructure that facilitates this. Second, we summarise research and literature on attitudes to cycling, focusing on existing evidence on barriers, facilitators and population differences. Quantitative and interview findings are reported separately in sections on Population Differences and Qualitative Findings respectively, with the qualitative findings reported by themes that emerged from the data. The implications of these for gender and ethnic 'barriers' are highlighted in the discussion.

The Policy Background

National policy

Lumsdon and Tolley (2001) suggest that prior to the 1990s, UK government policy did little to encourage cycling, in part because of road injury concerns. Injuries are, however, not the only health outcome of transport systems. With a growing concern that sedentary lifestyles contribute to rising levels of overweight and obesity in the population, policies that promote 'active transport' are a critical element of integrated healthy public policy (Department of Health 2004; Health Development Agency 2004; Wanless and Treasury 2004). More recently policies across many different government arenas have reflected this, and encouraged cycling (Department for Transport 2007; The Stationery Office 2004). In 1996, the UK government announced the National Cycle Strategy (NCS) which set a target to double the number of trips made by bicycle by 2002 and quadruple cycling journeys by 2012. Strategies included improving cycle safety, creating cycle friendly infrastructure, providing for cycle parking, reducing theft, shifting travel incentives, and raising public awareness (Department for Transport 2005).

Both walking and cycling have been widely cited as measures for improving cardiovascular health, reducing obesity and improving mental health at a relatively low cost to both the individual and the health care system (Hamer and Chida 2008); (Tannahill 2000); (Ogilvie et al. 2007), with the Department for Transport's cycling policy noting that 'cycling helps tackle pollution caused by motor vehicles, congestion and also promotes good health' (Department for Transport 2007). A report from the House of Commons select committee on health suggested that increasing cycling 'might achieve more in the fight against obesity than any other individual measure' (House of Commons Health Committee 2004). Increasing the proportion of journeys by active transport compared with private car transport has also been linked with broader, more ambitious public health gains, such as reduced global warming through encouraging sustainable transport, and increased social cohesion and community safety (Department for Transport 2004b).

The National Cycling Strategy provided a model local cycling strategy called 'Bikeframe' to assist local authorities. However, take-up of Bikeframe was highly variable (Lumsdon and Tolley 2001) and while some local areas achieved some success in increasing cycle journeys there is now a consensus that the national target to quadruple the number of cycling journeys by 2012 will not be accomplished (Department for Transport 2005). The target was subsequently dropped in 2004 (Department for Transport 2004a). Instead,

local authorities were encouraged to set their own more achievable targets and an annualised index of cycling trips became a mandatory indicator in the second round of Local Transport Plans.

Regional policy

In London, the London Cycling Action Plan (Transport for London 2004) sets targets for cycling in the capital aiming for an increase of at least 80% in cycling levels by 2010 and a 200% increase by 2020 compared to 2000 levels. Objectives of the plan included improving the quality of the London Cycle Network Plus; increasing cycle access, safety, priority and parking; supporting innovative cycle schemes; promoting cycling and its status; providing incentives and support for target groups; increasing mutual awareness and respect between road users; promoting cycle links and interchange schemes; optimising contributions to cycling from other schemes; and improving co-ordination and partnerships. Currently, Transport for London plans to introduce a cycle-hire scheme in Central London in 2010 with the help of local authorities. Transport for London is committed to encouraging active transport and has increased funding for walking and cycling programmes through boroughs' Local Implementation Plans (LIPs) from £52 million in 2007/2008 to £62 million in 2008/2009 (London Borough of Camden 2008).

A large number of regional and local initiatives, from both statutory and voluntary sectors, aim to contribute to the expansion of cycling across London. Table 1 summarises some of those that were being implemented or evaluated over the course of this project, under six (non-exclusive) categories: those concerned with infrastructure improvements, individual transport plans, those concerned with road awareness either of or by cyclists, those celebrating cycling, general or targeted bike events, workplace and school initiatives. These initiatives are sponsored through a variety of organisations ranging from cycling community groups such as the London Cycling Campaign (LCC), its local branch Cycling Campaign groups and the national cyclists' organisation (CTC), to governmental transportation agencies (TfL, DfT), to other public organisations (Metropolitan Police, British Waterways), private organisations (South West Trains), and Third Sector organisations (Sustrans).

NHS organisations are beginning to take active transport more seriously as a public health concern, and of the NHS authorities within London, Tower Hamlets has probably done more than most to develop policies to increase cycling uptake, in part through its successful bid for matching funding to the Healthy Community Challenge Fund for

Healthy Town status (Margolis c2009, personal communication, and see http://www.epomm.org/ecommm2009/14_margolis.pdf). Initiatives include the improvement of the physical environment to encourage active transport, and a range of organisational and community active travel projects.

Table 1: a summary of local and regional initiatives

Category	Examples
Infrastructure	London Cycle Network
Improvements	Greenways for the Olympics and London Cycle highways Cycle hire scheme Cycle parking infrastructure Hackney's Permeability Project
Individual Transport Planning	North Camden Personalised Travel Planning Project Cycling journey planner Camden CycleStreets TravelSmart Smarter Travel Richmond's Cycling Ambassador Scheme
Road Awareness	Cycling along Canals - Two Tings Campaign Exchanging Places – cyclists and HGV drivers
Celebrating Cycling	Bike week Mayor of London's Skyride Critical Mass Birds on bikes Bike Fest in Camden
Bike Events	Ride All Around Camden 'In town without my car day' Bike it 5 miles to fabulous Little Green Ride
Workplace and School Initiatives	Cyclicious Cycle to work scheme Workplace challenges Teddington Travel to Work Network STA Bikes Family Cycle Clubs in Hackney

The list in table 1 is not intended to be exhaustive, but to illustrate the wide range of current initiatives.

Within the three boroughs that are the focus of this report, cycling is relatively high on local authority agendas.

Richmond

Richmond's 2005 Unitary Development Plan has five strategies that concern cycling: environmental transport, safety, parking, land use, and the river Thames. Specifically, Richmond aims to increase cycling in the borough by improving cycling infrastructure (including the LCN+), cycle training, encouraging employers to introduce travel plans, cycle parking facilities, and cycle promotion (London Borough of Richmond upon Thames 2004). Recently, Richmond in partnership with TfL has introduced the Smarter Travel Richmond initiative, a three year programme to increase transport choice, improve health, reduce carbon emissions and cut traffic congestion across the borough. The programme has a number of strands that aim to increase cycling including: new cycle parking, new cycling routes, cycle training, and starter packs to encourage new cyclists.

Camden

In 1997, the London Borough of Camden adopted a Green Transport Strategy to achieve traffic reduction and air quality targets and improve quality of life. As part of this strategy, Camden published the Camden Cycling Plan in 2001 to outline the borough's approach to encouraging cycling. The plan has since been reviewed in 2002, 2003, 2005 and 2008. As many of the targets previously set by the Camden Cycling Plan have already been met, the 2008 review proposed a revised set of targets (London Borough of Camden 2008) which include:

- A 15% modal share for cycle use by 2012.
- An increase in cycling by borough residents by 80% above the 2001 levels, by 2011.

Camden has introduced a range of initiatives to achieve these targets including: the London Cycle Network Plus (LCN+), orbital cycle links across the borough (identified in partnership with local cycling groups), cycle training for children and adults, safety improvements to cyclist casualty hotspots, increased cycle parking, and publicity campaigns.

Hackney

Cycling is relatively popular in Hackney, with nearly 7% of commuters cycling to work, the highest proportion in London. Hackney's 2006 Transport Strategy aims for a 0% growth in motorised traffic with cycling playing a key role in achieving that target. Hackney's Cycling Plan (2006) aims to bring together infrastructure improvements, cycle training, cycling promotion and cycle lane enforcement to increase cycling in the borough by 80% by 2011 and 200% by 2020 compared to 2000 levels. Hackney also aims to increase the proportion of commuters cycling to work to 8% by 2011 (London Borough of Hackney 2006).

Policy tensions

The initiatives listed in Table 1 suggest a range of one-off and ongoing programmes that would potentially be applicable to those living or working in London, in addition to routine provisions of services such as adult and child cycle training and generic road safety training in schools. These initiatives are generally synergic in their aim to increase cycling or awareness of cycling but there are some tensions that must be taken into account in policy formation and implementation. Although encouraging cycling in particular, and active transport in general, can be presented as 'win-win' scenarios for transport, environmental and public health goals, there are likely to be areas where policy development and implementation do generate conflict around what values and evidence bases are prioritised.

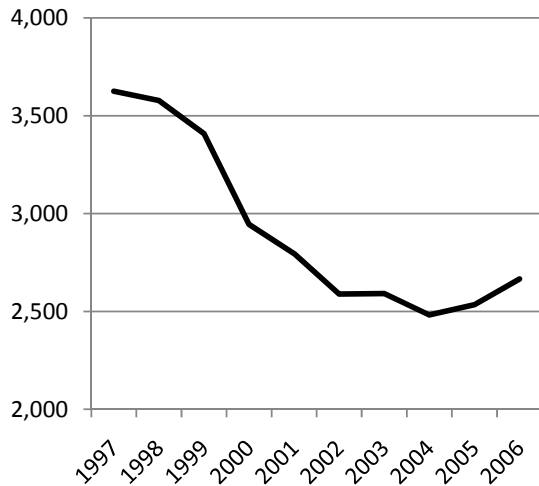
The health agenda: road safety and longer term health gain

In terms of public health impact, the first tension is the need to increase cycling rates without disproportionately increasing the rates of road traffic injury. National and Mayoral transport strategies have targets for collision and injury reduction. Our previous research on road safety for Transport for London (Edwards et al. 2007) noted that boroughs aiming for casualty reduction targets currently have a perverse incentive *not* to encourage cycling as, in the short term, this is likely to increase the number of injuries as a function of greater exposure. In London, the number of adults injured while cycling appears to have steadily decreased from 1997-2004 (Figure 1), but to have increased in more recent years. In Camden and Richmond the numbers of cycling injuries each year is more variable but overall injuries appear to have fallen over the 1997-2006 period. Similar to the London-wide trend, cycling injuries in Hackney appear to have fallen in the late 1990s but increased in more recent years. It is difficult to take exposure (the amount of time cyclists spend on the road) into account in order to accurately gauge

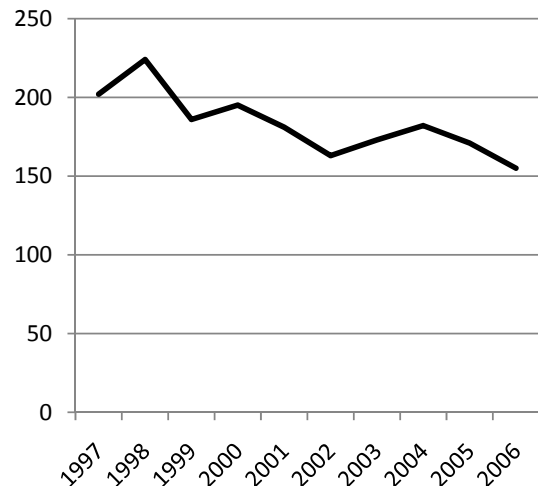
whether cycling in London is becoming more or less dangerous. To be meaningful in terms of interpreting overall health gain, road safety targets should include indicators such as the confidence local people feel in cycling or walking around their neighbourhood.

Figure 1 Adult cycling injuries in London and selected boroughs, 1997-2006²

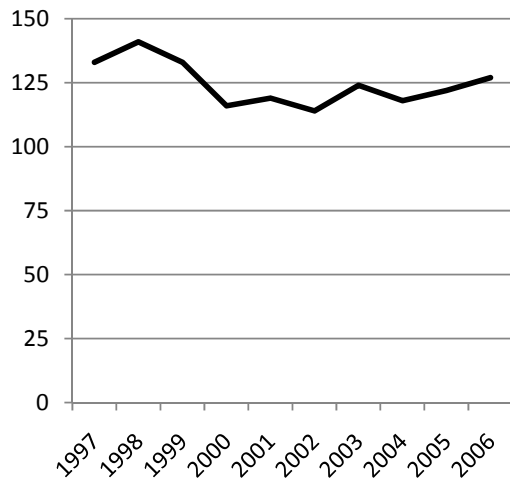
London



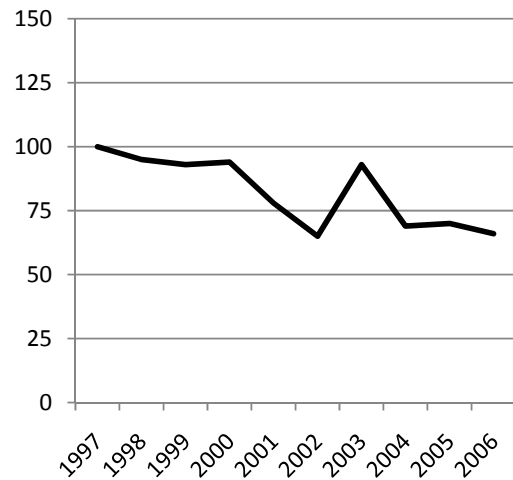
Camden



Hackney



Richmond



² These figures are based on STATS19 data collated by the police for collisions which result in personal injury. Given that they rely on reporting of collisions to the police, they may underestimate the numbers of cycle injuries, and be subject to reporting biases.

As yet, there is inadequate modelling of the likely overall health benefits from additional cycling, and whether they will outweigh the costs of possible increases in injury. There are also a number of challenges to conducting such health impact assessment. First, many of the reported health benefits of cycling (such as reductions in stress, increased feelings of well being) may be difficult to quantify. Second, it is as yet unknown how far, or when, the 'critical mass effect' (Jacobsen 2003) will begin to shift the relationship between exposure and injury risk to make cycling safer.

Concerns over road safety emerge as a point of disagreement between various agencies with responsibilities to increase cycling uptake. There are, for instance, well documented debates over whether encouraging or even mandating helmet use (Curnow 2005; Hillman 1993; Macpherson and Spinks 2007; Thompson et al. 2004; Towner et al. 2002) is likely to lead to health gain (by reducing head injuries in those involved in collisions) or overall health loss. Loss could accrue from discouraging cycling, changing perceptions of risk, or the negative effects of presenting cycling as a dangerous and marginal activity (see for example (Horton 2007)). It is not an aim of this report to contribute to these debates, but they do form a backdrop to any discussion of the potential roles of health and other agencies in extending cycling.

Limited evidence base

Debates around the overall health benefits of cycling and around helmet legislation illustrate a more general tension around identifying suitable evidence for transport policy planning. First, there is a growing, but still limited, evidence base on transport policies, with most reviews focusing on single issues, and a lack of good evidence for overall health impact. Progress towards modal shift is difficult to measure, and there is an inadequate understanding of the likely health outcomes from different transport scenarios.

The evaluation of interventions is not straightforward. Many initiatives are likely to have longer term 'raising awareness' goals, which may be essential as a cultural backdrop to increasing the numbers of people considering cycling as a potential transport mode, but for which it is difficult to demonstrate impact on hard outcomes. This is clearly a challenge for health sector partners wanting to invest in cycling as a path to improving the public health, as it will be difficult to identify specific areas where comparative cost-effectiveness in terms of health gain can be demonstrated. With limited good evidence, current NICE guidance recommends that cycling and walking interventions are only implemented in conjunction with research on their effectiveness (NICE 2006, 208).

Whose responsibility?

Since 2004 when national cycling targets were dropped, local authorities have been responsible for setting and achieving their own cycling targets, resulting in variable cycling policies across London boroughs. However, many cycle initiatives, particularly cycling infrastructure initiatives, cross local authority boundaries. London boroughs and the LCC have suggested that the management of cross-borough projects needs to be improved³, and that the London Bus Priority Network management structure could be a useful model (London Councils and London Cycling Campaign 2008). The London Cycle Network Plus (LCN+) aims to develop a network of linked cycle routes, but a number of barriers (and engineering challenges) have resulted in slower than anticipated progress.

