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ETHNOGRAPHIES OF MOBILITIES AND DISRUPTION

Noel Cass, Karolina Doughty, James Faulconbridge and Lesley Murray
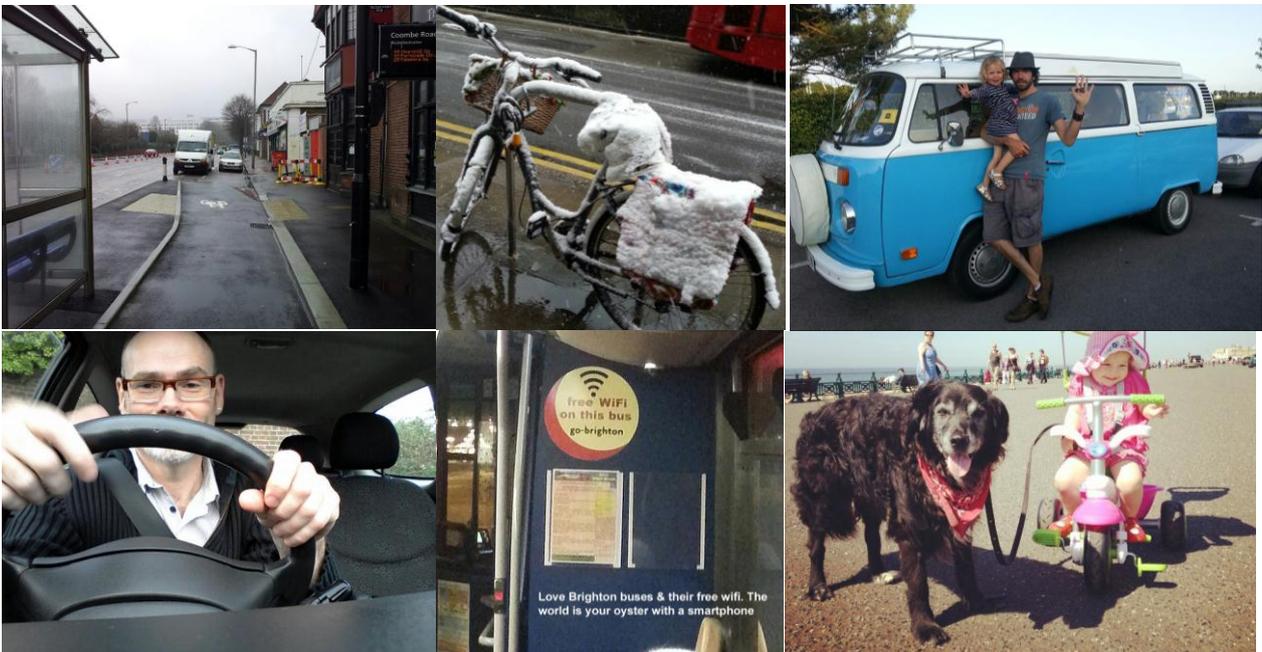
ACKNOWLEDGEMENTS

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1.1 RESEARCH AIMS

This research examines everyday mobility and disruptions to mobilities using an ethnographic approach. The research in question is a work package within the larger project 'Disruption: Unlocking Low Carbon Travel' funded by Research Councils UK Energy Programme.

The objective of this work package is to understand the opportunities for changes in everyday mobility practices through the lens of disruption. The overarching aims of the research conducted therefore were to:

- Understand the ways mobilities are situated in temporal, social and geographical spaces and how are they constituted relationally;
- Explore the role of disruption within everyday mobile lives; and
- Examine how experiences of disruption help us identify ways that everyday mobilities can be disrupted to reduce carbon emissions

1.2 METHODOLOGY AND METHODS

Between spring 2012 and summer 2014, 23 families and 36 individuals in Brighton and 16 families and 25 individuals in Lancaster participated in the study. Working with families was particularly useful in understanding networks of support and interdependencies. The methodology was based on approaches developed in the 'mobilities turn' (Sheller and Urry 2006) and involved in-depth qualitative study of everyday lives and their context. We used a range of methods: life-history interviews, semi-structured interviews, go-alongs and filmed interviews, in addition to self-generated data collection utilising photography, video, scrap-books, diaries, Facebook posts, and blogs.

In particular participants were allowed to choose from the 'toolkit' of methods, which were used over an extended period of time. This 'toolkit' was particularly valuable in exploring everyday mobilities and their meanings in depth. It helped reveal the multiple ways that mobility is embedded in everyday life, and how the relationship between mobility and other activities changes over time. Life-history elements of interviews have highlighted the effects of past experiences of mobility on the present.

Discourse analysis also allowed us to make sense of interrelations between policy and practice: There are a number of dominant institutional discourses of mobility including: Technocratic, Rights to mobility, Risk minimisation, Sustainable mobility. These can be played out interdependently between policy and everyday embodied mobilities through discourses of morality, modernity and freedom.

Analysis of practices (commuting, shopping, leisure etc.) rather than focusing on transport modes highlighted opportunities for policy to influence these practices beyond traditional transport policy. Attention to where and when people fit mobility practices into the other practices of everyday life highlights the potentials and limits of changes in response to disruptions, and in respond to the low carbon agenda more broadly.

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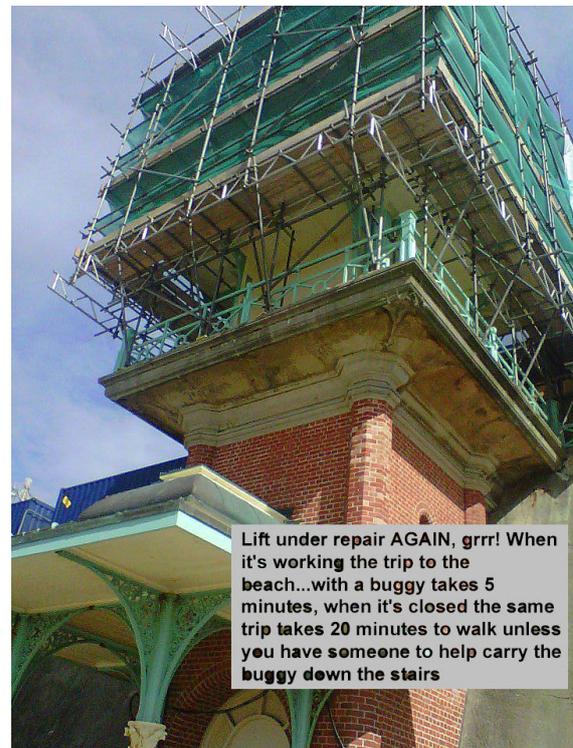
1.3 KEY MESSAGES

The boxes below summarise four key messages emerging from the research.

1. Mobility change is embedded in everyday cultures and practices

Opportunities for transitions to lower carbon are revealed through looking at the ways in which mobility is entangled in everyday lives.

2. Disruption reveals opportunities for change

Focusing on disruption shows that there is capacity to change but this is dependent on social, cultural and spatial contexts.

3. Carbon reductions require social rather than individual change

The ability to translate disruptions into mobility practices that are lower carbon emitting is dependent on social difference – social and material constraints limit opportunities to adopt lower carbon mobility.

4. Looking beyond transport policy

It is not possible to significantly change mobility practices through transport policy alone as mobility is deeply embedded and entangled in a range of social practices. Policy needs to go beyond transport interventions.

1.4 IMPLICATIONS FOR POLICY

The concepts of 'normality', 'routine' and 'habit' should be discarded as the baselines for mobility. People are constantly negotiating disruptions to their everyday mobility, and this suggests there is capacity for change that needs to be unlocked. Viewing mobility practice through 'averages' obscures our view of this capacity.

But policy makers also need to recognise that the ability to change mobility is dependent on social and spatial context. Policies need to be targeted at those groups who have the capacity and resources to adopt less carbon emitting mobilities and in the places where change is possible. They also need to operate at the societal level, rather than at the level of individuals, to ensure the emergence of a context in which low carbon mobility is possible, and to unlock the capacity for change that disruptions draw our attention to.

Policy-makers should be facilitated in engaging with a range of social groups to demonstrate the need for targeted policies that consider the needs of people in a more sophisticated way than segment analysis. Specific issues in people's everyday lives communicated to policy-makers through a film based on the findings of this work package could help initiate this dialogue.