One tension here is local differences in philosophy on cycling infrastructure. Some local campaigners and transport planners, for example, favour the provision of designated cycle paths while others prefer a 'lighter touch', advocating more limited environmental interventions such as allowing cyclists easy access via narrow chicanes but not supporting the separation of cyclists from other road users. Given the influence that local groups can have on boroughs' transport departments, this may mean that neighbouring boroughs have different philosophies and provide inconsistent cycling environments. The increase in the volume of cyclists also has an impact on cycling and pedestrian safety, particularly along narrow cycle paths or on canal towpaths, and may prompt changes in policy for infrastructure improvements.

Many areas of government have cited positive benefits of cycling and instigated initiatives to increase cycling (many working in partnership). However in a context of increasingly strained financial resources, there is some tension over which areas of government are responsible for cycling investment. Despite the fact that increases in cycling could potentially contribute to a number of health related policy goals, there is little leadership and investment from health authorities in this area, with some notable exceptions. There are real opportunities for transport, local authority and health agencies to work in partnership, building on the policy synergies. This will, however, require some sensitivity to the tensions we have outlined.

3

<http://www.londoncouncils.gov.uk/media/pressreleases/2008Jantodate/PressreleaseMayorfailstoconsultboroughsonwalkingandcyclingstrategy.htm>

Literature Review

Travel patterns and practices

Measuring changes in travel patterns has proved challenging, with difficulties in agreeing on suitable ways to count both numbers of regular cyclists and individual journeys. Nationally, it appears that the proportion of people cycling regularly has declined in recent decades (Department for Transport 2006a). Data from the National Travel Survey report a 22% decrease in the number of trips made by bicycle between 1995 and 2005.

Travel patterns and practices in London are not typical of the UK with (for instance) lower levels of car ownership and higher use of public transport than in other parts of the country (Department for Transport 2006a). In general, the proportion of individuals who cycled as a main mode of travel remained constant in London between 1985 and 1996 (Department of the Environment Transport and the Regions (DETR) 2000), but, more recently, cyclist numbers have been increasing. The proportion of trips made by cycle had risen from 1.3% in 2002 to 2.0% in 2007, compared with a national average of 1.5% (TfL 2009). Counts of cyclists (on selected sections of the TfL road network) entering central London in morning peak hours increased from 12,000 to 17,000 between 2003 and 2005 (Department for Transport 2006b), and the numbers appear to be continuing to rise, with a 91% increase reported between 2000/01 and 2007/08 (TfL 2009: 116). This increase is variable across London, with larger increases reported for journeys that cross the Thames, and relatively slower increases in volume for outer London (TfL 2009).

The boroughs included in this study had higher than average cycle mode shares. Of all 33 London boroughs, cycle modal share was highest in Hackney (8%) and 4th highest for residents of Camden (TfL 2009: 122). Camden achieved the second highest increase in cycle trips made in London, an increase of 98% between 1991 and 2001 (London Borough of Camden 2008). Richmond has highest rates for the outer London boroughs.

Table 2: Trips by selected mode in London boroughs included in this study and inner/outer London averages– mode share (%) by borough of residence, average 2005-2008

	Bicycle	Walk	Private car/motorbike
Camden	3	41	19
Hackney	8	35	19
Richmond	4	34	41
Inner London	3	36	27
Outer London	1	28	51

(Source: TfL 2009: 64)

Population differences

Some population groups are more likely to cycle than others. Men aged 25-44 are the demographic group most likely to cycle in London, and they are twice as likely to cycle as women from the same age group (Transport for London 2007a). In London, only 27% of journeys with cycling as the 'main mode' were made by women (LATS data, our analysis), although there is some evidence that this proportion is growing (London Analytics Ltd. 2005). This contrasts with other north European countries. In the Netherlands and Denmark, for example, women make a larger proportion of trips by bicycle than men (Garrard 2003; London Analytics Ltd. 2005). An evaluation of cycle training in one London borough (Datta & Graham 2006) found that the large majority (89%) who took up adult training were women. However, this may not translated into regular cycling. More women and girls report fear of cycling on busy roads than do men (Act2 2004; Department for Transport 2003) and disincentives reported include the need to drop/pick up children or shop whilst commuting, and concerns about personal security (Dickinson et al. 2002).

Less evidence exists on the differences between ethnic groups in the UK on cycling, in part because data sets such as the National Travel Survey do not have large enough samples to allow detailed analysis by ethnicity. However, our previous work (Edwards et al. 2007) suggested that there were marked differences across London's ethnic communities, with lower rates of cycling in 'Black' ethnic groups. This reflects the

relatively low rates of participation in cycling for sport or exercise in many ethnic minority groups (Rowe and Champion 2000).

Previous qualitative work on attitudes to cycling from the Transport Research Laboratory (Davies et al. 1997) identified a number of attitudinal dimensions that might be hypothesised to vary with ethnicity, such as the view that cycling was a 'low status activity'. Although there is little published literature, unpublished grey literature does support this view. A study of south Asian communities commissioned by Lancashire County Council (Bowles Green Ltd 2008) found that cycling was seen as an activity for males of low status, and one which could be 'shaming', particularly for women. Additional cultural barriers identified included suspicion of short-term funded council projects, cycling being seen as inappropriate in some Asian women's clothing, and young people wanting to reflect the wealth and status of their parents in their transport mode choice. Ethnically segregated housing was mentioned as a potential factor limiting use of longer distance cycle routes, with 'white' areas risky for Asians to travel through. An unpublished report from Tower Hamlets (Qureshi 2009) identified some cultural barriers to cycling from those in Black and ethnic minority groups (such as negative community attitudes, particularly towards women cycling) but also noted that most of the barriers reported were generic, relating to issues such as to lack of bicycles or infrastructure and limited awareness of cycle training.

Attitudes towards cycling

Survey evidence suggests that attitudes towards cycling are generally positive across the UK, with both children (Young TransNet 2007) and adults (Department for Transport 2003) reporting either wanting to cycle or considering it worth encouraging, and with 43% of people aged five and over owning a bicycle nationwide (Department for Transport 2007). In London 28% of residents have access to a bicycle (Accent Marketing and Research 2004). Benefits of cycling identified by adults include reliability, speed, low cost, improved health (Scottish Executive 2006), with 'fun' and freedom identified as positive reasons for cycling (Datta and Graham 2006; Gill 2005). However, a number of barriers to cycling have also been identified, including perceived danger, the effort needed, weather conditions, a poor cycling environment, risk of bicycle theft, a lack of necessary skills, and culture, attitudes and credibility (Accent Marketing and Research 2004; Scottish Executive 2006; Transport for London 2004). These barriers are likely to be differently experienced across population groups.

A key limitation in available evidence regarding barriers to cycling participation is that there may be little relationship between attitudes, as measured on surveys, and behaviour. As Greatholder (2005) has noted, attitudes may be complex and contradictory, with people reporting, for instance, welcoming the exercise opportunities of cycling but also reporting the 'effort' involved as a disincentive. Survey findings may be a poor indicator of the more complex views people hold on whether they are the 'kind of person' that cycles, and whether changes in the transport infrastructure, facilities or cultural attitudes would have an impact on behaviour as well as reported attitudes. Further, attitudes are to some extent a *function* of behaviour, rather than a cause. In an action research study which recruited volunteers to cycle to work, Gatersleben and Appleton (2007) report, for instance, that participants' attitudes to cycling and perceived barriers varied depending on how often they commuted by cycle, and how prepared they were to cycle. Similarly, changes in road environments in line with people's stated desires may be a *necessary* condition of changing behaviour, but not in themselves enough to encourage cycling (Davies et al. 1997). This is borne out by a recent systematic review of the effect of interventions to increase dedicated cycle paths, which found no evidence that they boosted cycling (Fraser 2009).

Social and cultural factors and cycling

That cycling is more common in some population segments than others, and that these differ between the UK and other European countries, suggests that coming to think of cycling as a desirable or feasible mode of transport is shaped within specific social, cultural and historical contexts, in which particular social identities (understood in gendered, ethnic or other terms) come to be more or less resonant with 'being a cyclist'. Although cycling can be promoted as a healthy, sustainable form of transport, clearly there are a *range* of ethical, aesthetic or social meanings that cycling may have. Typologies of cyclists utilised in everyday talk ('the courier', 'the fixie boy', 'old maid cycling to church') suggest some of this range of meanings, which are signified through a mix of bodily practices (speed, deportment on the road, posture on bicycle) and material objects (bicycles, safety equipment and clothing). These cultural meanings, which are in constant flux, are important in understanding differences in participation in cycling for transport, and it is essential to have a fuller exploration of them if we are to provide an environment for and promotion of cycling that resonates across the population.

Jensen (1999), studying transport mode choices in Denmark, identified six 'ideal types' of car user, in terms of their commitment. Those who cycle are likely to be similarly

segmented, with 'being a cyclist' having varying meanings as part of self-identity. There has been some sociological research on particular cycling identities, including Fincham's (2006) work on bicycle messengers, and research from social psychology on the images and self-images of cyclists (e.g. Haddad 2005), but little of this has directly addressed how these identities might link to propensities to take up or continue to cycle. Davies et al. (1997) suggested a typology of cyclists based on images and experiences, and drew on psychological theories of behaviour change to identify which groups might or might not increase their cycling. Their typology later informed a survey that explored clusters of cycling 'types', attitudes and norms. This suggested that 'regular' cyclists were more likely to be male, and the 'unconvinced' and 'no-needers' more likely to be female (Davies et al. 2001).

This study was funded to look in more detail at why, in London, these clusters of attitudes and behaviours may differ across the population, and whether there are any implications of this for planning policies that aim to increase the uptake of active transport, particularly cycling. We focus on three boroughs that all have relatively high rates of cycling, but have contrasting demographic profiles and transport infrastructure.

The Study

There is, then, widespread agreement that higher rates of cycling will promote health, improve the environment and promote sustainable transport policies, and there are a number of policy incentives, nationally and in London, to encourage cycling. There is evidence on *trends* in the take-up of cycling, and on reported barriers and facilitators. However, there is little evidence to explain *why* some individuals cycle and others do not and, more importantly, why these differences appear to be socially significant, in that (in London) cycling (particularly for work commuting) appears to be disproportionately an activity of young, white, men. This study was commissioned to look in detail at the social and cultural factors that might shape transport mode choice in London, and to identify any implications for policies that might increase cycling uptake.

Focus of this study

This study focused on adults (defined as those aged 18 years and over). To get an overview of population differences across London, we analysed travel survey data covering the whole city. To look in more detail at how cultural and social factors might influence travel choice, we conducted qualitative work with people who lived or worked in three London boroughs. We were primarily interested in cycling for transport, rather than leisure, although we recognised that this division may not be meaningful for all cyclists.

As the main aims of the study were to explore how gender and ethnicity might influence the propensity to take up cycling, the fieldwork focused on three boroughs in which we hypothesised that cycling environments were relatively (for London) enabling (evidenced by relatively high numbers of cyclists). Transport availability and modal shares are very different in inner and outer London, so we selected one borough from outer (Richmond) and one from inner (Camden) London. The majority of interviews were with participants in these boroughs. As an extreme case, we also included a few participants from the borough of Hackney (inner London), where cycling rates are significantly higher than in other boroughs and there is no underground station.

Although two or three boroughs cannot be representative of London's population in a statistical sense, our sampling strategy for the interviews (see below) aimed to include a wide range of residents and employees in terms of age, income, ethnicity, family circumstances, and transport use. The main findings are therefore probably generalisable to the wider London population. We have (deliberately) not, however,

looked at residents and employees in boroughs with low cycle uptake, and cannot therefore comment on the more environmental barriers to cycling likely to be reported in these areas. These barriers are already well covered in the wider literature.

Aims and objectives

The overall **aims** of this research were to explore why some population groups in London are less likely to cycle than others, and to inform policy and practice in transport and health.

To do this, we had the following **objectives**:

1. Using existing data sets of travel patterns and behaviour, define how cycling is distributed across population segments in London to provide a regional context;
2. Interview adults from a range of backgrounds who are currently cycling, considering taking up cycling, and not cycling, in three boroughs;
3. Analyse these interviews to explore how gendered and ethnic identities, in the context of local environments, make cycling a more or less likely transport choice;
4. Identify the particular motivations and disincentives that affect the transport choices of people in terms of their presentation of gendered and ethnic identities;
5. Draw on available publications and practice from other areas of London to identify generic and local factors;
6. Contribute to policy and practice that aim to increase active transport by identifying either modifiable barriers or incentives that could be used to encourage cycling in under-represented groups.

Methods

To achieve these objectives, we reviewed published and 'grey' literature and data on the uptake of cycle training. We looked in detail at travel survey data to explore population group differences, and generated primary qualitative data to explore how social identities shape transport mode choice.

1. Analysis of travel diary data

Our analysis of travel patterns and behaviour drew on data from two main sources, the London Area Transport Survey (LATS) 2001 and the London Travel Demand Survey (LTDS) 2005, 2006, 2007. In both surveys a one-day travel diary is completed for each member of the household aged over 5 years. The travel diary records the starts, interchanges and ends of every trip made on that day. Journey times are reported, and

the start-points, interchanges and end-points are individually geo-coded so that 'crow-fly' distances can be calculated. The LATS included 30,000 households and LTDS aims to include 8,000 households annually since 2005.

All our analyses are for adults aged 18 and older. We defined a 'cyclist' as a person who reported using a bicycle for any part of any journey on the interview date. We examined the percentage of cyclists and the average travel time (minutes) and average travel distance (km) by age, gender, ethnicity, household income level, start and destinations in Inner/Outer London, and trip purpose.

Both surveys employ complex sampling designs in order to capture London's diverse populations. Participants are clustered within households that are clustered within postcode areas. Our analyses are weighted to represent the total population of London. Estimation of accurate standard errors and 95% confidence intervals would require information on the households and geographical areas from which they are selected. As these items are not available we have not presented confidence intervals in our analyses.

2. Qualitative interviews

Qualitative data came primarily from individual, in depth interviews. We interviewed 78 participants in individual formal face-to-face interviews, 14 participants in a group interview and conducted a number of informal interviews. Participants lived or worked in the three boroughs and were recruited from one of three settings: public sector employees, private sector employees, and those participating in cycle training schemes.

Workplaces were selected to include public sector employees (an institute of higher education, local authority departments, a homeless charity) and private sector employees (including an engineering company, an estate agent, a heating and plumbing company). Those invited from cycle training were interviewed on two occasions, once just after attending training, and then again 4-6 months later. Within each setting we purposively sampled to include a range of men/women, those from diverse ethnic backgrounds and those who used a range of modes of transport. We used e-newsletters and an employer's intranet 'message of the day' to introduce the study to large numbers of employees. To increase the numbers of participants from minority ethnic backgrounds we worked with a minority workers' support group in Outer London and ran one focus group with Asian mothers in Inner London.

Interviews covered: journey to work that day; transport mode choices used; preferences for different journeys; what was liked/disliked about transport modes available; personal histories of cycling; barriers to cycling; images of cyclists. Participants were also asked to record their age, ethnicity, age at leaving education and home/work postcodes to ensure we were including a range of the population (see table 3). Interviews were audio-taped, transcribed and the data analysed qualitatively, using a thematic analysis drawing on principles of the constant comparative method (Strauss 1987). This involved identifying themes inductively, and using initial analysis to shape further data collection.

Additional qualitative data came from interviews with cycle trainers, informal interviews with commuters and research team observational fieldnotes, including notes from attending cycle training sessions.