It is not possible to significantly change mobility practices through transport policy alone as mobility is deeply embedded and entangled in a range of social practices Policy needs to go beyond transport interventions and address the factors that make mobility so essential in everyday life, and in particular the factors that make car driving so embedded in everyday lives.

2. INTRODUCTION

The aim of this work package is to understand the opportunities for changes in everyday mobility practices through the lens of disruption. In order to do this we first explored 'mobility' and 'disruption'. Drawing on perspectives from the 'mobilities turn' in the social sciences (Sheller and Urry, 2006; Urry 2008; Cresswell 2006), we conceptualise everyday mobility as the movements that are part of everyday life, including communications, ideas, objects as well as the corporeal movements that are traditionally focused on by transport studies and policy. Our point of departure was to position mobility as being about more than transport; it is about everyday life and the way mobility has become entangled in it. As such, we began with the assumption that it is only through an interpretative ethnographic study that the nuances of everyday mobility practices are revealed.

Given our point of departure, we were concerned in our analysis to consider all of the different things that affect our lives on a day-to-day basis as we are mobile. We, therefore, looked at all the different ways in which people were mobile as part of everyday life, and what these movements meant to them. We were interested in the experience of being mobile, but we also considered how people use mobility to achieve other important aspects of their lives, like getting to work and school, shopping and relaxing, and holding family life together.

From this understanding of mobility we sought to consider what happens when these movements are disrupted. We argue that by looking at how people's mobilities are disrupted, and how disruptions are responded to, we can learn about if and how we can change people's everyday lives to reduce carbon emissions. Importantly, we allowed people to define for themselves what disruption meant to them – and they came up with definitions from small-scale annoyances like hitting red traffic lights through to large-scale life changes, both planned and unplanned.

In the context of all of the above, the overarching aims of the project were therefore to:

- Understand the ways mobilities are situated in temporal, social and geographical spaces and how are they constituted relationally;
- Explore the role of disruption within everyday mobile lives; and
- Examine how experiences of disruption help us identify ways that everyday mobilities can be disrupted to reduce carbon emissions

2.1 THEORETICAL FRAMING

In this work package we are challenging both traditional transport planning approaches and behavioural approaches in recognising the cultural embeddedness of mobility and disruption. The theoretical framework we adopt from work on mobility cultures and theories of social practice demonstrates the multiple dimensions that entangle mobility in everyday lives and which consequently mean that talking about transport and travel behavior alone is too simplistic.

Viewing mobility as a something that facilitates social practices provides a powerful way of revealing why mobility is so embedded in contemporary society. It also reveals the systemic material, social and cultural challenges that exist in terms of responding to disruptions and transitioning to lower carbon mobility. The two approaches that we draw on in framing the research; mobility cultures and social theories of practice, form two elements of a three-pronged approach adopted by the wider research project and foreground the way disruptions can reveal the situated nature of all change processes, emphasising the inherent importance of understanding the embedded social and cultural complexities that make change possible (or impossible) in any context.

MOBILITY CULTURES

The mobility cultures perspective draws from aspects of the 'mobilities turn' that seek to understand movement and its meanings (Urry, 2008; Cresswell, 2006; Packer, 2008). As mobilities are socially and culturally produced so too is disruption, and so it becomes imperative that we recognise the cultural constructions of disruption as well as responses to disruption; the complex interdependencies between different aspects of meaningful movements. This approach, therefore, resists a definition of disruption as a departure from 'normal' and instead recognises the ambiguities of disruption as illustrative of the complexities of everyday life. Within the rapidly growing body of literature on mobilities is also an attention to movement and its meaning at a micro level, which, whilst acknowledging the importance of macro-level approaches, is considered critical in understanding the everydayness of disruption. A conceptualisation of disruption concerned with micro socialities and spatialities allows a framing of disruptive events and their impacts on mobility decision-making at this everyday level (Jensen, 2010).

A mobility cultures approach also demands engagement with the emotionality of mobile space where experiences are embodied and sensorial, and emotions are socially contingent expressions (Bostock 2001; Davidson et al., 2005; Jensen, 2011; Pink, 2012; Sheller, 2004). A micro-level conceptualisation allows a framing of disruption within everyday mobility practices. In doing so, broader socio-spatial contexts are revealed. For example, drawing from debates on the gendering of mobility (Priya Uteng and Cresswell 2008) we can gain insights into the everyday gendering of disruption responses as well as the contexts that produce gender divisions. For example, a number of studies have illuminated the mobility and time constraints that arise from women's multiple roles (Bostock 2001; Dowling 2000; Law 1999; Murray 2008). The notion of cultures of mobility (Dowling, 2000) enables a wider focus on the local collective meanings and beliefs around travel and the discourses associated with these. In summary, the mobility cultures perspective creates a nuanced understanding of the complexities of everyday mobile practices. It also situates collective responses to disruption within a range of temporal, socio-cultural and spatial contexts. This gives rise to questions such as:

1. What are mobility cultures and how do they determine everyday mobilities?

2. What discourses of mobility need to be disrupted before mobility cultures can be disrupted?

3. What are the existing local discourses of mobility and how do they intersect with larger scale discourses and particular networks of power? For example, in what ways do everyday mobile practices enact and/or challenge contemporary discourses about environmental responsibility/morality in relation to ways of being mobile?

4. How does 'knowledge' of mobilities become invested in material, technological and instrumental practices?

5. How can we understand the formation of routines, habits and the perception of 'normality' in everyday mobility practices?

6. How can we understand the emotional geographies of disruption?

SOCIAL PRACTICES

Broadly speaking, work on social practices (Shove, 2003) argues for greater attention to be paid to mundane forms of action and consumption that define everyday life (see Schatzki, 1996; Shove and Warde, 2002; Warde, 2005; Wilk, 2002). Specifically, work on social practices suggests that normalised ways of doing everyday practices such as commuting or shopping arise through a combination of different 'elements' (Shove et al., 2012): *Meanings* whereby engaging in a practice, whether it be driving, walking etc, is associated with particular logics, emotional allegiances and symbolism; *Competences* which allow a practice to be performed, in particular in a way recognised by others as legitimate and acceptable; and *Materials* which are constituent parts of the practice, e.g. the cars but also the roads, petrol stations etc. that allow driving practices (on these

three dimensions see Reckwitz, 2002; Schatzki, 1996; Shove and Pantzar, 2007; Shove et al., 2012). Different combinations and formations of these elements underlie a series of taken for granted ways of 'doing' everyday life (i.e., practices) that are performed and recognised widely. Examples would include commuting, shopping and leisure practices and the mobility associated with them.

In work on theories of practice, disruption is an empirically and conceptually useful analytical lens firstly because it reveals the constituent components (meanings-competences-materials) and the relationships between them that underlie and reproduce everyday taken-for-granted practices. At one level, this relates to the social experience of a disruption. For example, annoyance when strikes remove the ability to meet friends to socialise as a result of absent rail services is indicative of the meaning of a practice itself (in this hypothetical case, mobility as a practice being tied to meanings of sociality and expectations of certain levels of service). During moments of disruption there is, then, the rendering visible of the tacit meanings that underlie practices such as car driving, these meanings and their valuing being one reason why it is often difficult to change practices (Chappells et al., 2011; Wilk, 2002). At the same time, at another level, disruption also reveals the way material objects and the competences that allow their use are intimately intertwined in complex and hard to disentangle ways with everyday life. Verbeek (2005: 80) notes that objects, such as cars and roads, have a significant structuring effect on our lives, and when "a rupture takes place in the referential structure of the world that is disclosed by handy or read-to-hand equipment, this structure itself becomes visible". One insight that can be gained from studying disruption relates, therefore, to the meaning and value people place on the daily commute by car in terms of the generation of personal time and space free from the constraints of work and family (see Holley et al., 2008). The social practice perspective thus raises the following questions: How do we explain, for some participants, the intimate, valued and meaningful connections between a range of practices and mobility?

1. Why and how do disruptions lead to some participants changing the role of mobility in their everyday lives? What situations are linked with permanent change – moving, changing job, retiring, empty nest, downsizing or injuries?