In this report, identifying information and some contextual details have been changed in direct quotes in order to preserve confidentiality.

Table 3: Qualitative study participants

Characteristic		Inner London	Outer London
Sex	Men	9	2
	Women	39	28
Age range	18-24	3	1
	25-34	23	10
	35-44	12	10
	45-54	6	4
	55-64	4	5
Reported Ethnic group ⁴	White	29	25
	Black	10	3
	Asian	2 (+ 14 Focus group)	1
	Other	7	1
Site	Public sector employer	28	13
	Private sector employer	7	7
	Cycle training	13	10
Total		48	30

⁴ Aggregated from self-reported census categories.

Findings 1: Population Differences

Travel diary analysis

Cycling is still a relatively rare transport choice among both men and women in London although the proportion of all trips made by bicycle appears to have more than doubled since 2001 (Table 4).

Table 4: Percent of trips made by bicycle

Year	Men	Women	Total
2001	1.1%	0.4%	0.7%
2005	2.1%	1.1%	1.6%
2006	2.6%	1.1%	1.8%
2007	2.7%	1.0%	1.8%

Men appear to be three times as likely to make at least one trip by bicycle per day compared to women (Table 5). There is a suggestion that the number of both male and female cyclists has slightly increased over time although this could be due to random variation in the data. Londoners appear to be making more trips by bicycle over time, but the percentage of the population who cycle does not seem to be increasing at the same rate. This suggests that cycling is increasing in London primarily among those who are already cyclists.

Table 5: Percent of adults who are cyclists

Year	Men	Women	Total
2001	2.9	1.0	1.9
2005	2.6	1.1	1.8
2006	3.1	1.3	2.2
2007	3.1	1.1	2.1

The data suggest that men and women who do cycle appear to spend similar amounts of time cycling (Table 6), although men appear to cycle slightly longer distances than women (Table 7). Overall cyclists spend on average just under one hour per day cycling a distance of about 8 kilometres. It was not possible to calculate accurate standard errors of the average time spent cycling or distances cycled that account for the complex sampling design of the survey. The standard deviations of unweighted data suggest a large amount of variability in the length of time spent cycling and distances cycled by population group. It is also important to note that distance calculations are based on straight line "crow-fly" distances from point A to point B. These may be inaccurate for

cyclists, if for instance cyclists go out of their way to use cycle lanes or cycle on smaller roads. Distances should therefore be interpreted with caution.

Table 6: Average time (minutes) spent cycling

	Male		Female	
	2001	2005-7	2001	2005-7
Winter	43.8	50.4	44.1	43.4
Spring	50.6	57.1	44.5	50.5
Summer	50.6	48.1	46.2	51.2
Autumn	50.1	47.7	48.7	49.0

Table 7: Average distance (km) cycled

	Male		Female	
	2001	2005-7	2001	2005-7
Winter	7.4	8.1	6.7	5.6
Spring	8.5	10.4	6.8	7.6
Summer	8.2	8.7	5.8	7.5
Autumn	9.5	8.4	7.6	6.8

Ethnicity

Data from travel diaries suggest that White men are the population group most likely to be cyclists, while Black and Asian women are the groups least likely to cycle (Table 8). Over 8 out of 10 male cyclists are White compared with over 9 out of 10 female cyclists. The distribution of cyclists by ethnicity does not appear to have changed over time (Table 9).

Table 8: Percent of adults who are cyclists, by ethnic group

Ethnicity	Men		Women	
	2001	2005-7	2001	2005-7
White	3.4%	3.6%	1.3%	1.6%
Black	1.9%	1.4%	0.1%	0.2%
Asian	0.9%	0.8%	0.1%	0.0%
Other/Chinese	2.1%	2.3%	0.7%	0.5%

Table 9: Percent of cyclists by ethnic group

Ethnicity	Men		Women	
	2001	2005-7	2001	2005-7
White	86.8%	86.1%	93.5%	94.1%
Black	5.7%	4.4%	1.3%	2.4%
Asian	2.8%	3.7%	0.8%	0.3%
Other/Chinese	4.3%	4.6%	4.4%	2.9%

Age

Adults aged 30-44 appear to be marginally the age group most likely to cycle, followed by adults aged 19-29 and 45-59 (Table 10). Cycling in every age group appears to have increased over time.

Table 10: Percent of trips made by bicycle, by age group

Age group	2001	2005-7
18-29	0.74%	1.82%
30-44	0.84%	2.09%
45-59	0.74%	1.75%
60-69	0.63%	0.95%
70+	0.35%	0.77%

Male cyclists aged 30-44 appear to cycle longer and further than men in any other age group (Table 11). Young women aged 18-29 appear to cycle longer and further than women from other age groups.

Table 11: Average time spent cycling and average distance cycled, by age 2001

Age	Men		Women	
	minutes	km	Minutes	Km
18-29	47.6	8.3	56.5	8.2
30-44	52.4	10.3	48.9	7.5
45-60	47.3	6.8	36.7	4.1
60+	40.2	4.9	35.3	2.9
Total	49.0	8.6	46.5	6.8

Household income

At the time of writing analyses of cycling data according to *household income, location of trip and purpose of journey* were unavailable from the LTDS. It is anticipated that these data will become available from TfL at the end of 2009. The following analyses are based on data collected on 2001 only.

Cycling would appear to be socially stratified, with both male and female cyclists more likely to come from more affluent households (Table 12). Male cyclists from relatively affluent households appear to ride longer and further than men living in households with incomes less than £15,000 per year (Table 13).

Table 12: Percent of adults who are cyclists, by household income, 2001

Household income	Men	Women	Total
<15k	2.6	0.7	1.5
15-35k	3.0	1.2	2.1
35k+	3.1	1.2	2.2
Total	2.9	1.0	1.9

Table 13: Average time spent cycling and average distance cycled, by household income, 2001

Household income	Men		Women	
	minutes	km	minutes	km
<15k	47.7	6.9	51.7	5.5
15-35k	46.4	7.8	44.5	7.6
35k+	52.4	10.5	45.0	6.8
Total	49.0	8.6	46.5	6.8

Location

Well over one half of all cycling by women occurs within inner London only (Table 14). Men are more likely than women to cycle from inner to outer London (or vice versa). Approximately one third of all cycling by men and women occurs in outer London only.

Table 14: Percent of cycling by location of trip, 2001

Location of trip	Men	Women
Within inner London	45%	58%
From inner to outer London	10%	5%
From outer to inner London	10%	4%
Within outer London	35%	33%
Total	100%	100%

Purpose of trip

The majority of cycling among both men and women occurs to and from work (Table 15). Women appear to be slightly more likely than men to cycle for shopping or personal business reasons.

Table 15: Percentage of cycling by purpose of trip, 2001

Journey purpose of trip	Men	Women
Work	67	63
Entertainment/sport/social	19	17
Shopping/Personal business	12	17
Drop off/pick up	2	3
Other	0	0

In summary, Londoners are making more trips every year (Transport for London 2009) and more of those trips appear to be by bicycle. However, much of this increase appears to be the result of existing cyclists making more trips, rather than more people taking up cycling. The relative under-representation of both women and those from minority ethnic communities has remained the same.

From cross-sectional data, it is not possible to identify which modes of transport are abandoned in favour of the bicycle by those making more trips. Further, in a city where people are constantly moving in and out, we cannot identify whether increases result from those who live in London taking up cycling, and/or whether those moving to London are now more likely to be cyclists.

Cycling training uptake

Cycle training policy

Cycle training has a long history in the UK although its content and delivery arrangements have changed radically in recent years. The national Cycling Proficiency scheme was introduced in 1947 and managed by the safety charity, RoSPA. The scheme, which offered off-road cycle training to mainly school children, ran nationally from 1958 until 1974 when responsibility for cycle training for road safety purposes was passed to local authorities. The National Cycling Strategy was endorsed by government in the 1998 White Paper 'A New Deal for Transport'.

According to CTC, cycle training 'may play an important role in a number of areas by

- Reducing casualties sustained by cyclists in the target groups;
- Supporting and empowering those who want to cycle, especially as part of a physically active lifestyle;
- Addressing negative aspects of some cyclists' behaviour, both in relation to other users, such as pedestrians, and in relation to highway law and regulation;
- Preparing younger road users to be safer users, whatever mode they ultimately adopt.⁵

With the aim of increasing cycle journeys, a set of milestones were proposed by CTC and adopted as policy, first by the former National Cycling Strategy Board. Elements were then included in the 2004 Action Plan on Cycling and Walking and the White Paper 'Choosing Health'. These included the approval of national training standards, an increase in the number of training providers, the training of 60% of 11 to 12 year olds to on-road standard, and the availability of adult training opportunities in 75% of local authorities. Training, accredited by Cycling England, is now available nationally and provided either by local authorities' in-house training teams and/or other organisations such as Cycle Training UK.

The content of cycle training has also changed since the days of RoSPA's Cycle Proficiency Scheme. A Transport Research Laboratory (TRL) study (Wells et al. 1979) found that children trained on-road performed better in manoeuvres post-training than children trained in school playgrounds. It also found that older children (9 and 10 year olds) benefited more than younger ones (8 years old). Findings from a more recent TRL study (Savill et al. 1996) suggest that children whose training includes on-road experience, is carried out over a number of weeks, and takes a problem-solving, individualised approach are safer cyclists.

Current adult cycle training provision follows a client-centred philosophy, offering one-to-one or small group sessions tailored to meet the needs and experience of the trainees. On-road training and theory are included. There is an accreditation process for cycle trainers who must undertake an approved training scheme overseen by Bikeability and, in general, the availability of cycle training and its relevance for on-road cycling has improved over recent years.

⁵ see the section on The National Standards for Cycle Training, Related Government Policy on the CTC's website <http://www.ctc.org.uk/DesktopDefault.aspx?TabID=4283>

Cycle training in London

Cycle training for adults is available free or at low cost in all London boroughs with support from Transport for London. However, there is no standard data collection system used by London boroughs and pan-London data on the provision and uptake of adult cycle training are not available. It is not possible therefore to report on the number of adults trained in London in a particular year, changes in the uptake of cycle training or the profile of those who participate in training. Data from Cycle Training UK (CTUK), the largest cycle training organisation offering courses in London, provides information on some London boroughs (Table 16).

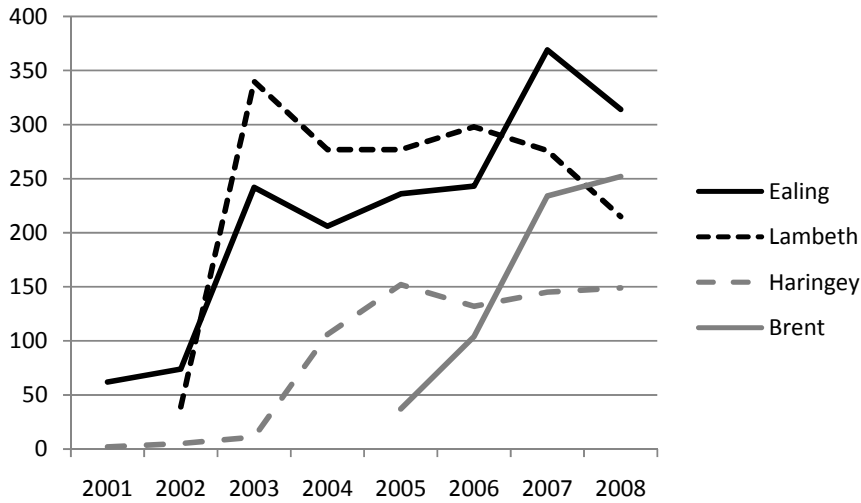
Table 16: Total number of adults trained by (funding) borough*

Borough	Year								Total
	2001	2002	2003	2004	2005	2006	2007	2008	
Brent					37	104	234	252	627
City of London						56	56	50	162
Croydon			9	20	15				44
Ealing	62	74	242	206	236	243	369	314	1746
Hackney	3		2		77	73	164	162	481
Hammersmith & Fulham				46	97	116	108	119	486
Haringey	2	5	11	106	152	132	145	149	702
Kensington & Chelsea		1	127	66					194
Lambeth		39	340	277	277	293	276	215	1717
Redbridge				60	98	80	78	76	392
Southwark	7	3	60	132	130	142	79	11	564
Total	74	122	791	913	1119	1239	1509	1348	7115

*In some cases funding is provided by one borough but individuals actually take a training course in another borough. Numbers trained refers to attendance at first training session (to avoid double counting of those undertaking training).

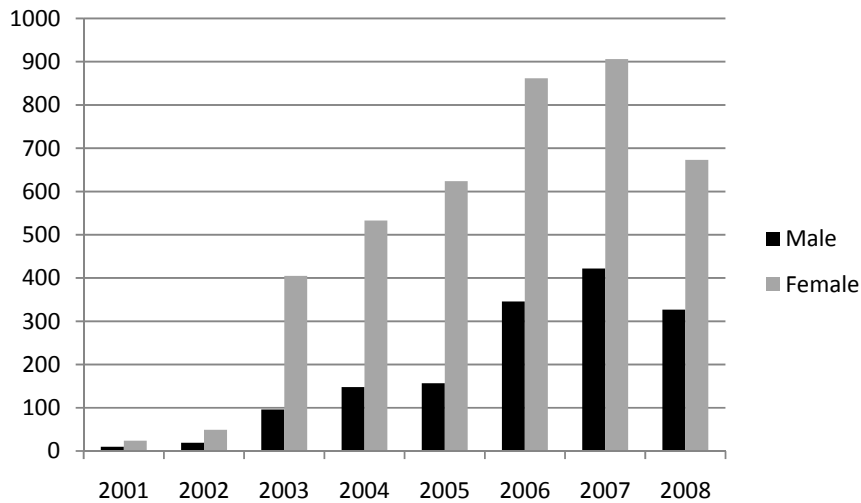
There was a general increase in the number of adults trained by CTUK from 2001 (from when data are available) to 2007 when the numbers in some boroughs (e.g. Lambeth and Ealing) fell. Figure 2 shows the number of adults trained by CTUK in the four London boroughs with the largest number of trainees between 2001 and 2008. In all boroughs but Brent, the numbers fell or remained the same between 2007 and 2008. The reasons for this are not clear, but may be related to availability of funding, the promotion of training opportunities, interest from local people, or other considerations.

Figure 2: Number of adults trained by CTUK in four London boroughs 2001-2008



Women are more likely to take up training opportunities than men with, on average, 73% of cycle trainees between 2001-2008 being female. Figure 3 shows the numbers of men and women taking up CTUK training between 2001 and 2008. However, these data should be interpreted with caution as data on trainees' sex suffers from a large number of missing values (21%). Those whose sex was described as 'unknown' or 'mixed' are excluded from Figure 3.

Figure 3: Numbers of men and women trained by CTUK in 11 London boroughs 2001-2008



Reliable data are not available on the age and ethnicity of those taking up cycle training.

Findings 2: Qualitative Findings

We present the main findings from the qualitative study in four sections. First, we discuss the general views of the participants on travel mode choices available to them in London. Our findings suggest that moral as well as practical criteria underlie decisions about transport choices, and that many people feel an obligation to travel responsibly, in ways that minimise impact on the environment and maximise potential gains for health. Within this perspective, which was stronger in inner than outer London, the bicycle has come to be seen as not only the most morally prized mode of transport, but also one providing many advantages prized by Londoners: independence, speed, efficiency and health. We summarise these advantages as 'automobility'. To consider how the propensity for cycling might be linked to social identities, we then explore how it is possible to see the bicycle as providing automobility in principle, and then, in the third section, how individuals come to see themselves, specifically, as being the kind of people who could take advantage of this automobility: how they 'become cyclists'. We suggest these processes are made more or less likely by different social and cultural identities. Finally, we draw out some of the more specific ways in which gendered and ethnic identities were associated with prioritising the bicycle as a means to 'automobility' and seeing yourself as a cyclist.

A 'new' hierarchy of transport mode choices?

Inner London

Modern cities have been characterised as dominated by 'automobility', a system in which car travel is prioritised, and the private motor car becomes viewed as the primary mode of preferred transport (Böhm et al. 2006; Freund and Martin 2004; Urry 2007). In this context, a perhaps surprising finding was that positive views of cars, or car transport, were muted in our data, with almost all of those interviewed in the two inner London boroughs considering the private car an inappropriate and inconvenient choice for most journeys. A typical response from inner London was:

I wouldn't consider driving in London, I'm never driving again. I don't have a car – I stopped having one 6 years ago (Camden, cycle trainee)

A few reported that they would in principle prefer to drive, but that congestion and cost made driving inefficient. Private motorised transport may once have been a normal

expectation, but there was no evidence that it was for participants in this study in the two inner London boroughs, who were drawn from a wide population range. One woman, for instance, who owned a car and recalled having learned to drive when she moved to London over thirty years ago because 'it would have been ridiculous to be in London and not drive', now reported that she now preferred to use the bus services for most journeys. Asked why, she said:

A) to save the world [laughs], B) to save my petrol B) you don't know where to park C) you get a ticket every time you turn like this, so that's why. [laughs]
(Camden, cycle trainee)

Her list of reasons neatly encapsulates the challenges of driving in London, but the throwaway comment 'to save the world' is interesting. It reflects a general view among those interviewed that environmental concerns are now a key element of accounting for preferred transport modes. By this we mean that they are commonly referred to, and referred to in a way that suggests that this is an accepted view, and that there is an obligation on Londoners to consider the environment when choosing transport. Although few people reported actually *choosing* to cycle or walk primarily for environmental reasons, most noted that these modes were 'better for the environment', suggesting that this had become a relevant criteria for assessing transport modes. Not surprisingly, cyclists were the most expansive on the environmental benefits of cycling. This woman is open about the positive feelings she experiences from the environmental, and health, benefits:

it makes me feel smug in the sense that I'm doing something that's not hurting the environment, 'oh I'm so good I'm cycling, I'm being fit and I'm not hurting the environment'... so yeah I do feel smug thinking, I'm cycling to work, I'm not going to get fat (Camden, public sector employee)

However, those using all travel modes made routine comments that suggested cycling has a moral status as the most virtuous mode of transport, because it minimised environmental impact whilst maximising the possibilities for future personal health gain. One commuter who had toyed with the idea of cycling, but was put off by the road danger, said he had considered cycling because:

I think it [cycling] would make a big difference. It would be nicer to think that I'm contributing to cutting down on all the CO emissions and all the rest of it, and

not being the one pumping up loads more into the air. (Camden, public sector employee)

If cycling was at the top of the moral hierarchy, car travel clearly occupied the bottom rung. That this hierarchy was assumed to be widely shared was evident in the ways in which respondents 'defended' their use of cars, and assumed that this transport choice would now need to be made accountable in some way. Illustrative is this account from a focus group, in which a woman reports how she defended her decision to drive to work against her daughter's claim that 'driving was the new smoking':

F You know my daughter's, very environmental, she's all green, very green, and she labelled me by saying, you know, car driving is the new smoking, I said, OK. [Laughter]

F Exactly, I said, are you telling to somebody who's been taking the bus for two and a half years from all the way to [outer London borough], and here, I can live with that. And I think if there were, I know there are a lot of positive images in the paper about bicyclist people, but they seem to be doing the right thing and we're not, I totally understand that, they are doing the right thing, I'm not disputing that, but some of them need to be taught how to drive... (Camden, Focus Group)

Far from being enmeshed in the system of automobility, the participants in this study, from a range of ethnic groups and settings, largely agreed that driving was not only inconvenient, but in many ways now assumed to be a choice one had to defend, rather than an automatically assumed right. Cycling was at the top of this moral hierarchy of transport modes as it not only 'saves the planet' but contributes most to personal health maintenance, with walking, then public transport use, then car driving at the bottom.

The role of public transport within the hierarchy was less explicit and often only visible when people stopped to account for their decisions, and had to think about the relationship between pollution risks and their decision making, as suggested by this man (who cycled regularly):

But I mean even though I don't really drive, and even though the buses and the tubes are going to run regardless if I'm on it or not, so it's more of a, I guess, a, it's [the environment's] not as, it's not that great of an excuse or not that great of a reason. But it feels good to me. Yeah. (Camden, public sector employee)

Outer London

Those in the outer London borough of Richmond were willing to describe car transport in more positive ways, especially for journeys around outer London:

Yeah, I don't really ever find it a problem having a car....I don't mind traffic jams because I find that I use that as thinking time, and listen to music, not really, no, not really, there's not really anything bad and then I travel on nice roads in a nice area so. (Richmond, cycle trainee)

I don't have to walk to the bus stop, I don't have to wait for a bus, I don't have to get on the bus full of school kids. I don't get wet in the rain. Just convenience really. Just for personal selfish reasons. Yes. And it's comfortable. I can sit in the car and listen to the radio. (Richmond, cycle trainee)

For some in Richmond, particularly mothers, the demands of work, school and children's activities made the car a 'necessity':

Well first of all if I need to use the car for work, the, probably the weather. Also when my, my son's bigger now, but if I wanted to be available in case anything happened at school or anything like that then I've got, it, I'm more responsive, so those are the sorts of things. (Richmond, cycle trainee)

We've also often got quite a lot to carry, book bags, gym kit, or PE kit, lunchboxes ... Mondays and Fridays, I have to pick them up because I'm then taking them on to other after school activities like swimming and stuff. (Richmond, cycle trainee)

However, this woman also notes that she feels she 'should' walk or cycle for many journeys she makes:

there's not really any excuse, to be honest, especially in the summer and it's, sometimes in the summer we do try more to walk but we should walk more, or we should, they're very good at cycling so they love cycling, but because I can't cycle very well then we don't cycle often ... there's really no excuse (Richmond, cycle trainee)

Indeed, even in Richmond, despite a greater willingness to use the car, even for short journeys, and to be positive about the advantages of driving, the views of car drivers

were tempered by an acknowledgement that there had been a shifting acceptability of this as a choice. Those who preferred to use cars for all or some journeys often followed up with comments that suggested they felt this had to be defended as a choice, or at least their environmental impact had to be acknowledged:

I'm travelling in it on my own and I probably shouldn't be, I should probably be sharing it with somebody and I'm probably not doing much for the environment. (Richmond, cycle trainee)

I suppose things like my carbon footprint and things like that, I do, I'm aware of that for other journeys and things so perhaps, so yeah ... Well, I walk more now. I take the car less. I rarely take the car shopping now, I tend to walk down to the, we've got a couple of supermarkets and I tend to walk down and do smaller shops now, or I shop on my way home (Richmond, cycle trainee)

I get to use my car whenever I need to, it's, it just fits around me rather than me having to wait for public transport. I'd say it's quicker, because I have tried the bus and that didn't really work for me. Yeah, it's just more flexible, quicker and, I'm not sure if it's the cheapest option, but it's OK for me, yeah.... [but] Well, I do carry a lot of guilt about the environment because that's something that concerns me. (Richmond, public sector employee)

Coming to see the bicycle as providing 'automobility'

If car driving once provided the illusion of 'automobility', and the promise (if not, at least in inner London, the practice) of autonomous, efficient and comfortable travel, in many accounts from participants, cycling now appeared to offer these advantages.

A study of cycle couriers by Fincham (2006) suggested that they subverted 'the 'normalised' world of the motor-car' (p217) – because they (apparently) have true 'automobility' unencumbered with the antagonisms of car based automobility – they have the ability to ride when and where and how they want, and can break rules of the road with more impunity. What was striking about our data was that a version of this view was common among not just ordinary commuter cyclists, but also other transport mode users. Indeed, one made the explicit connection that for him, cycling now provided the seductive 'freedom' typified by the car advertisement image:

You're in your four by four and you're driving up this mountain on your own... I feel that when I'm cycling (Camden, public sector employee)

Within inner London, cycling was presented by most cyclists and many non-cyclists as (potentially) providing **the** most independent and efficient method for travelling the city. For those in Richmond, cycling could be seen as potentially providing this kind of automobility, but in practice cars were still seen as providing convenience and efficiency.

Cycling is associated with independence

Freedom

As a modern adult in Western cities, there is perhaps a cultural bias towards 'independence', in that there is a responsibility to be self-mobilising, without recourse to other people and systems. In outer London, some residents still saw the car as providing this kind of independence:

You've still got the convenience of the car so it's probably about control as well, I probably just like being in control. I feel, like on the bus and on the train you haven't got the same element of control, I feel pressured in the morning a bit, because with a car you can just go out, it doesn't matter if you're ten minutes late, say, whereas I know catching the train I've got to get that at that time. (Richmond, public sector employee)

However, in inner London, what the car once provided (learning to drive being a rite of passage to adulthood, and the ability to drive oneself and one's family around a foundational aspect of bourgeois competence) can now be offered by the bicycle, at least for urban, single professionals. Asked what was important about cycling, one cyclist responded:

Independence, so I don't know you're never going to be, well you can get a puncture but if you know how to change a puncture then you're pretty independent and you don't have to rely on tubes running or buses not breaking down or tube strikes or whatever. You don't have to go anywhere the buses go so, it's flexible, it's transport from your origin to your destination, you don't have to get off and walk or change or, it's inexpensive although it costs to maintain your bike. (Camden, public sector employee)

Cyclist often used the word 'freedom' to encapsulate the sense of independence provided by cycling for transport. For one regular commuter, 'freedom' referred to both a sense of the mind being freed from workplace and other worries, and a sense of independence from other people's control over your transport:

So on a bike ... I can use it as thinking time, free time ... at the end of day it's kind of like quality time with me thinking about not just work, but thinking about things ... I can get on my bike from here, and I can leave, I'm my own person, and I'm ... in control of that, allowing for certain things possibly not going wrong, I'm in control of that. (Camden, public sector employee)

The idea of freedom was also appealing to non-cyclists. One, asked why he would like to cycle, suggested that environmental benefits were an issue, but also:

I suppose also the freedom of cycling, you can choose more easily when to leave and you're not reliant on tubes (Camden, public sector employee)

'Blackboxing' technologies

In the accounts of cyclists, particularly, the bicycle is presented as providing 'true' independent travel, as if there were no networks of technologies and people (streets, rules of the road, manufacturers) that enabled the bicycle to move an individual from one place to another. In practice, of course, a range of systems and technologies are needed. These were evident in the accounts from interviews, and some cyclists were honest, even proud, of the logistics needed to accomplish regular commuting. One, who had a 15 mile commute to work, suggested that 'routines, habits' were necessary to manage this. He discussed the need to maintain a bike, be proficient at repairing punctures, and the need for the right kind of clothing (ie that which did not mark you out as a new or overly anxious cyclist). On the need to change for work, he talks through the necessary planning:

you've got to have things prepared in advanced. And that's a little bit time consuming, both in advance, and when you leave to go back, if you like after a day at work, if you like. So that could be anything from ensuring that you've got a rolled and ironed shirt to bring in, suit's here, stuff like that, or whether it's even bringing in new towels, packable towels, or such like, anything. There's a whole range of different things that I have to think about before I leave, as well as my gear that I wear to actually cycle in, so there's that just to consider. That happens, it's almost part of the whole cycling experience, and it's one that can make me feel good or bad about the whole cycling experience before it's even

started, so just so you know there's that to consider.... quite often I bring a lot of stuff here and leave it here, and it seems a bit funny to bring in eight pairs of socks, or five pairs of socks and put them in a locker (Camden, public sector employee)

However, regular cyclists usually underplayed these preparations, and the technologies needed to achieve cycling were often only visible in their 'absence', when for instance, road systems did not work well for cycling, or technologies or resources (places for storage, skills needed to mend a bicycle) were missing. Non-cyclists, and recent cyclists, were more likely to draw attention to the logistics needed to cycle from place to place, and the systems needed to make a journey possible. Indeed, some were cited explicitly as barriers to cycling. These include: the complicated arrangements needed to facilitate a change of clothes on arrival at work, to the systems of passes and locks and bike sheds at some work places; to the systems of sophisticated codes of rule-breaking and negotiation on the roadways. One non-cyclist alludes to the systems needed in her account of her workmates routines: what many called the 'palaver' of cycling:

People that cycle come into the office and they have to, must have a shower every day before and then you've got the wet towel hanging around or whatever... cyclists are always in a bit of a flap about, oh my God, I need to have a shower, I haven't had a shower, or need to get into their cycling gear before they go out. I suppose for them it's a bit of extra inconvenience. (Camden, public sector employee)

For several commuters in Richmond, the existence of facilities to shower or change at work was not enough to offset the barrier of needing to look presentable for their work roles:

other jobs I've had it didn't matter so much because the dress code at work wasn't important so if I wanted, to choose to not look that presentable I could say, OK, I'm going to cycle anyway, I'm going to be wet, I'm going to be this, but because I've got, we have a dress code there I have to, so quite often it's more tempting to hop on the bus (Richmond, public sector employee)

Achieving familiarity with the informal cultures of the road

In addition to the 'palaver' (changes of clothes; shower facilities and the logistics of having shampoo, soap, towel; remembering if you need to meet a non-cyclist for an event after work) were the informal rules of cycling in London that had to be acquired if it was to become a routinised activity. One new cyclist commented on his own emerging sense of this:

because quite often I've stopped at a red light and someone's pulled up and just cycled straight past me and I'm going, what .. Yeah, do I just look like an idiot now, do I just have 'newbie' across my head? (Camden, cycle trainee)

We discuss below in more detail the 'attitudes' seen as necessary to cycle in London, but for some commuters, a level of aggression, or at least toughness, was seen as essential to be a cyclist in London specifically. One, who described his journey along some of London's most busy thoroughfares with some pride, described himself as 'an urban warrior type' who had the particular attributes needed to cope with the dangers:

I'm a hardened cyclist, I won't have people just cutting me up ... you have to be thick skinned (Camden, public sector employee)

He contrasted his own attitude with those who were new to cycling, and less familiar with the ways in which it was, in his view, necessary to deport oneself on the road:

and I've seen a lot of people on the road who clearly, they're, it's not that they're learning, but they've gone on, they obviously know how to ride a bike, but not necessarily urban. And so they've gone to try it, and I'm not talking even Central London, I'm talking even suburban London ... and they're clearly a little bit unsure of themselves. Where to be, where to place themselves (Camden, public sector employee)

In the accounts of cyclists, these cultures, and the systems needed to facilitate a cycle ride, become normalised, and largely invisible. Once a routine of cycling has been established, the bicycle can be constructed as an autonomous object, or a kind of mechanical extension to the human user that merely enhances their autonomous mobility or, at worst, provides a minor inconvenience:

Locking it up can be a bit of a pain and if you want to go shopping on the way home and you've got a helmet and a bag with your clothes and lights and locks,

it's a tiny bit inconvenient *but yeah, it's nothing* (Camden, public sector employee, emphasis added)

For some new cyclists, the 'palaver' factor was reported as less burdensome than they had anticipated. Such challenges as finding reasonable routes to work, or remembering the clothes or equipment needed could be accommodated along with other routines of daily life. As we discuss below, it is learning to 'blackbox' these routines and systems that enables people to become cyclists. Coming to see the bicycle as not only providing independence in principle, but also in practice, entailed a process of learning to experience cycling as 'freedom', learning to routinise the 'palaver' and acquiring fluency in the informal cultures of the road.