2. What do disruptions tell us about how change towards lower carbon mobilities might occur/be facilitated through: (a) alternative modes being used to achieve the performance of the same practices and the factors facilitating this (e.g. familiarity, experience, competence and access); (b) alternative practices being needed and what these look like? (e.g. online shopping, car-clubs or hire, incorporating active modes into routines)

3. When long-term change happens, what makes it enduring? How do other practices have to adjust?

4. From a practice perspective, what are the reasons that there is not greater recruitment to low carbon modes, and how might these be resolved?

2.2 METHODOLOGY

The methodology for this work is informed by the theoretical framework set out above. As such we adopted methods that illuminate a range of embodied experiences, which are recognised as situated in social, material, temporal and spatial contexts; and in addition that focusing on social practices and not transport reveals aspects of mobilities that are otherwise obscured. We adopted mixed and negotiated methods of data collection including:

1. Narrative interviews

2. Participant-generated data using a 'toolkit' of methods

3. Mobile interviews or go-alongs*

*In the final phase of data collection, the methods used in Brighton and Lancaster diverge somewhat. In Brighton, video filmed go-along interviews were also conducted, and in Lancaster third/fourth interviews and GPS tracking of some participants' routine journeys (n=9) were conducted.

In this report, all data is anonymised with pseudonyms used.

NARRATIVE INTERVIEWS

All participants were interviewed using qualitative semi-structured interview schedules (see Appendix B). The initial interview aimed at understanding the participants' mobilities through mapping out their life histories, through questions on their background, everyday life and relationships, as well as questions relating directly to mobility and disruption. We asked participants to define for themselves what they understood disruption to be.

The second and third interviews were designed to identify any changes to everyday practices, any disruptions experienced and their impact. These interviews further explored themes from the previous interviews, and reviewed ongoing data production that participants were engaging in. Where appropriate this data was used to illicit responses about important aspects of everyday mobility and social practices. An example of an outline second interview schedule is given in Appendix B but the schedules used were individualised, were thus unique.

PARTICIPANT-GENERATED DATA COLLECTION

In the initial interview participants were introduced to the 'toolkit' of methods with which they could collect their own data about their everyday lives and mobilities. Participants were given an information booklet (see Appendix B), which outlined the purpose of the research, how they could take part and what was expected of them as participants. They could freely choose between a list of different creative and visual methods, such as:

- Photography
- Video
- Scrapbooking
- Writing
- Blogging
- Posting on Facebook and Twitter

Participants could further borrow digital cameras and video cameras, including a 'Tuff Cam' designed for smaller children, or a smartphone, to carry out their production of data. A private Facebook group was created (Brighton), where some participants posted regular updates and photos about their journeys. Lancaster participants were invited, and 9 participants agreed, to map their most regular everyday journeys using GPS tracking.

The visual materials generated by participants throughout the project was also utilised in the making of research films, and in presentations of research findings at seminars, workshops and conferences. In addition, some participants in Brighton and Lancaster were interviewed to camera for use in the research films.

FILMED GO-ALONGS IN BRIGHTON

For the third phase of interviews, conventional seated interviews were complemented by video filmed 'go-along' interviews. Participants were accompanied on a regular journey, for example driving their child to a music lesson, taking the bus into town for shopping, or walking to school. The journey would be video filmed and while accompanying the participant on their journey they would be engaged in an interview guided by the third interview schedule, but with increased allowances for digression based on reflections that arose in the moment.

The filmed go-along interviews add another dimensionality to data on everyday mobility, where the use of video is premised on the value of contextualized moving, visual and audio data (Dant, 2004; Pink, 2007a; Rose, 2007). Both the process of filming and the video footage put social and material interactions 'in place' and, in doing so, allow an understanding of the production of space through mobility that is not possible using alternative methods, for a number of reasons. Firstly, video allows us to capture the moment-ness of everyday

life ([Murray, 2008](); [Pink, 2007b]()). Secondly, video enables the capture of embodied engagement with space. It captures experiences through a range of senses (Pink 2007; Brown and Spinney 2010). As Brown and Spinney contest, video allows a 'place travel' that engages with the mobile practices in a way that incorporates the embodied sensory and emotional aspects of being mobile in this way, "an intertextual evocation of inhabiting and attaching meaning to the bodily experience of riding, with its accompanying feelings and thoughts, through the entwining of moving image and language" (Ibid, p.150). Thirdly, video methods facilitate reflexivity in the research approach, presenting the opportunity to re-interpret and negotiate the data, as it is audienced again and again ([Rose 2007]()). This reflexivity also involves the awareness of, and reflection on, the impact of performance on the data collected.

Between spring 2012 and summer 2014, 23 families and 42 individuals in Brighton and 16 families and 25 individuals in Lancaster participated in the study, a total of 67 people. Working with families was particularly useful in understanding networks of support and interdependencies.

The following tables summarises key characteristics of our participants: employment/education status; caring responsibilities; car ownership and access; and distance to work or school as appropriate. See Appendix A for further details. Where available, figures for England and Wales from the 2011 Census are provided as a comparison. All numbers are rounded to one decimal place or one percentage, and the totals may differ from the numbers of participants as individuals fell into more than one category (e.g. distances to more than one workplace, more than one employment/education status).

As can be seen in Table 1, the sample is over-representative of students. This is due to the large number of children in the Brighton sample, and slightly over-representative of the retired.

Table 1: Employment status of participants

Employment status	% of sub-sample	Number	Census 2011* (%)
Employed	43	29	69**
In education	26	18	10
Other	3	2	
Retired	12	8	16
Self-employed	11	7	**
Unemployed	4	3	4.8

* See ONS 2014c

**including self-employed

Table 2: Caring responsibilities of participants

Caring responsibilities	Number	% of total
Child(ren) in household	19	37
Chil(ren) in household and children outside household	3	5
Child(ren) outside household	2	4
Child(ren) in and older people in household	1	2
Child(ren) outside household	1	2
Older people and child(ren) outside household	1	2
Older people outside household	2	4
Grandchildren outside household	2	4
None	31	61

Around half of our participants had caring responsibilities, with the majority of those with no such responsibilities being youths and children (14/51 or 27%). Four retired older people reported no caring responsibilities.

Table 3: Car ownership of participants

Car ownership	Number	% of total
Car owner/driver	29	48
Driver with access	9	15
Driver no access	7	11
Non-driver	16	26

For comparison, in the UK in 2010, 75% of households had access to a car, with 73% of eligible age having a driving license, meaning that our sample is highly representative of the driving population, but over-representative of car-less households (DfT 2011)

Table 4: Distance to work/school of participants

Distance to work/school	%	Cumulative Number in category
Less than half mile/0.8km		3
Half a mile- 1 mile/0.8-1.6km	7	4
1-2 miles/1.6-3.2km	17	10
2-3 miles/3.2-4.8km	22	5
3-4 miles/4.8-6.4km	31	9
4-5 miles/6.4-8km	41	10
5-6 miles/8-9.7km	42	1
6-10 miles/9.7-16km	46	4
10-20 miles/16-32km	47	1
20-50 miles/32-80km	49	2
50-100 miles/80-160km	51	2
More than 100 miles/160km	52	1

Comparing commute distances, our sample seems representative (remembering that these figures include journeys to school). Data from 2011 (ONS 2011a) shows that 75% of workers in the UK had a commuting distance of 30 miles or less, comparable with the 79% of our sample travelling 5 miles or less (including all modes including walking). Census data shows that 52% of commuters travel less than 10km to work compared to our 84%. This may reflect the compact nature of the case study cities. By comparison only 3/14 or 21% of our sub-sample in education travelled more than 4 miles/6.4km to school or college, and 2/14 or 14% more than 10km, compared with 10% in England and Wales according to the Census At School (ONS 2011b)

3. FINDINGS

3.1 UNDERSTANDINGS OF DISRUPTION

As Figure 1 shows, participants mentioned a wide range of experiences and events that they considered to be disruptions. As is clear from the list of definitions, most are not transport system related disruptions – this being an important observation in its own right, and relating to the discussion below about the need to move beyond transport in low carbon mobility policy.

The list includes both responses to being asked about disruption, and those emerging organically as the research progressed. However, this simple representation of what our participants understood disruption to be tends to obscure the myriad ways that disruption was approached conceptually and philosophically by participants in both Brighton and Lancaster. For example, Cilla equates disruption with life, intimating that it is an inherent part of being, and Anna sees disruption as being about how we perceive the things that happen in the course of everyday life, whereas Helena is more pragmatic in her approach.