Coming to see the bicycle as efficient

The second element associated with automobility was efficiency. For many of those working in London, transport 'efficiency' was a prime consideration, with a desire to make journeys in the shortest time possible, and also to utilise the time spent travelling in a utilitarian way so that it was not 'wasted'. This could be, for instance, using bus journeys to read or study. Again, for cyclists, the cycle is the most efficient method of travelling around London in these accounts, and perfect for those for whom time is a precious resource, not to be 'wasted'. Time spent cycling is time used for getting from A to B most efficient way possible, as it is often the fastest way to make central London journeys.

It's quite satisfying as well when you're whizzing past all the queues of traffic, when you're in the bus lanes, I do like that feeling, I'd be like ha, ha, ha. Get a bike. (Richmond, public sector employee)

As importantly, it is time utilised instrumentally, to enhance both physical and mental health:

The good things are the exercise, I don't have to be a member of a gym and that it's free, I've got the bike and it just helps me unwind (Camden, private sector employee)

It's just one way of incorporating exercise into your daily routine, so it's not such an effort, it is an effort to cycle but I'm sure it gets easier once you get used to it. *Yeah. Are you generally an active person?*

I am yeah, but sometimes it's just as hard to fit in the gym around everything else that's going on, so I do enjoy sports and gym and that, but sometimes it's a week can go by and you just can't fit it in, whereas cycling I think you can.
(Camden, cycle trainee)

Cycling as healthy: prioritising future health gain over injury risk

The third aspect of cycling as automobility, and related to the instrumental perception of cycling time as health-promoting time, was that cycling was seen as promoting a particular kind of health. Health and safety were important considerations to everyone in terms of transport, with travellers concerned for instance at the potential for illness resulting from crowded underground trains, and the mental health effects of being stressed by transport unreliability or crowding. Cycling prioritises a particular kind of health: primarily future-orientated 'fitness' that is built up by the physical exercise and also, for some, the mental health benefits of enjoying being outdoors and the physical task of riding. The intrinsic 'joy' of cycling was an issue for many. Although London's streets were seen as stressful, this was framed as a positive health benefit for some, who enjoyed the excitement of having to be alert, and developing quick reactions. Non-cyclists were more likely (not surprisingly) to focus on the immediate health *damaging* potential of cycling in terms of injury, or negative mental health effects of stress from cycling in London.

An issue for a small number of respondents was the idea that cycling might deplete a limited store of energy. One woman who cycled for some journeys noted that the energy needed for cycling was sometimes a barrier for other journeys: if, for instance, she had a hard day at work, or an exercise class afterwards, there might not be enough 'spare' energy for cycling. Another participant suggested it could put people off completely:

I know for sure a lot of people don't [cycle], probably because they're not used to it, or they weren't brought up to do it, or it's just not an idea, it's not an ideal thing for them, because to them it would be like, why use so much energy to cycle around when you could use it doing something else, housework and all the lot, and taking care of the kids, yeah? (Camden, public sector employee)

For non-cyclists, although cycling could be seen as healthy in that it promoted longer term fitness, there was a sense in which it could portray a 'too-healthy' identity, suggesting a dysfunctional level of concern with one's own physical health:

[cyclists] tend to be fitness fanatics (Camden, public sector employee)

This sense of an 'over-concern' with health or the environment extended to moral meanings as well: cyclists could be seen as 'sanctimonious' and overly concerned to do the right thing, which had negative connotations.

I stick them all in with the Greenpeace and all this. You know what I mean, all the ecological lot. So sometimes that irritates me slightly because sometimes I sort of feel they think they are so, so holy. I feel that some cyclists are eco warriors, on a bike instead of a horse. (Richmond, cycle trainee)

people who are labelled cyclists are labelled a little bit like tree hugging hippy kind of thing (Richmond, public sector employee)

The next sections develop these variable cultural meanings of cycling, and how these criteria (independence, efficiency and health benefit) might be shaped by the various social identities that are important to those in London. The first 'identity' to consider is that provided by your transport mode choice.

Becoming 'a cyclist': transport mode as identity

In London, being able to treat the bike as a means to providing the prized (by some) criteria of independence, efficiency and health entails a process of learning to do it, of learning to become 'a cyclist'. Not all cyclists saw 'cyclist' as part of their identity. For leisure cyclists, cycling was something they did, not something they were:

I can cycle but I'm not a cyclist because I don't think I can justify that because I don't ride it enough. (Richmond, private sector employee)

Even among those who did cycle regularly to commute, several men in the sample explicitly rejected the idea that being a 'cyclist' helped identify who they were:

It's just, it's just part of what I do. I don't consider it as being a separate little stripe on my arm or whatever (Camden, private sector employee)

However, many respondents, particularly women, did explicitly identify themselves as 'a cyclist', and often as a particular *kind* of cyclist. In this respect, cycling differed from other transport modes, which were not discussed as 'identities' in the same way, in that

people did not in the interviews describe themselves as 'a pedestrian', 'a bus passenger' or 'a motorist'. The following quotes are all from female participants:

I have a bike and I cycle quite regularly. I'm not a cyclist in terms of I don't have all the Lycra or any stuff like that. And I don't like, I don't join a cycle club or anything like that, I just, because I cycle, I say normally I'll cycle four days a week or if not five days a week so I feel I'm a cyclist, I'm a regular cyclist.
(Camden, private sector employee)

I suppose I put myself into a category of cyclists, I'm not one that gets all Lycra-ed up and goes off on a Sunday morning kind of thing, but yeah (Richmond, public sector employee)

Yeah, I definitely, I kind of identify with people who cycle. I feel slightly warrior like, like yeah I feel like it's a bit of an effort, so I feel like it's something I do which is for my benefit but also for the benefit of the environment so it gives me a slight sense of, I don't know if moral superiority is the right way of putting it without sounding like I think I'm much better than everybody else but it's an effort and I feel sort of pleased with myself for going to that trouble to do that.
(Camden, public sector employee)

One participant noted that this identity aspect was a particular feature of cycling in London, compared with cities in which cycling is more normalised, and therefore not a characteristic that would distinguish you from other people:

It's funny, not before, not in [previous city] because it isn't a very strong sense of identity is it when everyone else is doing it. But here the moment I heard about the Bike Riders Association it kind of gave a sense of identity. And also I guess the fact that fewer people, very few people, well there are people who cycle and then you meet them, and maybe after all you just have this yeah 'I'm a cyclist', kind of actually yeah. (Camden, public sector employee)

In London, where cycling is still a relatively uncommon mode, particularly for women, being 'a cyclist' could be explicitly a positive aspect of your social identity, helping to distinguish you from others. For all of those who cycled, whether they were willing to label themselves as 'cyclists' or not, there was a sense in which the 'palaver' that was a barrier from non-cyclists had become, to a greater or lesser extent, 'blackboxed', enabling cycling to be perceived as the ultimate independent, efficient and healthy way

to travel. Indeed, for some cyclists, the car could then be seen as the more troublesome option. For one woman from Richmond, cycling meant:

Not dragging a huge great vehicle around with me full of petrol and burning up, you know, not having to pay for parking. Being able to take my bike anywhere, really. Having to leave it in the car park, two and a half miles away while I have to, all that kind of stuff which you have to do. I mean the difficult things are if you have got a lot of shopping then it's a bit of pain. But no, I think it's just so much easier. It's quicker and easier, isn't it? (Richmond, private sector employee)

Before looking at why this may be less likely for those from some population groups, it is worth outlining some necessary conditions of being the kind of person who might 'become a cyclist'.

Becoming a person who cycles

We have suggested that most of our participants, from a range of backgrounds, saw cycling as a morally worthy mode of transport, but not necessarily one for them. To move from seeing cycling as something people in general might do, to seeing it as something appropriate for yourself, and then as something you do regularly, requires a number of conditions to be met. For many adults, learning the physical skills of balancing and riding a bike were a first stage for those who had not learnt as a child. Seeing yourself as someone who was capable of cycling was an important step for some that was gained from cycle training:

I've realised that it'd be, I'm quite capable of doing it, which I hadn't realised that I was quite capable of doing it... Yeah, I suppose, realising that it's available for me, that I am capable of cycling and not thinking that it was available for somebody of [my age] and not particularly fit but it's open to everybody. (Richmond, cycle trainee)

As this suggests, for those new to cycling, an important precondition was often the recognition that 'people like you' could do it. This woman recalled the reassurance of seeing a range of people at her cycle training course:

I was, I was quite scared about starting the cycle classes ... And then I started to look at people and all sizes, all shapes, all ages ... there's also people who are just taking it very leisurely and all sorts of shapes and sizes and I thought, well if they

can do it, I can. And it does seem to be something that everybody, every age, you see older people and children and every, it seems and all, as I say all shapes and sizes. Some have got the full Lycra and you know they're much more keen, but there's other people in there, old bikes with the baskets on and things.

(Richmond, cycle trainee)

Incentives for those coming to cycle training to learn to ride were mixed, and included: wanting to acquire a new skill, wanting to help one's own children riding, feeling that it was 'embarrassing' not to be able to ride a bike, and wanting new opportunities for physical exercise or socialising. Acquiring the fundamental physical skills of balance and control was, for all beginners, the basic precondition of becoming a cyclist.

A second element was acquiring the necessary equipment, which might entail buying a bike and various accessories such as panniers, helmets, locks and lights. There were also a set of knowledges to acquire in addition to the physical skills needed, ranging from route planning to the intricacies of how the bike would be stored in particular homes and workplaces.

For those that had the basic skills and equipment, the next step was 'learning to ride in London' which was perceived to require a particular set of not only physical skills, but also attitudinal ones. These could be summarised as learning to be 'assertive' and 'alert':

I try to be assertive when I'm cycling, I don't go too near the kerb, I really try to be quite assertive and to be confident, I feel that you have to have a confidence that I'm going to get there, and I try not to take too many risks ... And my main thing is, this is my mantra, 'I'm a mum, I want to get home alive', so I don't take stupid risks, I just don't. But there are times when I think if I wasn't, didn't have my eyes and ears completely, well, all kind of alert, I would, there have, plenty of opportunities for me to have been knocked over, yeah. (Camden, public sector employee)

Finally, as we have suggested, to 'become a cyclist' rather than merely learn to ride a bicycle entailed coming to see the technologies, inter-dependencies and logistics of bicycle riding in the city as invisible, or at least non-problematic. For beginners, the technology of the bike was less taken for granted:

I was having a bit of trouble with the gears, and [one of the instructors] was saying that you should be starting on a low gear and working up, and that also

helps the bike in terms of the mechanism, and the chain, and the cogs and all of that, so that they don't wear out because you're not using one continuously, you're getting movement through all of them. When she said it I was like, I can't faff around with the gears all the time on the road trying to do this! (Camden, cycle trainee)

As people become 'people who cycle' these physical skills, technical accomplishments and knowledge bases become routinised. Both personal abilities and the networks (rules of the road, manufacturers, storage spaces, 'palaver' etc) would be taken for granted such that the 'bicycle could' be seen as providing true automobility.

Local cultures: the influence of where you live or work

In general, the level of aggression perceived within central London in general was a disadvantage and a barrier to cycling. However, more local aspects of where people lived or worked were more usually cited as facilitators. For those in Richmond, these were largely facilitators of leisure cycling, such as the availability of pleasant park and riverside paths for cycling. For those in the inner London boroughs, cyclists focused on the positive aspects of local built environments (cycle lanes and routes) and workplaces (storage, shower facilities) for commuting. Local cultures were also clearly important, particularly workplace cultures. One woman who had started cycling regularly to work after a mentor had helped her find good routes and feel more confident about London's streets noted the importance of this:

I think one of the biggest aspects for me of cycling to work as well, was that it is encouraged. Everyone, as soon as you get past the Holloway Road, you see lots of cyclists, it just looks enjoyable and there is this facility. [My workplace], everyone cycles. Whereas I don't think [my husband] has that at his workplace... (Camden, public sector employee)

Facilitating workplace cultures had infrastructure, such as showers and bike racks, as a necessary condition. One woman noted that arriving 'hot and sweaty' (Richmond, cycle trainee) was one disincentive to cycling to work, where there were no shower facilities. Another pointed to the positive moves in her workplace:

they're trying, as I say, they're trying to get putting in new showers which is good, they put in three new showers recently, and they've got good bike racks and I think they put in more, probably in the last four years they've put in more bike racks and as I say, they're running these courses with Richmond Council, so

they are trying to encourage people to cycle to work, which is great. I just hope people take it up ... (Richmond, cycle trainee)

However, until there was a culture of cycling, in which arriving at work by bike was normalised, such facilities were not, in practice, a sufficient condition. This woman went on to admit that cycling to work would also, currently, require a certain confidence she did not possess:

[You need] that kind of thinking, not to be embarrassed to turn up to work with a crash helmet, a cycle helmet, you know, that kind of thinking 'it doesn't matter'... you know, people [in an office] always comment on everything (Richmond, cycle trainee)

The unusualness of cycling makes doing it remarkable and noteworthy: merely bringing in a helmet is enough to attract comment. However, once a few people cycled, this encouraged others, and such visibility would reduce:

[In my workplace] nobody used to cycle, but once I started cycling in they could see that it was a good way of maybe coming in to work, so then people have toyed with the idea and some days this room will be full of bikes (Richmond, private sector employee)

For some, workplace roles simply did not mesh with their ideas of what cycling would entail:

[I] could cycle but you'd never really catch me doing that, to be quite honest... I like to be quite fresh in the morning and I like to feel confident in myself because you are dealing with people, clients, face to face and I know, obviously, there are facilities to sort yourself out at work but no. (Richmond, private sector employee)

Within residential areas, 'micro-cultures' could also facilitate people becoming cyclists. The most extreme examples were those who had started cycling when they had moved to areas of Hackney where cycling was prevalent. As more people cycle, it becomes more acceptable, and social pressure encourages people to take up cycling. One young woman reported how cycling was central to socialising in her local neighbourhood:

It's like a mini-Amsterdam here ... in the summer, we'll all be out, with bicycles with a beer (Hackney, cycle trainee)

Barriers to becoming 'a person who cycles'

For those who considered cycling an appropriate mode of transport for them, and had considered taking it up, there were still several potential 'barriers' that might need to be overcome before they could acquire the skills, equipment and knowledges summarised above, and became a person who cycled. To a large extent, these reflect those found in other research, so we discuss them briefly here.

Road danger

As reported in many other studies, the most commonly discussed barrier was the fear of injury on London's roads. Many participants reported having cycled in other settings, but that central London was off-putting, and that road danger was the primary reason for not considering cycling something they would do. Many respondents from Richmond were keen or at least occasional leisure cyclists, citing the many opportunities for cycling in the green spaces in the borough. Few, however, considered cycling in central London. One said those who did so were 'fit and brave', given that 'you're taking your life in your hands really' (Richmond, private sector employee).

In terms of what would reduce road danger, many non-cyclists mentioned more cycle lanes would be a help. Inevitably, cyclists themselves had mixed views on the safety and other implications of cycle lanes, with some very positive about the networks of cycle lanes, and planning routes to take them as much as possible, whereas others were negative, providing suggestions of places where they added to road danger (e.g. making it difficult to rejoin traffic) and suggesting that they added to the perception that cycling was inherently dangerous and had to be separated from the main traffic.

Aggression

In addition to the dangers from traffic accidents, many were also concerned about the level of aggression they might face on London's roads. Although few spoke about fear of assault directly, there was a general dislike of what was perceived to be an 'aggressive' style of travel that applied to all modes, but was particularly salient as a barrier to cycling. For many, this was a particular feature of cycling in London, not to cycling in general:

everybody in London is just so, there's so much aggression in London, I think it's absolutely incredible... actually whatever form of transport you use, I think people are aggressive and competitive and want to get wherever they've got to get to

one second faster. I'm as bad as anybody else, I'm infected by it you know, but, yeah, I think a lot of people have that. (Camden, public sector employee)

I think they're very brave people actually ... I do see those people and you can tell they're professional cycle commuters because they adopt the other attitude that I think almost you can see in their faces they've gone from feeling vulnerable to being aggressive to other people, ... that kind of psychological thing, thinking about that could actually change you to be an aggressive person. (Richmond, public sector employee)

Learning to be a cyclist in London required learning a rather precise amount of assertiveness: enough to be confident and not dithering, yet not too aggressive. The correct level is suggested in this account from a cyclist, complaining about the rising numbers of other cyclists in London. Many of them had not achieved this balance, and were:

people who perhaps aren't so confident or competent, whose bikes perhaps aren't as roadworthy as they might be. So you get people... hesitant, not signalling and then you get people at the other end of the spectrum who are incredibly aggressive and impatient. (Camden, public sector employee)

Cost

For new cyclists, initial outlay costs could be a significant barrier:

I asked if there are second hand because they are so expensive, I never believed it was three, and four and five hundred pounds ... Not £400, I'm not giving £400 for the bicycle. (Camden, cycle trainee)

Cycle trainers advised trainees not to buy the cheapest bike possible, as their experience was that these could be off-putting to ride, and a false economy. However, an outlay of around £350 for bike, panniers, lock and other essential items is a considerable expense, especially if it is additional to, rather than instead of, public transport costs. Few new cyclists want to make an immediate commitment to cycle every day. Oyster season tickets are cheaper than paying for three or four individual days travel, so most regular commuters use period season tickets which then provide unlimited public transport access. Replacing just a few journeys by cycle then did not make economic sense, and commuters were reluctant to 'spend twice' on transport to work. Season ticket fare structures, with unlimited travel, are thus a disincentive to active transport, making it unappealing to walk or cycle instead of using buses or tubes occasionally. Cycling was

only likely to be economically advantageous if it replaced most public transport use for regular commuters. Conversely, those whose circumstances meant they were unable to use period season tickets could benefit from the financial savings on 'pay as you go' fares:

I was going to be unemployed, so I thought a good way of saving money would be to invest, I guess I thought maybe £100 or so on a bike and all the equipment and then just not have to pay £2 or so, every now, every time I got the tube and so I thought it would pay for itself. (Camden, cycle trainee)

Cultural identities and cycling

The meanings of cycling (for instance, its associations with 'automobility') and the barriers to becoming a cyclist are to a certain extent generic, in that they were referred to by people from a range of backgrounds. However, social location and social identity shape the salience of issues such as how far independence is prized, or the social meaning of 'being a cyclist', or the significance of the costs of equipment. The next sections explore specifically how gendered and ethnic identities might shape these meanings, and thus change the likelihood of becoming 'a person who cycles'.

Gender and cycling

A 'gendered' transport choice

Previously considered a sometimes reckless, primarily masculine activity, women took to cycling in increasing numbers after the invention of the safety bicycle in the late 1880s (Wosk 2003). As a new technology, the bicycle became a vehicle for conspicuous consumption for bourgeois women, a way of exhibiting social class status (Mackintosh and Norcliffe 2007). Described as a 'genteel womanly domestic activity' (Mackintosh and Norcliffe 2007) by Frances Willard, proponent of cycling and author of *A Wheel within a Wheel* (1895), cycling became a way for women to domesticate public space and express a particular social and gendered identity. For many, the bicycle played a critical role in the feminist movement. In an 1896 interview in *New York World*, American Susan B. Anthony said: "Let me tell you what I think of bicycling. I think it has done more to emancipate women than anything else in the world. It gives women a feeling of freedom and self-reliance. I stand and rejoice every time I see a woman ride by on a wheel...the picture of free, untrammelled womanhood."

More than 100 years after the safety bicycle was invented, we found that cycling in London is still profoundly gendered in a way that other transport mode use is not. There was little in our data that suggested that participants thought of their pedestrian activity, bus use or tube transport in relation to their gendered identities, but cycling could and did contribute to the display of particular kinds of positive and negative gendered identities.

For women, positive identities that were easily synchronised with cycling were empowered, liberated and self-determining identities. One of our interviewees, a young professional woman in London, utilises this to contrast the willingness of her and her friends to cycle in London with the timidity of others:

One of the girls in my office, her boyfriend is afraid of, he sort of is moderately controlling and doesn't want her cycling because he's worried about her but there are two of us who do cycle in the office and we think it's completely ridiculous and silly, but *we're also the sort of people who wouldn't ever let anyone tell us what to do* (Camden, public sector employee, emphasis added)

Similarly, this middle-aged woman working in the public sector describes her reaction to her husband's concerns about cycling:

I think he thinks that I'm a bit of a cycle freak and I think men can be a deterrent to women actually, if they don't cycle to work, but I don't, I'm [my age], I don't care, I'm not interested in what he thinks now, I just get on my bike and ... if I listened to him I wouldn't do it, do you know what I mean? (Camden, public sector employee)

For these women cycling helps bolster a self-confident, independent identity as someone who can weather both the risks of the road and male power. Others, however, considered cycling to still be a more 'masculine' activity. For some, this was simply a reflection of the independence widely associated with cycling as a mode of transport. However, when transport needs are framed more communally, this kind of 'independence' is less salient. Reflecting, for instance, on why the women in her locality are less likely to cycle for transport, one woman suggests, if hesitantly, that working women would find it less convenient than working men, although non-working women might be able to fit it into a hectic lifestyle:

this road where we live here, it is a major thing, to a lot of the men, they cycle to work, they cycle quite a long way into town. ... that's not to say that women don't, but a lot of the women here are like me, they've got young children or even younger, so therefore it's a bit harder for them, if they've got the tag along but, with little seats on the back, but maybe [women who are cycling] are not *working* but yes, they do cycle around, a lot of people, at the school the children go to, because obviously it's fairly local, a lot of them cycle. (Richmond, cycle trainee)

For others, cycling was perceived as more inherently masculine, and cycling therefore carried connotations of less feminine behaviour:

What you'll find is the women that do cycle are probably more blokey than feminine, and it's easy for them to take their helmet off and just ruffle the hair and be prepared, they probably don't wear makeup, they are tomboys. (Camden, public sector employee)

While some may associate female cyclists with a 'tomboy' image, in recent years cycling in the UK has undergone a feminine makeover. An increasing number of specialist companies have been catering hyper feminine and fashionable cycling gear to women in the UK. Top Shop has even launched a cycling range. Blogs such as <http://londoncyclechic.blogspot.com/> (which aims to answer the question "Is it possible to cycle in London and look good?") have emerged to educate fashionable and feminine cyclists on the latest products. Sustrans has created a website called bike belles (<http://www.bikebelles.org.uk/>) aimed at women with sections on 'what to wear' and 'beauty tips'.

Cycling's hyper-feminine makeover has alienated some. Naomi, who writes a blog entitled '8 mile cycle' about her cycling commute in London posted about her frustration with a newspaper article on feminine fashion and cycling:

the most ridiculous quote was from the first interview and her comments around what she wears while cycling. "*To keep warm, I wrap myself up in a three-quarter-length Vivienne Westwood coat. If it's raining, I'll just wait for it to stop, but we don't have that many downpours*". Clearly this lady has not actually been on her bike very much for the last 6 months as it has rained and rained and I have been soaked to the skin on more occasions than I can remember, and they weren't downpours! Anyway, the amusement continues, "*If it's spitting I'll wear a*

beret..." hummmmm, a beret will be very good protection from the tarmac coming into contact with your head.... <http://8milecycle.blogspot.com/>

Naomi offers an alternative 'gendered' account, in which fashionable cycling is unrealistic, as physical exertion is part of the appeal ('I definitely sweat and am proud of it!'). Many of our interviewees gave physical exercise as a reason for cycling, and adopted ways to reconcile the physical exertion of cycling with a more 'feminine' professional identity:

I quite happily cycle in my jeans and trainers and a jumper and then sometimes change a bit of my outfit. I've got some high heels that I keep in my locker here that I'll wear around work and then change back into trainers. (Camden, public sector employee)

Some female cyclists reported enjoying this process of 'changing identities': of being, as one interviewee expressed it, 'all the Spice Girls' (Camden, public sector employee). It is of course not news that there are a range of gendered female identities available to women in London. What is striking is how cycling is an arena in which these are played out as alternatives: that to cycle apparently entails making some choice about 'what kind' (or even 'kinds') of female cyclist you want to be, in a way that does not apply to more 'normalised' transport choices in London. Walking, using buses, and driving no longer entail decisions about how to do so in a gender appropriate way. As one new cyclist expressed:

I'm really just coming to cycling I feel a bit, I think I lack a bit of confidence in that kind of thing. I just think, am I dressed right? Do I look, am I doing this right? ... look a total prat but I still ... anyway.

What's being dressed right?

I know, exactly. I know I swing between, should I go all in Lycra, or should I just go for the more girly look or, I can't quite decide on my image. But I think that's quite important. (Richmond, cycle trainee)

Aggression

One contribution to the 'gendered' nature of cycling was the level of assertiveness that was seen to be required to cycle in London. A few male cyclists admitted to enjoying the aggression that they saw as a necessary for London cycling. One recounted with some pleasure the feeling of motorised traffic speeding past on busy roads, and the risks of racing with other (willing) 'serious cyclists' on London's streets:

It's a bit of adrenalin; it's good for a moment (Camden, public sector employee)

No women in this study reported this kind of deliberate risk-seeking while cycling, although some did welcome the assertive identities they adopted on the road ('I feel slightly warrior like' Camden, public sector employee). For many, though, the aggression, or assertiveness, was a barrier. First, as we noted above, the level of perceived aggression on London's central roads was an explicit barrier to considering cycling for transport, because of the implied road danger. Second, though, there was a sense in which, if cyclists were seen as having to take part in this assertive behaviour to stay safe, the 'identity' of a cyclist was less appealing, particularly for some women. Non-cyclists referred to these negative images of those who did cycle:

The crazy cyclist that goes through red lights and is generally a bit of a menace (Camden, public section employee)

Well I usually think of Lycra clad blokes that have all the gear, and that, supposed to be all safe and stuff, and they just really dangerously whiz in and out of traffic.

(Camden, public section employee)

But cyclists also reported negative experiences of aggression:

I find some of the cyclists quite aggressive going through red lights and stuff and it's quite frustrating because sometimes you cycle faster than them and then they, you stop at the light and they just go past so you play cat and mouse the whole way to work (Camden, private sector employee)

It has been widely noted that most cyclists see themselves as rule abiders and others as rule breakers (Skinner and Rosen 2007) and we found a similar sentiment in our data, although many cyclists did admit to running red lights when they felt 'it was safer' (Camden, public sector employee). As many of our interviewees mentioned, part of

'what it takes' to be a cyclist and mitigate road danger risks is assertive behaviour. But this assertive behaviour may be viewed as aggressive by other road users, and the image of the menacing reckless cyclist may contribute to the framing of cycling as unappealing for some population groups. More significantly for this discussion of population differences, the social acceptability of 'assertiveness' varied, with this being a more universally positive trait for men than women.

Ethnicity and cycling

Prioritising different criteria: cultural meanings

The importance and meaning of the criteria of 'independence' and 'time efficiency' and 'health' are of course cultural rather than inevitable: independence does not have to be prized, and it is possible to prioritise criteria other than efficiency in transport modes, such as the opportunities offered for entertainment, or cost, or the possibility of travelling without being alert. Although underground travel was almost universally disliked, apart from its relative efficiency, many travellers reported enjoying their bus journeys, despite this rarely being the fastest mode:

Well the thing about the bus is 99% of the time I'll get a seat. It's much more relaxing, you can see. If it's a nice day, it's great just to enjoy the sun. It's, so it's relatively stress free. (Camden, public sector employee)

I like to sit on the bus, you see new faces some days, ... a bus gives you a story, every bus journey's got a story, what couple's doing what, the sights you might see... you can see a different thing every day... You don't get to see anything from the train... (Hackney, cycle trainee)

Walking also provided pleasure as well as a mode of transport. Apart from the exercise walking provided, several participants reported a sense of pride in being able to find routes around London that connected the city. Walking, like bus travel, enabled them to demonstrate their 'knowledge' of their city, in contrast to visitors and tourists, who did not possess such prized familiarity.

The nice thing about being on a bus is you can actually see where you're travelling, see the sights of London as opposed to going into a tunnel and coming out of another tunnel on a tube, and you've no concept of where places are in relation to each other, whereas on the bus you can see that, and you can go, oh that's how close it is to that place, I could walk there. Like again some places like

Covent Garden to Leicester Square, it's only a two minute walk, but people that get on the tube don't know that. (Camden, cycle trainee)

Detailed knowledge of local bus routes also provided a sense of pride and 'belonging' to a particular locality, in which others could share your knowledge of particular routes.

In these cultural meanings of travel lie one clue as to why cycling may be less likely to offer 'automobility' to some population segments. For some, cycling is simply not something to be considered, as these other modes already offer inherently more pleasurable ways to travel, as this (Black) woman notes:

I just don't have the, I just don't have, I'm not interested in learning to ride.

You just think it's something that you wouldn't enjoy?

No, I'm just not interested in, not interested in bike riding. I'd rather walk or, I like walking, I grew up walking. I used to walk an hour to school when I was little ... So I'm not bothered about learning to ride a bike, got other interests that I like. (Richmond, public sector employee)

Not only is 'automobility' not necessarily prized as much as other criteria, but the components of it, such as 'independence' and 'freedom' may not be quite so culturally resonant. For instance, one group of Asian mothers animatedly pointed to the many limitations on their ability to cycle, something they considered a suitable game for children, but hardly an appropriate form of transport for grown women – in addition to the many practical problems. In response to a question about whether any did cycle, in addition to noting that this was a 'ridiculous question', they offered a number of 'barriers' to expand on why this was not considered a suitable mode for them:

F1 So if you're using the bicycle, what about the children? How are you going to bring them to school? You have, ride the bicycle, and where are the kids? [all laugh] Where do you put them? So, that's not a good idea

F2 And another thing is that, because everyone lives in a flat, and there's not enough space, so where would you put your bike?

F3 And it's not useful for us because we, if we wear a jilbab, how are we going to ride a bike? (Camden, Focus Group)

We have put 'barriers' in quote marks in this context because it would be a naive reading of the data to suggest that if these 'barriers' were overcome, then these participants would be happy to cycle. It is not enough to simply suggest ways of cycling safely with

long clothing, or point to technologies that enable small children to be carried on bicycles. Rather, their reactions suggest that the bicycle is *inherently* inappropriate – indeed, in this particular case, literally laughably so. To some extent this reflects the criteria discussed above. If the cycle has become associated as the ultimate independent mode of transport, if travelling independently is not something you do (because you are usually with children, or others) it simply has fewer positive resonances. This is not to say that it is impossible with small children, but rather that it these connotations of ‘independence’ may be less likely to be ‘pull’ factors. Again, if there is an added ‘palaver’ factor, because your clothing is not what is generally seen on a bicycle, this is not an insurmountable barrier, but it does mean the likelihood of ‘seeing yourself’ as a cyclist is that much lower.

In terms of equity, there is also an issue here of transport exclusion. The women in this focus group who were excluded from cycling were also to some extent excluded from travel around London by any other modes – few of them could drive, the underground was too expensive, and the buses not only difficult to use with children and buggies, but also perceived as threatening environments, with swearing, aggression and instances of racism. One explained that the last straw for her using the bus had been a comment just after the London bombings about her hijab. For these women, often travelling with children, ‘independence’ was prized less than ‘communality’, and ‘efficiency’ less than accessibility. The cycle might provide ‘automobility’, but only for the single traveller, who doesn’t have toddlers, for instance, to carry around. The point is not perhaps that it is theoretically possible to cycle in a long garment, or with a trailer for toddlers (as clearly some women and men did this), but that these were elements of personal biographies offered to demonstrate why cycling was inappropriate for ‘people like us’, be that mothers, Asian women, or those who live in small inner London flats.