"It's always that kind of straight down the line and everything else interrupts that is the disruption, rather than life, it is a disruption instead! " (Cilla)

"The thing is I feel that I'm disrupted all the time but I don't think I actually am, I think it's perceptions. I think that when things go right you don't notice them most of the time but when things go wrong, you know, you really make a big deal out of it." (Anna)

"I suppose, on the lowest level, it means not being able to go about my daily life, for whatever reason, so not being able to go about my daily life in the way I've planned, or not being able to spontaneously do something straightforwardly." (Helena)

As often assumed, disruptions are frequently perceived as negative, but they can also be experienced as positive, for example, changing routines that are stuck – disruptions inspiring a creative process, recognition of the need to change arrangements that appear difficult, experiences of something new, stopping doing something disliked, a theme that we will return to later in the report. The following sections draw out two of the key themes in relation to the characteristics of disruption to emerge from the data: that disruptions are part of everyday life and that they are social - dependent on and affecting relationships and experienced in different ways based on difference.

Definitions of disruption by participants

Transport related:
Traffic jam, transport delays, roadworks, car break-down, car not starting, traffic accidents, floods, changing seasons affecting numbers on the bus

Related to social and caring relationships:
Illness of people you care for, injuring yourself, break in chain of picking up and taking children to activities, knock-on effects of traffic delays, end of a relationship, personal life events, family problems, messy room, filling coming out, crowd trouble after football match, running out of money, being relocated at work, unwanted phone calls,

Positive aspects:
Breaking routines that are stuck, experiencing something new, creative process, stopping doing something disliked, recognising need to change arrangements that appear difficult to change

Figure 1, Definitions of disruption by participants.

DISRUPTIONS ARE PART OF EVERYDAY LIFE

The research found that it is common for disruptions to occur as part of everyday life, and people deal with them through a range of forms of improvisation, such as using phones or social networks, assuming they have access to them, by using alternatives to the disrupted mobility, and in many other ways. Examples include:

"So disruption – things tend to go according to plan. Once this summer I wanted to go to my friend's house and someone was going to give me a lift, and when they couldn't go last minute I got a bus." (Emmeline)

"Our younger son had his girlfriend to stay and so we wanted to let them have the car and on one day my husband said that's no problem I'll drop you at work and I can pick you up again about half past five, six o'clock no problem. And so I phone him at quarter to five and said are you still ok to pick me up and he said, no things have gone badly wrong here can you try and get, sort something out. So I phoned [friend] who was in Kirby Lonsdale and I could see it was very foggy. So I said no its ok I'll sort myself out. I sent a quick email round a couple of people I know who live up the Lune Valley but they'd actually just left or they won't going home straight from work. So I thought blow and did what I do very, very rarely and got a taxi home, which cost me about £15. But given how dense the fog was I was very glad that I didn't encourage younger son to come and fetch me because it was horrible [...] I mean the taxi was doing 10 miles an hour so it was bad. But that's a sort of extreme bit of disruption really." (Jemima)

Although experienced every day, disruptions are rooted at different scales. Sometimes disruptions are micro in the sense that they affect few people, are for a short time, or have only slightly problematic effects. Often they begin at a relatively localised level, in relation to one aspect of everyday life:

"Well disruption probably means things getting in the way of what I usually do, which means it would either delay or mean I can't do what I would usually do, so maybe if it's snowing and I was going to play a football match, I couldn't play a football match because the ground is too hard and icy." (Anton)

"The bus never came, I don't know what happened to it, [...] So now I was going to be late for my violin lesson so I had to call my dad to come from work to come and pick me up and take me to my violin lesson." (Daria)

"Minor disruption means that the road that you want to go down on a particular journey is closed, so you have to find an alternative, say 30 seconds worth of thinking to work out a solution that works, that causes a minor hiccup in your life." (Ron)

However, micro-disruptions can quickly escalate as one event sets off another until there is a chain reaction not only in relation to the impact of the disruption but also in relation to the number of people impacted. So a mundane disruption like getting stuck in traffic becomes important when coupled with other things – like not being able to make a phone call. They can then escalate due to a number of factors including the complexity of intimate relationships or the way delay to one journey or activity impacts on another because of the complex nature of many peoples everyday lives.

"Dave was in London doing a job, and it was a Friday and so he was supposed to pick up the boys, and he got stuck in traffic and therefore didn't pick up the boys on time, and it was disastrous actually, because his phone, also his battery ran out at the same time. And of course nowadays, no one has memories of what people's phone numbers are, so he couldn't remember my number to ring me, didn't even know the home phone number here, couldn't remember his ex's number, couldn't ring her. The only number he could remember, because he'd lived there all his life, was his parents number, so he rang them and got them to ring his ex, and his ex was furious because she'd arranged to go out that night. Now, I was at home waiting for him to arrive with the boys, so obviously the easy solution would have been for his ex to drop the boys round here at the normal time and that would have been fine. And if she'd had my number, she could have done that. Unfortunately, she didn't have my number, and Dave obviously hadn't been able to talk to her. So none of that was able to happen, so instead of what could have been something really simple, like her just dropping the kids round and she could have gone out for a night out, she had to drop the kids round at his parents', his parents got really annoyed cos they hate being called upon last minute, and obviously having three kids dropped on you at half an hour's notice isn't great. And by the time Dave got to his parents' it was past their bedtime, so they'd all gone in bed, so they ended up staying the night there and Dave ended up picking them up in the morning. So his parents got really put out, his ex was absolutely furious, Dave ended up doing loads of extra driving, and

I got really worried, because by the time he got home he was two hours late, and obviously I didn't know what had happened." (Emma)

This leads to the second characteristic of disruption, the social and relational aspect, which has important consequences for the ways in which mobilities can be changed to reduce carbon emissions.

DISRUPTIONS ARE SOCIAL AND DEPENDENT ON RELATIONSHIPS AND DIFFERENCE

One of the things all of the examples of disruption we have highlighted have in common is that they are social. Specifically, we found that how people experienced disruptions, and crucially how they responded to them, were deeply social. Who we are, and who our closest social links are with, can make all the difference between a disruption being a minor irritation or setting off a chain of effects that make it a major disruption. For example, family can assist in mitigating the effects of a disruption and prevent it escalating. The way that people respond in any particular case is rarely individual – it usually involves social relationships, with friends, family, strangers or organisations.

"I have a good friend who lives in Settle […] he's a good friend for a number of years so he's also close to the girls and he's helped out with transport for them and still does […] he's actually taking some time off work. He's getting some unpaid leave for a few months. And so having launched [daughter] off with her … stuff to Leeds he'll be off cycling the north of Scotland when her term ends. So I've just said to [daughter], she was saying 'oh if I take my drum kit over how am I going to get it back?' I said 'oh we'll sort something out, put it in storage if necessary'. And so that's disruption in as much as we'll have to sort something else out." (Rachel)

"I've been doing quite a lot of hospital appointments and things with my dad, that's the sort of thing we're talking about. We just done, you know, taking him to the doctors and things like that which is what, it's been quite a lot over the last six months of my life." (Clark)

"I've always had quite a wide friendship group, so there were always people I knew with cars who could help me out if I needed. Like help moving home if I wanted to rent a van, I knew people who could drive it for me, which is relying on other people, but... I make it worth their while. But it's always worked out OK, but as I've got older my friendship... my friends have gone. I've got less friends now than I used to have when I was younger."(Christoph)

Disruption is particularly bound up in intimate relationships and when these breakdown people are often unable to do the things they did before. Hence social connections are important in dealing with disruptions but they can also be the cause of disruption in people's lives or the reason for disruptions being negative (when social connections are severed). As the second quote indicates, practices understood as routines help to create the structure which is lost in everyday life when social relations are disrupted.

"And it's caused a massive disruption, [...], we used to do all these regular activities and they've kind of petered off, like for example, the meditation thing every Wednesday, you know, every other Wednesday she spends at her Dad's so I would only be able to do things fortnightly which doesn't feel as structured as it was before or like the music group that she used to go to was on a Thursday and I've dropped that as well because every other Thursday she's with her Dad so I think that's had a bearing on making decisions about doing stuff because it would no longer be a weekly event." (Edith)

"Dave comes round to see the girls as many evenings as he can, depending on work or whatever is happening [...] That's maybe once or twice a month. Sleepovers – I'm trying to get into the habit of having them sleeping over every other Saturday, because Saturday is the only day that he can have them to sleep over. We're still trying to get into some kind of routine with that [...] It is proving difficult. It's not got into a pattern – he hasn't started doing it every other – it's becoming very sporadic, so I'd like to know where we are with it so we can plan and things like that." (Alexandra)

Disruption is also defined by difference – subject identities matter. Disruption therefore can depend on whether you are single or in a relationship, have children or other dependents, have a physical disability, or have a learning disability. People experience difference in various ways and have complex social identities. Negotiating difference can mean needing to use more carbon emitting modes of travel. For example, if someone needs to travel by wheelchair their experiences of public transport systems can be, but are not necessarily, negative.

> "I've got to learn my limitations and once you get used to a disability it gets easier because you know what you can and can't do and you know when to ask people to help you. Whereas I never used to like asking for help." (Niamh)

> "Getting somebody around in a wheelchair by transport is no joke. No joke. Because my mum was in a wheelchair, and that really showed me up quite a few flaws in the system generally. You know, buses, again fine, taxis, oh, some of them are awful. Because the London cabs are always supposed to take a wheelchair, and many of them won't because it takes a long time to strap in a wheelchair and they don't want to lose the money. Really, I had some awful times with my mother trying to get her home because people just went, "No, I can't take her." I did get very, very cross about the whole thing, shops were inaccessible, you know, general things were inaccessible." (Mary)

An aspect of social difference that seems to be particularly pertinent is that of life stage. Disruption is bound up in the life-course – the stage that people are in their lives when they are disrupted impacts significantly on the ways they respond to disruption.

> "I think it can be mildly frustrating if those things, those routines that you almost depend on, get disrupted, and uhm, but, you have to try to embrace change and make it your friend [laughs], that is the trick. Uhm and I guess the younger you are the easier it is to do that, be adaptable, and I think as you get older less things seems to be adaptable but it's important to retain that adaptability. Uhm, disruption... yeah, it's an interesting one isn't it, chaos can be a creative force, can't it?" (Adam)

> "I'm trying to think when I last had, oh I had to stop because there was a car on fire on the M25 last time I went up and that held me back. But I try hard not to let it get me too sort of fraught because you can't do anything about it and if you get yourself wound up it's not much point really. And I think I'm probably more pragmatic about these things now than I was when I was younger. I've got the radio on, I've got, I've usually got some satsumas or something to chomp away on, or a drink." (Adrienne)

> "I had this kind of year where everything that could have gone wrong went wrong. And I think since then it's definitely chilled me out a bit in terms of things going wrong sometimes, I think I, and people would laugh if they heard me say that I'm a bit more laidback but I probably am. And I think [boyfriend] is a good influence for me in that term, he's pretty kind of 'go with the flow' type thing so he's chilled me out a bit. So now I think if disruptions happen I'm a lot less stressful about it. And, you know, these things happen and you've got to go with the flow, I think it's probably my age as well, I'm probably still learning." (Evelyn).

However, the ways that people experience disruptions to mobility can also tell us that a change to lower carbon travel is less problematic for certain groups of people, for example for people with no dependents but good support networks.

> "Bus both ways, still tired after Xmas virus [...] settled into routine of knitting on the bus, and got a grasp of the frequency of buses out of town [...] Novelty of chatting to people on the bus and I like the knitting habit but the pleasure will wear off" (Rachel - scrapbook: commute, no children at home)

> "Overall I don't have a lifestyle that involves lots of travelling so plans to go somewhere are rarely" scuppered (Rachel - scrapbook)

> "Yes, so I had to somehow work out timetables and how to come into work. Work were really good and really flexible about me coming in, when... you know, as regularly as I could." (Christoph)

"Just after Christmas I crashed my car so I had to use the bus, [...] so I walked into town and got the bus, which actually I didn't mind when it was not raining and when there were no students on the bus [...] it was quite nice to read a book and spend some minutes before you got there, and it was nice to have a walk in the morning as well." (Abigail)

A key message from this research is, then, that disruption is not one single thing. Both the nature of the disruption, how it is responded to, and whether it is positive or negative varies according to social and spatial context. Understanding this differentiation is important in considering how disruptions may help some people move towards lower carbon everyday lives more easily than others.

3.2 DISRUPTION AND THE CAPACITY TO CHANGE MOBILITY PRACTICES

The way that people talk about disruptions illustrates that there is capacity for change in practices, including practices that have the potential to reduce carbon emissions. Disruption is a common part of everyday life, and our research shows that people react by altering timings, routes, modes and activities. But, at present, the potential to yield long-term change in mobility appears limited. Disruption often involves change for a short time. People react to a disruption, 'cope' and then return to the mode of mobility used before. However, whilst this is the most common observation, it is not always the case.

We can learn some important lessons from observations in our data of long-term changes in mobility practices. First, we see that the changes most likely to stick are those that involve a positive experience of the alternative practice. Exemplifying this, our participants having a positive experience when changing in response to a disruption noted that:

"Yes, it was a bit of an inconvenience, but it spurred me to walk everywhere a little bit more, and to rely a little less on the car, but only for going round town." (Abigail)

"I guess disruption might be physical things – bad weather or road works [...] I guess it's a bit of an annoyance but I always think there's a way round it. So if it was bad weather I might work at home. Actually I might use public transport, because it's not me that's driving." (Abigail)

"Not all disruptions are necessarily bad. We live on a quite steep hill, and when it snows, you can't drive up and down the road, which is definitely a disruption, but it's not necessarily a bad thing. It's definitely extra work, but I think it's quite nice… So it depends how you view disruptions, whether you see it as a huge obstacle or a challenge or whatever." (Michael).

As these comments demonstrate, depending on the capacity to adjust the aspect of everyday life affected by the disruption, and the particular perspective on disruption of the individual, disruption can lead to positively experienced change. As we discuss below, positive experience alone is not enough for the change to stick in the long term. But, it is an important consideration.

In addition, it is also important to recognise that some activities are easier to adjust than others, and some disruptions are easier to respond to than others. In particular, disruptions that led to long-term changes were often associated with more than just changing modes of transport. They also involved much wider changes to the ways our participants live their lives. As such, disruption to mobility alone is not enough for change to be significant, as revealed by one example of change in which the shift from the car also meant changing shopping, socialising and a range of other practices.

"You know, it's made me do things like, you know, when I had a car I used to drive it because it was there, so I'd like, you know, need to get some food and I'd think, "Yeah, I'll drive to the supermarket," and now I walk to the corner shop and that's actually loads better in loads of ways. I pay a bit more for my food, but loads less than supermarket food prices plus the cost of motoring. I get a better sense of kind of... well, all the kind of hippy nonsense like a better sense of community from chatting to people in the corner shop, and I'm sure there are so many benefits of not having a car, but I'd never have discovered them if someone hadn't forced me." (Roger)

We must recognise, therefore, that how people cope with disruption depends on a range of interdependent factors including who we are, where we are, when it is, the importance of what we are doing, and the relationships that are affected. For example, there is evidence from our research that people can often re-jig where and when they do things, for example discovering a new route from work, to the allotment, to the supermarket and home, or changing the main shopping destination to fit it into a route with a new (in this case, leisure) practice:

> "Before I started going to the gym I used to usually go to Booths in Scotforth on the way home or to the Coop in the village [...] I tend to leave about quarter to six, drive into town, park at Sainsbury's because it's free at that time of the evening, and then drive home after the gym. […] I do quite often go into Sainsbury's and get a few bits and pieces." (Jemima)

And these short-term alterations are themselves sensitive to change:

> I haven't actually been back to the gym since the beginning of December. So that's obviously a routine which has been broken.

> *And has that changed now, now that the gym has disappeared?*

> Oh yes, very much so

> *So have you gone back to Booths?*

> Yes. (Jemima)

In addition, activities that have fixed times (especially fixed work times and school starts) make flexibility in response to disruptions difficult, particularly when one activity is scheduled directly before or after another time fixed activity.