Acquiring the skills

Although we have no data on ethnic differences in learning to cycle as children, several women from Black and Asian communities noted that they had not learnt as children, and that cycling was less likely to be seen as a mode of transport within their communities. Cycling was recollected as simply not such a prized accomplishment for children, and indeed just not part of everyday culture:

a lot of the time it's not like a cultural thing for the Black minority people to be cycling, they're not used to it, so you wouldn't find them really doing it. (Camden, public sector employee, Black woman)

However, some Black Londoners were surprised that they were not alone in their inability to cycle, and had assumed it was a skill everyone else had acquired:

A woman in level 0 [complete beginners] tells me – ‘I’m the only person in my house who can’t cycle, so I thought I’d come and learn’ – she tells how she thought she was going to be the only person at the session who wouldn’t be able to cycle – she didn’t realise she wasn’t alone (fieldnote, 7th Feb 2009)

A typical story came from this woman, who had come to cycle training to gain confidence to cycle in London:

I’m a late learner, I learned to ride in adulthood, when we were living in [country area], which is nice – the roads are really quiet! (Camden, cycle trainee)

As a child, she recalled having skateboards, but not bicycles to play with. After coming back to London some years ago, she wanted to go cycling with her children, but found the roads where she lived too busy. This was also an issue for those who had learnt to cycle as children, but had done so outside London, particularly in other countries or rural areas where there was less traffic. One woman for example recalled learning to cycle in the Caribbean, where she grew up, and although she would still cycle for leisure, considered London’s streets too dangerous for commuting:

In [Caribbean country] where I was born, there is no traffic on the roads. I find cycling here [in London] very scary ... the speed of the traffic, and although there are cycle lanes, the roads are so narrow... I don’t feel very safe at all (Camden, public sector employee)

A lack of role models?

We have already noted that seeing ‘people like you’ as cyclists was important to many who were taking up cycle training. In a city where there are few Black or Asian cyclists, Black and Asian commuters are less likely to ‘see themselves’ in those cycling for transport, and therefore less likely to consider it a ‘normal’ transport mode choice. As one Black woman said:

Where I come from, in [south London borough] bikes are part of boys’ gang culture, but not part of getting around (Hackney, cycle trainee)

Like many, she had learnt to ride as an adult, whilst on holiday, and was now building up her confidence to cycle in the city. For another Black woman who was a keen and frequent cyclist ('a cycle freak' as she put it), the lack of others cycling was noticeable and a factor, she thought, in putting off some people:

Black women tend to acknowledge each other when they're cycling, because there are very few of them ... I just think there's not enough encouragement really. I think Black women need mentors ... to say come on to cycle ... I don't think they consider it a way of travelling ... they can promote it better (Camden, public sector employee)

This invisibility applied to public images of cycling as well. Cycling, she noted, was rarely covered in the Black media, and the places in the media where she did hear cycling covered ('Radio 4') did not cover Black cyclists. She noted the 'middle class' image of cycling for her – something done by the white middle class men as 'a certain way of living'. However, the factors she saw as potentially encouraging Black women were the same as for all groups: better facilities, a more encouraging workplace and safer roads.

'I'm not that poor': cycling as an indicator of low status

If cycling is associated with middle class white men, it had rather different associations for some Black men and women. There was some evidence that, for some, the continued associations of cycling with 'low status' transport (compared with cars) was a deterrent, although this was mentioned more as an issue for 'others' than admitted to as applied to themselves. Like other areas of consumption, transport is used to signify social status, and the car still had more obvious scope for this. One woman suggested that being 'really poor' might be the one thing that would make her consider cycling, suggesting that it still had the associations of being a mode of transport you only choose if necessary. She added that the current 'stereotypes' for Black men and women did not offer positive views of cycling for transport (rather than fun), whereas those of 'car driver' still did:

I'm thinking of the younger, maybe guys under 35, maybe the comfort of their car with their sound system blasting out. I don't know, it's dreadful stereotypes to use, but it's, what I do see with the younger guys and this would be the, I don't know, maybe 15 to 25 year olds, I will see them on bikes but not, they won't be in the Lycra, they won't be haring across town to a meeting or to a job or to college, they'd be the guys on these little bikes, these little fun bikes and they will tend to be, it'll be purely recreational, they won't be utilitarian as

transport, transport to work or transport to meetings or off to the PTA. (Camden, public sector employee)

The association of poverty with cycling could be defended against by conspicuous consumption of high status bikes and accessories:

In [small local area] you can see every model, every colour, it's like saying 'I'm environmentally friendly, but I can afford to pimp my bike' (Hackney, cycle trainee)

Of course this strategy only worked in settings where others could 'read' these cues to status. In settings where few others from your community cycled, the meaning was unlikely to be read so easily.

Discussion

In 2001, Davies et al (Davies et al. 2001) suggested a typology of cycle usage ranging from 'committed cyclists' to 'no needers'. To meet the UK government's 1996 aim to double the number of cycle trips by 2002 and again by 2012 they recommended focusing in the short term on increasing the number of trips made by 'regular' and occasional cyclists, and to target the 'toe dippers' and 'the unthinking'. Analysis of travel diary data between 2001 and 2005-7 suggests this has happened, with increases in cycle journeys but little increase in the numbers of cyclists. Not surprising, then, the distribution of cycling across gender and ethnic groups in London has not changed: women and those from Black and Asian minority ethnic groups remain under-represented among those cycling in London.

However, our results suggest that the complete 'no-needers' in Davies et al's typology may now be a minority. In the inner London boroughs, the majority of respondents, whatever forms of transport they used routinely, saw 'active transport' as a preferred mode in principle. The accounts they gave of travelling around London suggested that, in general, Camden and Hackney residents and employees accepted a large amount of responsibility for not only their own health, but that of the city and the wider environment, in that these were presented as criteria that routinely affected how transport modes were evaluated, if not incentives in themselves for changing modes. This view was more muted in Richmond, where car use was still more normalised, and residents were more likely to focus on the advantages of car use. However, even in Richmond, responses suggest a growing defensiveness about driving, and an acceptance that cycling would be a healthier, more environmental alternative, even if not for their own current situations. Even if the views shared in interviews were shaped to some extent by a 'social desirability' response, this is still evidence of what that desirable response would be: that the legitimate framing of transport choice is around responsibilities to personal health, the health of the city and the environment more broadly.

This suggests that a great deal of the groundwork in making cycling an acceptable mainstream mode of transport, rather than a marginal one, has been achieved. For most people, cycling is seen as not only an appropriate mode of transport, but a preferred one. However, even in the three boroughs we studied (which have among the highest rates of cycling in London) cycling remains a minority choice. Indeed, the fact that 'being a cyclist' was part of some people's social identities indicated the 'specialness' that this choice of transport mode still had in London. Despite cycle trips increasing,

evidence from the travel diaries suggests that few people are switching to cycling, but rather that existing cyclists are cycling more. Beliefs and behaviour are rarely neatly aligned, and participants were eloquent on the barriers to cycling, even when cycling was seen as a potential transport mode choice for them.

A simplistic model of potential barriers suggests that to become a regular cyclist entails a series of stages, with travellers first considering this a potential mode for them, then acquiring the necessary skills, equipment, infrastructure and attitudes to cycle, and then to cycle in London, which was seen as requiring specific sets of skills and attitudes. Seeing cycling as a potential mode for you personally, rather than people in general, required 'seeing yourself' to some extent, both on the roads as cyclists and in public images of cycling. For some, the first stage was learning the basics of cycling, through attending courses. Many then required additional training, or mentoring from experienced cyclists, to acquire the necessary skills and assertiveness to attempt a commuting journey. Accumulating the necessary equipment (bike, helmets, panniers, possibly special clothing) could be daunting, both in terms of cost for some, and in terms of needing advice on purchases. The infrastructure was often less within the control of individual cyclists, with many commenting that their flats or houses had no space to keep a bike, and that workplace storage could be difficult: cycling to work often required considerable logistic planning.

Many of these barriers are the subjects of a wide range of initiatives that have been implemented in London over the last few years, ranging from advertising, training provision and travel planning help through to road environment and workplace interventions. The individuals we spoke with who had taken up cycling recently were positive about these initiatives, with many citing training, mentoring or improvements in cycle facilities at work or on the road as important factors. Modal shifts to cycling are likely to be incremental in the short term, but there is evidence in our data that the rate of change may start to increase as more people see others cycling, and it becomes less marginal. This is particularly true for seeing 'people like yourself' cycling, with those from under-represented groups mentioning the importance of a culture where you can see yourself represented among those both cycling in the streets of London and in the media.

Encouraging cycling

That people were in general positive about the existing initiatives suggests 'more of the same' is crucial to continue to encourage people to take up cycling and build a critical mass. Certainly, cycle training was popular with all participants who had experienced it,

and cited as an encouragement to take up cycling. However, in the short term much of this cycling is likely to be leisure based, and out of London, and thus not contributing to modal shift within London. Road danger, and perceptions of road danger, remains the largest barrier for many people in considering cycling to work. Although some reported that as they began to cycle, streets did not seem as dangerous as they had anticipated, even committed cyclists mentioned the dangers, were put off some journeys because there was no perceived 'safe route'. Individual mentoring was crucial for many in gaining the confidence and knowledge of routes to cycle to work.

Some were reluctant to invest in a bicycle before knowing whether it would be cost-effective or not, and many people reported having nowhere to store bicycles at home. Residential accommodation in central London is poorly suited to cycling. Proposed bike hire schemes would offer a solution to those who would like to try out cycling before investing, or use a bike occasionally.

Addressing under-representation

The key question for this report is whether initiatives to increase cycling in general are likely to address the needs of all sections of the population, or whether there are additional considerations for Transport for London in its obligations to ensure that the benefits of cycling are equally accessible to the whole population. A first consideration is whether any particular initiatives are needed, or whether population differences will disappear as cycling becomes a more popular transport mode choice.

Would population differences disappear with 'critical mass'?

Our analysis of travel survey data suggested that the proportions of women and those from minority ethnic groups have not shifted significantly between 2001 and 2005-2007. Whether these traditionally underrepresented groups would start cycling in London if cycling was more popular, i.e. reached a critical mass, is unknown. Evidence suggests that cycling becomes safer in areas where more people travel by bicycle (Jacobsen 2003). Since women in particular cite perceived road danger as a major barrier to cycling in London, any improvements in road safety due to a critical mass of cycling (for instance, more awareness of cyclists among car and HGV drivers) may encourage more women to cycle. In the Netherlands, where bicycle modal share is 27%, and Denmark where bicycle modal share is 19% (Ministerie van Verkeer en Waterstaat et al. 2009), women make a larger proportion of trips by bicycle than men (Garrard 2003; London Analytics Ltd. 2005), suggesting that perhaps gender differences in cycling may diminish as cycling becomes more popular. Nationally, evidence from the 2001 Census suggests a

positive correlation between bicycle modal share and proportion of commuter cyclists who are female (London Analytics Ltd. 2005). Increasing the modal share of cycling is, then, the most effective way to increase the population of women cycling.

There is less evidence that ethnic minorities would be more likely to cycle in an area where cycling reaches a critical mass. In Europe, cycling is still relatively less common among ethnic minorities even in countries with high bicycle modal share (Fietsberaad 2006). The authors of a report from the Netherlands, for instance, suggest that cycling increases as ethnic minorities become more 'integrated' in society, citing the higher rates of cycling by those of Antillean and Surinam ethnicity compared with Moroccan and Turkish. However, 'cycling' in such settings (where it is a normal, rather than marginal, mode of transport) is perhaps an indicator of integration, rather than necessarily a result of it. In settings such as inner London, with less emphasis on cycling as an indicator of citizenship, it is difficult to see how generalisable this would be. The evidence from our study and experiences elsewhere (eg the Tower Hamlets initiatives discussed in the background) suggest, though, that initiatives to encourage under-represented groups, if done in collaboration with communities, could have an important cascade effect as they provide models of 'people like us' on bicycles.

Tailoring initiatives

The findings from our study suggested that across the population, incentives to take up cycling were similar. Men and women from all ethnic groups were positive about the health and environmental benefits, and reported enjoying the physical act of cycling, but were concerned about road danger and (to a greater or lesser extent) the potential 'hassle' of cycling for work. The public debate around 'gendered' cycling identities has rather conflicting implications. On the one hand, women reported a range of positive gendered identities, from the 'feminine' to the 'assertive, independent'. On the other hand, this continued focus on 'appropriate' gendered identities underlines the fact that cycling is still, in London, potentially undermining of some appropriate female identities, and that a considerable amount of symbolic 'work' needs doing to make cycling legitimate, rather than taken for granted. This was perhaps most overt in discussions with some Asian women, who considered cycling a completely inappropriate choice for them. However, experiences from Tower Hamlets suggested that we should not take such accounts for granted: with tailored training aimed at those who would foster positive images in their communities, many women whose first response is 'that's not for me' might enjoy cycling, and consider it for transport.

A number of Black women discussed having learnt to cycle as adults, or not at all. Some were not aware that many people did not know how to cycle. Tailored advertising in appropriate media is a potentially fruitful way of encouraging others to learn.

Transport and equity issues

From a public health perspective, we need to consider the potential negative outcomes of a general shift to active transport modes. The consensus moral view that 'cycling is good' potentially disenfranchises those who do not have the physical or other abilities or desires to cycle. We did not interview those who identified as having physical disabilities, but some participants did report health constraints on their ability to cycle, such as asthma. In addition, cycling requires a degree of 'alertness' that not everyone can or desires to achieve whilst travelling in London. Indeed, bus travel was liked by some because it enabled you to 'switch off' and enjoy being a passenger. Encouraging cycling has to be done as part of a broader healthy transport strategy which ensures that sections of the community are not further marginalised from access to transport.

Conclusions

The number of cycle journeys has risen in London, although there has been a slower increase in the number of people cycling. Men remain three times more likely to cycle than women, and those from Black and Asian minority ethnic groups remain under-represented.

Those who lived or worked in three London boroughs included in this study viewed cycling positively, and as a 'preferred' mode of transport, as it was perceived as providing efficient, autonomous transport that maximised both future health gain and environmental benefits. The factors that encouraged people to take up cycling for transport were 'push' factors that made other transport modes less appealing and 'pull' factors that encouraged cycling in particular as a choice. Push factors focused on public transport, with crowded or unreliable public transport key issues. Cycling was not, in general, seen as an alternative to car use within inner London, where people generally only saw cars as a choice for a small number of journeys. However, in Richmond, participants did report car journeys that could be replaced by cycle. Pull factors were: opportunities for exercise, reliability and autonomy.

Despite positive views of cycling, few people in practice did cycle as a main mode of transport. The main reported barriers to cycling in London were: road danger and perceptions of road danger; the levels of aggression on London's roads; the challenge of managing the logistics needed to use a bicycle. Although these, and the pull and push factors, were common across those from varying backgrounds, gender and ethnicity shaped the meanings of cycling, and how salient the barriers were. Efficiency and autonomy, as criteria, had less resonance for some Asian women. Black women reported that they were less likely to have learnt to cycle as children, and that cycling for transport was, for some, associated with the 'white middle classes'. The accounts of participants suggested that cycling, as a transport choice, is still gendered in a way that other transport modes are not. For some women, the kinds of gendered identities available to female cyclists (which required a particular level of 'assertiveness') were not appealing.