> "There's also a rush because that finishes at six and then you need to get home and eat and then Woodies starts at seven thirty and..." (Amy/Bob)

> "So we get up about ten past six, I feed him his breakfast, I have my breakfast, I have a shower and get changed and then we got a walk [...] So I should really do about 25, 30 minutes but if I run out of time, like today he got about 15. And then I have to walk him back home, drop him off at home and just put, I don't do anything, I literally just put him in the house, give him something to eat and go straight out to the bus stop and then get the bus from outside the Co-op on Western Road [...] if I'm late... it probably takes about 20 minutes but it usually takes about half an hour, yeah, and usually I try and get to work for about eight but when I've got the dog it's just impossible 'cos I'm too tired, I can go up there so I've been getting in at about half past eight, quarter to nine at the moment I must admit." (Evelyn)

Indeed, we collected a number of examples of limited change, or change that doesn't have beneficial impacts on carbon emissions. This often related to the way the car becomes the only viable alternative for certain groups at certain times. In such situations, cars have come to represent flexibility and the ability to 'squeeze in' and attend to the demands of everyday life.

> "If we were in Manchester it would be my parents, because I've done that before the tram's broke and I couldn't get out of Manchester. But I arranged with my dad that if I got so far that he'd come pick me up." (Ruth)

> "My mum in one sense, because absolutely there at an emotional support level, but practical support level she wouldn't be the first person I'd go to, partly because she hasn't got a car." (Helena)

> "So my mother was here an awful lot because I have three days of teaching that I have to go in and so any kind of lifts that have to be done on those days I only get home at seven thirty in the evening so I can sometimes pick up from orchestra, Mondays I was able to pick you up a couple of times but I can't get her there and I can't do other things that happen before then so my mother was very helpful and it's just as well she's got a car and she can drive but yeah, we have a lot of carpooling going on as well,

fortunately, particularly one friend that she does both orchestra and concert band with so we help each other out as and when." (Amanda)

In particular, we observed in our data a tendency for people to have everyday lives structured around particular spatial and temporal rhythms, which often they do not have control of. For instance, the location and timing of work, school, leisure classes, healthcare and shopping all influence mobility demands, and in turn the possibility for responses to disruption involving shifts to low carbon modes. Transforming spatialities and temporalities to make walking, cycling or using the bus less problematic as part of everyday rhythms is thus crucial if short term low carbon responses to disruption are to become long term trends. As such, disruption illustrates the potential for change, but also the need for this potential to be unleashed through interventions that reach well-beyond modes of mobility and into the organisation of everyday life (see section 3.4).

3.3 FINDINGS FROM A MOBILITY CULTURES PERSPECTIVE

This section expands on the findings that have been generated in response to our research questions from a mobility cultures perspective.

WHAT ARE MOBILITY CULTURES AND HOW DO THEY DETERMINE EVERYDAY MOBILITIES?

The contention that mobilities cannot be adequately understood just by focusing at the level of the individual, or by focusing on the journey itself, leads to an understanding of mobility as being constituted through 'mobility cultures' at different levels. This perspective acknowledges the relational constitution of mobilities and the way they are rooted in collective practices and structures of meaning. Discourses of mobility - the different investments and trajectories that maintain sets of knowledge and practices around mobilities at different levels - both produce and determine cultures of mobility.

Choice of mobility mode and ways of moving have implications for social interaction and the negotiation of identities, lifestyles, class, personality and environmental values (Pooley et al. 2005), since each practice has normative regulating principles, norms and socialisation processes (Jensen, 2010). This is perhaps particularly clear when it comes to cycling in the UK, as participant Christoph relays in his narrative about being a keen cyclist in Brighton, which constructs his own subject position in relation to his cycling practice but also mirrors wider discourses of cycling as risky:

> "[Things] thrown at you as a cyclist is quite a bizarre feeling, and that happens quite a lot, much more than you'd imagine. And just people shouting at you, just because... well, for no reason really, sometimes. Generally because I'm a... I think cycling's dangerous enough, so I wear a helmet, I wear lights, I don't jump traffic lights, I don't cycle on the pavement. Basically, I do everything by the book, and you still get abused. But I do that for my own safety." (Christoph)

Certain mobility practices can become signifying practices and become embodied within particular cultures of mobility. For example, historical cultures of mobility were a common mention in participants' mobility narratives:

> *So you said already that you walked to school like most people did I suppose at the time?*
>
> "Yes, and we were allowed, we weren't with other parents either, we walked on our own, you know, with a group of children going to school, we didn't, I don't think our parents walked with us particularly, and that's when we were quite young, sort of five or six. I don't remember them coming with us, but then maybe they did, in the background, maybe one parent, I don't know, but I don't recall seeing them doing that. It just seemed safer somehow in those days, you wouldn't dream of doing that now would you really?" (Adrienne)

Mobility cultures are also tied to particular places and the capacities that are created for different modes of mobility in those places. An example is found in the interview with Bob about his experience of daily mobility modes in the different countries he has lived in:

"Yeah. And yes with me well as Amanda says we were in London for a long time and before that I was in the US and working in Africa for a long time there and at various points I've had motorcycles, bicycles, cars and things to get around. Public transport is not a big thing in the States. Very difficult outside of certain central cities, like New York, so yeah I've grown up with cars since a very, and motorcycles from a very early age I guess and bicycles. But in London we really relied on the Tube and trains a bit and then we, when Amy came along we broke down and bought a car. We really didn't want to, but when she came we decided we needed that and... That's really the main priority. In terms of walking we, that's another thing we sometimes use the car, we'll get out of town with the car and then do our walks now and again, but neither of us do enough of that." (Bob)

In Bob's narrative we also see allusion to mobility culture tied to the life-course, such as the need of a car once a couple has a child. Another participant Dana, talks about her experience of being both a pregnant woman, and then a mother with children, on public transport:

"I remember being very stressed by the transport in London because I was pregnant twice and had to travel, you know, I worked at that time, to travel places, didn't get seats, you know, found it very tiring, and then when I had young children, things like, I remember waiting for buses and then they'd just go past and you'd be waiting there, like, and then the next one would come and then there wouldn't be space on it and no one, that's, I have a quite strong memory of that, actually, that it wasn't taken into account that you had children, you were kind of struggling on the bus, it was just, "We've got a job to do, I'm going to my next stop", kind of thing, "And you can't get on", and then we came to Brighton and, you know, the buses would wait for you to get on with, like, you know, double buggy. So it was, I did notice that the transport in particular was a lot less stressful here than London." (Dana)

"And, yeah, I don't know, you know, we were only doing things like going to play group and going to the park and visiting friends, and everything was kind of quite local, and if we had to do any long, and Michael was working at home. We didn't really, if we had to do longer journeys we just went by train or bus, but then it did become more difficult when we had a third child. I think we got a car then because we just couldn't get on the bus anymore, it was a bit difficult with three because they were all quite close in age sort of." (Dana)

Dana's narrative, as well as Bob's, further highlights the way mobility practices change dependent on local infrastructures, material and relational capacities for making choices about travel:

"I fixed up or I cleaned up our bikes which we had from when we were living in London and we'd taken with us to the States. In the US I used to ride every day, even in the winter through snow and ice to get to a train station that would then take me up to New York. And I did the commute that Amanda's now doing, which is the horrible get up early and come home late commute and that was even worse battling through New York City. But now it's very convenient for me to be local and the beauty of living here and one of the reasons you were the one to say we wanted to be in this area is because we're quite close to her Mum and then we're also close to the train station, so you just walk down the block and get on London Road to the station there in Brighton. And for me I go the opposite way to IBS when I take the train there. I don't use buses very often here." (Bob)

In these ways mobility cultures reflect wider normative discourses of mobility, and changing cultures of mobility will entail shifting dominant discourses of mobility. We identify three key dominant discourses that need to be challenged in the section below.

EMBODIED DISCOURSES OF MOBILITY

The element of contradiction within institutionalised discourses of mobility is evident at the level of everyday practice where individuals must negotiate these multifaceted discourses in relation to their everyday mobile practices. In daily mobility practices, individuals must navigate a complex terrain of subject positions, choices and perceptions of responsibility. As such, individual discursive narratives about mobility often reflect an element of ambivalence and conflicted emotions; themes of legitimacy and freedom are often set against perceptions of moral responsibility and feelings of guilt when pressures to reduce car travel are not met. We

identify three prevalent ways that mobility is narrated by participants; as an emblem of modernity and freedom but also increasingly as a moral choice.