Implications for policy and practice

The findings of our study are positive for many initiatives underway to encourage active transport in general and cycling in particular, given that there was widespread agreement that these were valued goals for most Londoners. Specific initiatives were also cited as important pre-conditions of cycling increase, even if they were not likely to result in rising cycle commuting in the short term. These included 'Smarter Travel' initiatives to make workplaces 'cycle friendly', and existing cycle training schemes. Training schemes were important facilitators for both taking up cycling and gaining the confidence to cycle for transport in London. Potential initiatives such as bike hire schemes are likely to appeal to those who would like to try cycling for some journeys, but have insufficient space to keep a bicycle or do not want to invest in one.

Current practice is therefore likely to increase the proportion of cycling in the longer term, although these initiatives may have modest measurable gains to start with. In inner London, increased cycling is likely to replace public transport rather than car travel. In outer London, there is more scope for cycling to replace car travel, and generally a positive attitude towards this. However, in the short term this is likely to focus on increased leisure cycling, with cycling trips into inner London unappealing for many.

Many participants reported perceived increases in cycling, and in women cyclists on London's streets. This was not reflected in the travel diary analysis, but there is perhaps a need for better data on cycling rates, and the gender distribution. This is also true of training demand and provision.

There are other implications for the development of policy and practice in ways that are equitable, given the evidence that cycling is currently less appealing for women and those from minority ethnic communities. We summarise these in three main areas: achieving a 'critical mass' of cyclists; tailoring publicity and practice; integrating transport systems.

Achieving a critical mass

Local cultures, including seeing 'people like yourself' cycling in the locality and having workplace colleagues who cycle, were cited as important influences on those who did cycle. There was also some suggestion that the absence of role models made it less likely that people would consider themselves as potential cyclists. This suggests that, gradually, as more people cycle, and more women and people from different ethnic backgrounds are visible on London's streets, cycling will become seen by a broader

range of individuals as 'something I would do' rather than just a preferred mode of transport in principle. Given that the major barrier for many respondents was road danger, the key issue is to reduce both the risk and the perceived risks of cycling on London's roads, particularly in inner London. The evidence suggests that as more people in general cycle, the proportion of women cycling will rise. It is outside the scope of this report to identify interventions most likely to reduce cycling injuries, but an urgent need is to build a better evidence base on what works to reduce the risk.

Our participants reported that cycling felt less risky than anticipated once they had begun to cycle for transport. This suggests that there is also a need to address *perceived* road danger, although it is obviously challenging to do this whilst simultaneously offering advice on risk reduction for cyclists.

Tailoring publicity and practice

Currently, both women and those from many minority ethnic communities are relatively under-represented, suggesting that initiatives may need to be tailored for different segments of the population. However, our study suggests that it might be counter-productive to focus attention on 'women' as a particular transport user group. Cycling is already profoundly 'gendered' in a way other transport mode choices are not, and further emphasis on 'women cyclists' will continue to frame this as a gendered transport choice. Clearly a range of different women need to be visible in publicity, but to focus on them as women per se risks merely presenting yet another potential barrier for women, who have to consider what kind of *female* identity they have to adopt. The key to increasing the proportion of women cycling would be to increase critical mass.

There is less evidence that those from minority ethnic groups would be more likely to cycle when the modal share of cycling increases. However, the barriers to cycling cited across all ethnic groups were similar (road danger, dealing with the 'palaver'), which suggests that in London, addressing these would at least provide the necessary, if not sufficient, conditions for a greater number to cycle. Again, publicity which utilises a range of images is important, but there were some specific factors that may have implications for tailoring publicity and practice with some communities.

First, Black women were less likely to have learnt to ride in childhood, although many were keen to learn to cycle as a potential route for keeping fit, or to cycle with children. Tailored publicity in appropriate media might reassure some that they could learn with other beginners.

Second, experiences in some boroughs suggests that individualised training packages encouraging individuals to learn to become cycle trainers in their own communities might be a productive way of building a base of visible cyclists in those communities which currently do not see themselves on the roads at all.

Transport systems

In the longer term, a truly integrated transport system that made active transport an easier choice for a greater range of the population may require more radical change. For instance, for those considering a move to commuter cycling in inner London, the season ticket fare structure is a current potential disincentive. As unlimited public transport journeys are included, there are no financial benefits to replacing some public transport journeys with cycling. With a period travel card, cycling for one or two journeys per week can appear to be a 'waste' of a service one has already paid for. Changes to fare structures could potentially remove this disincentive by, for instance, having season tickets that provide a substantial discount on each bus and underground trip, rather than unlimited travel, so people could gradually build up the number of cycle trips. Alternatively, season tickets could include the proposed bike hire scheme.

Despite improvements over the last few years in both infrastructure for cycling and the integration of bicycle transport with other modes, there are still gains to be made (for instance, in providing more accessible secure bike parking facilities at transport hubs). Innovations from cities with higher rates of cycling, such as obliging taxis to carry bicycles (to remove disincentives for cycling if there is a possibility it may not be safe to cycle home), might also be worth considering.

Road danger remains the most cited barrier to cycling in London. Whilst there is a role in educational and behavioural interventions (such as educating cyclists and lorry drivers about the dangers of blind spots, and further on-road training for cyclists), the emphasis on the need for 'assertiveness' to be able to ride safely on London's roads is not an appealing one for many potential cyclists, some of whom had been cyclists in other settings that did not require such 'assertiveness'. A radical goal for transport systems that were truly equally accessible to all would be perhaps a system where active transport modes (walking or cycling) did not require particular attitudinal skills that resonate more with some population groups than others. This would require both reducing road danger, and reducing the perceptions that cycling in London is an inherently dangerous activity. Suggestions around how to reduce road danger for cyclists and other vulnerable road users have ranged from educational to legislative

interventions, including engineering adaptations to lorries to reduce blind spots or the banning of large vehicles from central London.

There is no coherent provision of cycle lanes, road engineering and encouragement across borough boundaries, and many participants noted the 'local' cultures of cycling across London, with drivers behaving differently across the capital partly in response to the levels of cycling on the roads. As most commuting journeys cross the boroughs, there is a need for a more integrated approach across the capital, which would draw on the road planning and engineering expertise from cities where cycling is more prevalent.

Despite widespread support for cycling in principle, there were also many who would not consider cycling for reasons that could not be addressed through infrastructure or training. The issues are perhaps different in inner and outer London. In inner London, few people routinely drive for transport, unless this is necessary (for carrying loads, for instance). There are public health incentives to increase the proportion of active transport, but this can be achieved by walking as well as cycling. In outer London, there is more scope for replacing car journeys by bicycle, although many residents are very reluctant to cycle into inner London for work. A healthy transport strategy would aim to make active choices the easy choices, but also ensure that those who are unable or unwilling to choose active modes are not further excluded from access to transport.

References

- Accent Marketing and Research (2004). The near market for cycling in London. London, TfL.
- Act2 (2004). Transport for London Schools Cycle Parking Initiative 2004: research with children and teachers. London, TfL.
- Böhm S., Jones C., Land C. and Paterson M. (2006). Introduction: Impossibilities of automobility. Against Automobility. S. Bohm, C. Jones, C. Land and M. Paterson. Oxford, Blackwell: 3-16.
- Bowles Green Ltd (2008). Engaging ethnic minority communities in cycling: consultants' report Unpublished report.
- Curnow W. (2005). "The Cochrane Collaboration and bicycle helmets " Accident Analysis and Prevention 37(3): 569-573.
- Datta J. and Graham B. (2006). An evaluation of cycle training in Hackney 2005-2006. London.
- Davies D., Gray S., Gardner G. and Harland G. (2001). A quantitative study of the attitudes of individuals to cycling. Wokingham, TRL Report 481.
- Davies D., Halliday M., Mayes M. and Pocock R. (1997). Attitudes to cycling: a qualitative study and conceptual framework. Crowthorne, TRL Report 266.
- Department for Transport (2003). Attitudes to walking and cycling. London, DfT.
- Department for Transport (2004a). The future of transport: a network for 2030.
- Department for Transport (2004b). Walking and Cycling: An action plan. London, DfT.
- Department for Transport (2005). Delivery of the National Cycling Strategy: a review
- Department for Transport (2006a). Transport Statistics Bulletin. National Travel Survey: 2006 Department for Transport, Office for National Statistics: 67.
- Department for Transport (2006b). Transport Statistics for Great Britain
- Department for Transport (2007). Cycling Policy: An overview. London, DfT.
- Department of Health (2004). Choosing health: making healthier choices easier. London, DOH.
- Department of the Environment Transport and the Regions (DETR) (2000). Transport Statistics Bulletin: Transport Statistics for Metropolitan Areas 2000 Edition. DETR, Office for National Statistics: 1-40.
- Dickinson J. E., Kingham S., Copsey S. and Pearlman Hougie D. J. (2002). "Employer travel plans, cycling and gender: will travel plan measures improve the outlook for cycling to work in the UK?" Transportation Research Part D 8: 53-67.
- Edwards P., Green J., Roberts I., Grundy C. and Lachowycz K. (2007). Deprivation and road safety in London. A report to the London road safety unit. London, LSHTM.

- Fietsberaad (2006). Het fietsgebruik van allochtonen nader belicht, publicatie 11a. Rotterdam.
- Fincham B. (2006). Bicycle messengers and the road to freedom. Against Automobility. S. Bohm, C. Jones, C. Land and M. Paterson. Oxford, Blackwell: 208-222.
- Fraser S. (2009). Does providing cycle routes make people cycle more? A systematic review of the evidence of changing the built environment on cycling, LSHTM.
- Freund P. and Martin G. (2004). "Walking and motoring: fitness and the social organisation of movement." Sociology of Health and Illness 26(3): 273-286.
- Garrard J. (2003). "Healthy revolutions: promoting cycling among women." Health Promotion Journal of Australia 14(3): 213-215.
- Gatersleben B. and Appleton K. (2007). "Contemplating cycling to work: attitudes and perceptions in different stages of change." Transportation Research Part A: Policy and Practice 41(4): 302-312.
- Gill T. (2005). Cycling and children and young people. London, National Children's Bureau.
- Greatholder J. (2005). Why don't girls cycle to secondary school? An investigation and comparison of attitudes among cyclists and non-cyclists in years 7-9, MSc Dissertation, Nottingham Trent University.
- Haddad H. (2005). Cycling stereotypes and identity, MSc Dissertation, University of Surrey, School of Human Sciences.
- Hamer M. and Chida Y. (2008). "Active commuting and cardiovascular risk: a meta-analytic review." Preventive Medicine 46(1): 9-13.
- Health Development Agency (2004). The evidence of effectiveness of public health interventions -and the implications. HDA Briefing No. 1. London, HDA.
- Hillman M. (1993). Cycle helmets: the case for and against, London: Policy Studies Institute.
- Horton D., Ed. (2007). Fear of cycling. Cycling in Society. Aldershot, Ashgate.
- House of Commons Health Committee (2004). Obesity: Third report of session 2003-04. London, The Stationary Office: 1-146.
- Jacobsen P. L. (2003). "Safety in numbers: more walkers and bicyclists, safer walking and bicycling." Injury Prevention 9(3): 205-209.
- Jensen M. (1999). "Passion and heart in transport-- a sociological analysis on transport behaviour." Transport Policy 6(1): 19-33.
- London Analytics Ltd. (2005). "Gender and critical mass: do high cycle flows correlate with a high proportion of female cyclists?" London Analytics Research Journal(1): 1-4.
- London Borough of Camden (2008). Camden Cycling Plan- fourth review.
- London Borough of Hackney (2006). Hackney cycle plan.

- London Borough of Richmond upon Thames (2004). Richmond upon Thames cycling action plan.
- London Councils and London Cycling Campaign (2008). "Breaking down barriers to cycling in London."
- Lumsdon L. and Tolley R. (2001). "The National Cycle Strategy in the UK: to what extent have local authorities adopted its model strategy approach?" Journal of Transport Geography 9: 293-301.
- Mackintosh P. G. and Norcliffe G. (2007). Men, women and the bicycle: gender and social geography of cycling in the late nineteenth-century Cycling and society. D. Horton, P. Rosen and P. Cox. Aldershot, Ashgate Publishing Limited.
- Macpherson A. and Spinks A. (2007). "Bicycle helmet legislation for the uptake of helmet use and prevention of head injuries." Cochrane Database of Systematic Reviews(2).
- Ministerie van Verkeer en Waterstaat, Mobycon, Fietsberaad and Ligtermoet & Partners (2009). Cycling in the Netherlands.
- Morrison D. S., Petticrew M. and Thomson H. (2003). "What are the most effective ways of improving population health through transport interventions? Evidence from systematic reviews." Journal of Epidemiology and Community Health 57(5): 327-333.
- NICE (2008). Guidance on the promotion and creation of physical environments that support increased levels of physical activity. Public Health Intervention Guidance PH8.
- NICE (2009) Promoting physical activity in the workplace. NICE Public Health Intervention Guidance PH12
- Ogilvie D., Foster C. E., Rothnie H., Cavill N., Hamilton V., Fitzsimons C. F., Mutrie N. and on behalf of the Scottish Physical Activity Research C. (2007). "Interventions to promote walking: systematic review." BMJ 334(7605): 1204-1214.
- Qureshi U. (2009). Attitudes and barriers to cycling among Black and Ethnic Minority employees at London Borough of Tower Hamlets Anchorage House and Mulberry Place. London: Unpublished Student Dissertation
- Rowe N. and Champion R. (2000). Sports participation and ethnicity in England National Survey 1999/2000 Headline findings. London, Sport England.
- Savill T., Bryan-Brown K. and Harland G. (1996). The effectiveness of child cycle training schemes, Transport Research Laboratory, TRL Report 214.
- Scottish Executive (2006). Cycling in Scotland 2005, Transport Research Planning Group.
- Social Exclusion Unit (2003). Making the connections: final report on transport and social exclusion. London.

- Steinbach R., Green J., Datta J. and Edwards P. (2009). Cycling in Camden: a study of social and cultural factors in transport choices. A final report to NHS Camden. London, LSHTM.
- Strauss A. (1987). Qualitative analysis for social scientists. Cambridge, Cambridge University Press.
- Tannahill A. (2000). "'You don't have to ...': walking to a healthier nation." Br J Sports Med 34(2): 79-a-80.
- The Stationery Office (2004). Obesity: Third Report of Session 2003-04.
- Thompson D. C., Rivara F. P. and Thompson R. (2004). "Helmets for preventing head and facial injuries in bicyclists " Cochrane Database of Systematic Reviews(2).
- Towner E., Dowswell T., Burkes M., Dickinson H., Towner J. and Hayes M. (2002). Bicycle helmets: review of effectiveness Department for Transport. No.30.
- Transport for London (2004). Creating a chain reaction: The London Cycling Action Plan. London, TfL.
- Transport for London (2007a). London Travel Report 2007. London, TfL.
- Transport for London (2007b). Promoting Active Travel in London. London, TfL.
- Transport for London (2009). Travel in London: key trends and developments London, Transport for London. report number 1
- Urry J. (2007). Mobilities. Cambridge, Polity Press.
- Wanless D. and Treasury H. (2004). Securing good health for the whole population: final report. London, HM Treasury.
- Watkiss P., Brand C., Hurley F., Pilkington A., Mindell J., Joffe M. and Anderson R. (2000). Informing transport health impact assessment in London. London, NHS Executive.
- Wells P., Downing C. and Bennett M. (1979). Comparison of on-road and off-road cycle training for children, Transport Research Laboratory, TRRL Laboratory Report 902.
- Wosk J. (2003). Women and the machine: representations from the spinning wheel to the electronic age. Baltimore, John Hopkins University Press.
- Young TransNet. (2007). "School travel survey September 2006 – August 2007 online ", from <http://www.youngtransnet.com/surveyResults/>.