MODERNITY

The foundational role of mobility in contemporary notions of modernity has worked to naturalise high frequency and high-speed movement as something that barely needs justification. The car was often narrated by participants as symbolic of a transition into adulthood and working life, and thus positioned as central to the pursuit of success:

> "I never even questioned the idea that I had to have a flat with good free on street car-parking outside, and that I'd drive across London to go to work everyday" (Roger)

Car travel was also often justified in participant narratives as a way of helping one to be efficient in managing the many demands of modern life, linking to pervasive institutionalised discourses of connectivity and speed (Urry 2007; Miele 2008; Wacjman 2008). Alongside the increasing time pressures and speed of modern life in general (Hassan 2009; Hylland Eriksen 2001), participants placed a great deal of value on the car as a means to optimise the productive use of one's time;

Time is a big factor because I'm already bound by the routine of having a small child … I always feel like I've got a lot of specific things to fit in a day at specific times. And I kind of feel like there would be situations where I would choose not to do something if, for example, I had to walk there or if I had to take lots of buses, because of the time and also how easy something is, as well, you know, again, if it's easy to jump in the car and drive ten minutes as opposed to take half an hour catching two buses with a buggy and a small child that is tired. (Edith)

Thus, the car was represented as a justified means of coping with the demands of everyday life. However, such narratives also serve to highlight a broader politics of mobility (Cresswell 2010), where representation is entangled with the materialities and bodily habits constituted within practices such as working and caring for children. More broadly, participants' accounts reflect the ways in which discourses of modernity produce pressures associated with both being 'good' parents (Murray 2009) and 'enjoying' the 'freedom' of speedy connectivity:

> "And then on a Tuesday night Emmeline swims as well so she goes to the earlier session, so it's quite complicated maybe for, so she starts swimming at 5:30 which means we have to leave at 5 because it takes longer in the evening because it's traffic-y. So we leave at about five to 5 if we can and we drive all the way […], Emmeline swims from half past 5 to half past 6 and then I drive two of her friends […] we leave at about half past 6 and generally I get back about quarter past 7 or something […] but last night it all changed because my friend had to have a massage because she was very stressed, so I did the late pickup and she did the early one […] I dropped them […] at 5 and I went straight back to work…And then I just whizzed across, no traffic, lovely sunny evening […] pick up the girls […]." (Audrey)

FREEDOM

Wider neoliberal discourses of mobility as a right of the modern citizen are reflected at the everyday level by discourses of freedom and independence. Driving, in particular, is positioned as the zenith of independent mobility:

> "When I was in the sixth form I had my own car, which in Brighton just seems crazy but where I was in Essex my car was the worst car in the car park, everyone had really nice cars and mine was this sort of second-hand Peugeot […] I was desperate to learn to drive, absolutely desperate, couldn't wait till I was 17, everyone drove." (Evelyn)

> "I think it's a kind of combination of the freedom of having a car and also the freedom of finally being able to get out of where you live without the help of your parents for the first time." (Cilla)

These participant quotes exemplify the discourse of automobility as freedom and also, perhaps, gendered automobility (see Priya Uteng, and Cresswell 2008). Narratives of freedom and independence are also closely linked to embodied experiences of driving – feelings of enjoyment at the possibilities presented by independent mobility – an aspect that is often overshadowed by increasingly pervasive narratives that posit driving as environmentally harmful and irresponsible. Here, the enjoyment of mobility shapes the social:

> "My first car was a convertible and it was great fun driving up and down the motorway to go and see [my boyfriend] ." (Edith)

> "I just loved driving so much sometimes I would just drive around like it's just nice having that freedom really." (Anna)

Thus, at the everyday level, the car was often posited as the ultimate symbol of freedom, whilst it was also clear that mobility choices involved a negotiation of a complex terrain of intimate relations, responsibilities and daily practices.

MORALITY

Whilst championing the individualism of automobility, an emerging moral landscape of transport has seen car travel constructed as immoral. Discourses that emphasise individual responsibility can be seen to produce certain affective stakes, such as feelings of guilt associated with car travel. For example, another young participant, Laurie (13), mentions feelings of guilt when she travels by car:

> "If I'm going on long journeys or even short journeys I always do feel a bit guilty [about travelling by car] I just think we could be walking, we could be doing more walking." (Laurie).

However, it is generally acknowledged (Whitmarsh et al. 2011) that knowledge and concern about climate change science in itself is often not enough to trigger a change in mobility practices, such as encouraging people to drive less (Harada and Waitt 2012). Participants' narratives also strongly brought to the fore the material and social constraints which often blocked efforts to use the car less. This was particularly evident in interviews with participants with caring responsibilities, particularly those with younger children and those who lived in suburban or rural locations where public transport was not a viable option. One participant, a mother of two children in primary school, felt conflicted about her decision to learn to drive:

> "I feel a lot of responsibility for the environment and I want to do the right thing by the environment and by my kids […] driving feels like a step in the wrong direction, but I feel like I'm almost being forced into it living where we do." (Eleanor)

There was often a degree of ambivalence incorporated in participants' responses to the discourse of moral responsibility. The discourse surfaced in most participant narratives, but was not always embraced as a key consideration when it came to their daily mobilities. The morality discourse was frequently resisted from below by everyday efforts to manage daily life within personal, financial, institutional and environmental constraints. Thus, discursively constructed positions of responsibility in relation to the environment were easily overshadowed by more mundane realities:

> "How much discomfort can you take to help the environment, you know what I mean, like for example when I go and see my mum and dad I know I should take the train but that takes eight hours and if I fly it knocks half the time off, … so I make my excuses and I take the plane and that's really bad for the environment … so although like I'm going you know, oh it's good because I use the bus and even better when I cycle, cycling is good exercise for you, yeah, you wonder how much discomfort you can put up with to help the environment, yeah, no, I do say it's important to me." (Anna)

There is a pervasive discourse where the car comes to represent the ultimate in freedom, independence and convenience. Material conditions, constraints on time, caring responsibilities and the various stresses of modern life are felt ameliorated by the comfort and ease by which one can transport oneself speedily from one place to another in the car. Daily mobilities are enmeshed in bodily and sensate relationships with both modes of mobility and mobile spaces.

It appears that the car represents a means to live up to the myriad expectations of modern life. It is not only a metaphor for freedom, but an embodied mobility practice that enables freedoms, especially for those encumbered with the gendered responsibilities of life in the modern family. However, such demands produce ambivalence, particularly in relation to embodied responses to discourses of moral responsibility. The policy drive towards more sustainable mobilities is resisted at the micro level of everyday embodied engagements because it is easily overshadowed by mundane social and material constraints and affordances; and by bodily dispositions and disabilities. It is the often overlooked and obscured mundane sensate relationships that people have with mobilities and mobile spaces that hold the most significance in constituting mobile behaviours

HOW CAN WE BEST UNDERSTAND THE FORMATION OF ROUTINES, HABITS AND THE PERCEPTION OF 'NORMALITY' IN EVERYDAY MOBILITY PRACTICES?

Below we draw on the ethnographic data to explore habit, routine and normality in the participant narratives.

HABIT

'Habit' is discursively constructed in different ways in different places and by different social actors. This includes it being seen as an embodied disposition:

> "I used to just walk almost all the time back from school. So I got into the habit really, really young, just thinking that a seven mile walk is nothing… So I've always tried to instil that same sort of attitude in my son, really, and he really likes it, so I always offer him the choice, "Shall we get the bus, or shall we walk?" or, I don't know, sometimes, "Shall we use the car?" I haven't got a car but I use one from the car club sometimes. And he almost always says he'd prefer to walk if it isn't raining, and he does like it" (Roger)

It is also seen as something aimed for as 'good'

> "I've always got really good intentions of sitting down and doing a meal plan and looking at recipes and working out what I need to get and then doing like batch cooking but I never quite get round to organising it… and then I'll put in place good habits but I don't do it, I end up, quite often I end up because I've got Waitrose at the end of my road, just every day or every couple of days just nipping up there to get everything" (Edith)

It was referred to in identity formation: Christoph defines himself as a 'creature of habit', which he describes not as an indication of inflexibility, as also sees himself as dealing well with habits being disrupted, but as a marker of imperturbability, his ability to be 'unconfrontational'.

> "I'm quite a creature of habit. I can hear my colleagues laughing, just me saying that, what an understatement that is! I have a banana at a certain time in the morning... I don't really, but they think I do. But I am quite... not structured, but I do tend to do the same things over. So I'm also very kind of... quite unconfrontational, so... I've never seen the point of getting wound up by delays and stuff, because you just... because it's not a nice experience, is it, and you just make it ten times worse by getting angry and frustrated." (Christoph)

But habit is also situated in context. Cilla relates her adoption of 'bad' habits to the opportunities available in a city like Brighton.

> "I've become really lazy too. Say I've come from somewhere which has one bus stop in the centre of the village to somewhere which has bus stops everywhere and buses all the time I am unreasonably annoyed that I have to walk that bit further! Yeah, but I think that's a Brighton problem, I think everyone gets in that habit and I think as well you start, you know, I used to drive half an hour, 45 minutes to see my friends for half an hour and didn't think anything of it, and now if I have to travel more than fifteen minutes to see someone in Brighton I think it's really far away and maybe not worth it, like it's the Brighton problem, it's there!" (Cilla).

ROUTINE

Like 'habit', the concept of 'routine' is discursively constructed by participants in different ways dependent on different subject positions and contexts. One example is 'Adam', a retired man in his early 60s, who has a non-cohabiting partner in the same city, who he sees at weekends. When mobilities are less dependent on close relationships, routines can become more focused on the micro-mobile, and the distinction between what is a routine and what is a habit becomes blurred in their discursive construction.

> "Yes, I do get thrown by disruption undoubtedly, I like planning and when the plans are disrupted I kind of feel slightly miffed and I mean there's a lot of disruption at the moment, as you know, there's road-works all over the city […] I mean sometimes it can be a positive thing, if it throws you out of your routine and you discover something new, you might go a different route, and it's like "oh! I've never been around this part of Brighton before" or been down this street before or you know, so it can open some things up to you, disruption […] you do get inevitably get into routines, and I think it can be mildly frustrating if those things, those routines that you almost depend on, get disrupted, […] but, you have to try to embrace change and make it your friend [laughs], that is the trick." (Adam)

Habit and routine are often used interchangeably by those who develop habituated mobilities. Indeed Christoph uses the terms 'habit and 'routine' interchangeably when referring to the same kinds of embodied practices. When discussing changes in his life after passing his driving license and getting a car in later life:

> "I don't know because it's such a big life shift for me. I'm not used to doing something like a Saturday shop or a big shop once a week. I'm a, you know, three or four times a week I'll go to the supermarket on the way home and buy, and just pick up what I need. So I don't know if I'll get into a routine of, I don't know, I mean there's still just me so I don't need to buy things in such bulk or in such quantity that I can't carry them home on the bike generally. And I don't mind shopping several times a week because it's fairly quick, you know, it's fairly close to where I live. But I might, yeah suppose I might get into bulk shopping. I've got a hoarding tendency so I don't think that's a very good thing. You won't be able to get past the toilet rolls as you come into my flat. Yeah, I don't know. I'll have to wait and see on that one really." (Christoph)

For many of our participants, and especially those with caring responsibilities, routines are a necessary means of coping with the myriad aspects of everyday life that produce complex mobilities. One family: Clark, Audrey, Alice and Emmeline, have a complex routine that Clark says has 'developed over time':

> Alice: It's very regular.

> Audrey: Yeah, it's very regular. Yeah, it's very routine-y, which I don't really like. But I suppose the summer holidays were a bit more dashing around.

> Alice: But it is a routine. It's very, very regular.

> Audrey: That's most people's lives though. I suppose unless you do something...

However, this routine takes some effort to maintain and often embodied dispositions can get in the way:

> Alice: Like this morning, I normally leave about eight, and this morning I woke up at quarter to eight. I had my alarm set for seven, and I woke up at seven and I was like, "No!" so I fell back asleep.

> Audrey: It's very unlike you, isn't it.

> Alice: It was very unlike me. And then I got up and I was like, "AAH!" and speed dressed and had my breakfast.

> Audrey: It's amazing, you can do it in 15 minutes. You did everything you normally do in an hour in 15 minutes.

Despite experiences of this routine as something that is fairly fixed, further discussion illustrates that it is in constant flux, and disruption becomes incorporated into the routine to the point that it is often overlooked. When the family is asked to reflect on this, they suggest that disruption to their routine is potentially positive:

Alice: Wednesdays we run, not swim. I used to do a random morning, either Tuesday, Wednesday or Thursday morning, which I don't normally do as much now, but I am doing tomorrow morning 'cause it's half term, because I've got a four day weekend, so it's my last day of school for the week today, which I'm very happy about. And because on Saturday there's a swimming gala, so we're not swimming on Saturday morning, so I have to make up for it by doing another morning.

Audrey: Is that what you would class as a disruption? Or is that just a change in routine? What do you think?

Alice: I don't know. I think it's a bit of both. It stops you from doing your routine. It's the same sort of.

Audrey: Disruption and what? And routine?

Alice: And routine, it's the same...

Audrey: I suppose it is, yeah, it is. I always think...

Alice: Yeah. Changing routine would be a more happy thing, whereas a traffic jam would be a disruption, it wouldn't just be a change in routine.

Audrey: It's a happy thing not to get up on Saturday morning, isn't it?

Routine is considered an integral part of parenting. For Edith the routine is something important to hold on to as part of her caring role. It is a way of managing her role as a parent and being a 'good' parent. It then becomes difficult when routines get disrupted, especially as this is bound up in conflictual intimate relationships. Eleanor similarly relies on routine in this way.

"Lara was in a really difficult mood again tonight, she's being a real challenge lately. I wish I knew where I was going wrong and what I could do about it. What triggered it was her new computer game crashing – yet again – after I'd just deleted a whole load of programs because I thought the problem was that there wasn't enough room. Then it was all downhill from there and nothing I could do was right. Sarah was tired out too, which really was my fault because I kept her up so late last night, disrupting her routine. So I'll have to get her up half an hour earlier in the morning, to finish the homework she was too exhausted to do tonight." (Eleanor)

Significantly, these complex routines, often associated with caring for children, are shared rather than individualised, they are characterised by a range of interdependencies (Murray 2009, Jiron 2014). They are responses to social contexts and involve a range of interconnecting mobile trajectories. So when one set of routines change, the interdependent routines also change.

"I mean I think it's sort of happened organically anyway because a lot of my peers are having second babies so they've stopped doing many routine activities anyway, like either during late stages of pregnancy or early stages of having a newborn so I'm still spending a lot of time with them, a lot of social time but it has taken the pressure off in terms of feeling like I've always got to be doing something and being somewhere or I'm going to be late, that's one of the things that I'm always late for everything so if I'm setting myself goals every day, like I've got to be at the music group or some other kind of group at like say ten thirty in the morning and then running late, that just adds another stressful thing, late for work or whatever and if you turn up late everybody looks at you, yeah, I feel self-conscious and it's just not nice so one of the music groups I just stopped going to partly because of that ." (Edith)

"but now my daughter's a little bit older and she's spending more time with her dad and she's also now going to pre-school, that's meant that that's taken away part of that time that we were using to have those regular meet-ups so I've found it difficult to keep that routine going and the regular events that we were

doing has really reduced so yeah, it's impacted both our lives and I guess it will again when she goes to school." (Edith).

NORMALITY

Like 'habit' and routine' the term 'normality' is used in daily life to refer to a number of its aspects. Normality is often used to signify prevailing social and temporally specific social norms or dominant discourses.

"In those days it wasn't normal to take the car shopping for example, we'd walk to the shops, there'd be a whole variety of shops that you'd walk round, very different from today's drive to a supermarket experience, so yeah it was more special occasions and long trips." (Adam)

But it is also used in relation to the everyday or routine occurrences:

"I say, if you were on earlier buses it was fine, but I know a lot of people who came in normal time, you know, as in for a 9 o'clock start, were finding they were getting really, really delayed." (Mary)

Or about a healthy state of embodied disposition as Mary and Cilla discuss. Mary describes her hysterectomy operation and the embodied disruption to her everyday life.

"I was off work for nine weeks in total, because it was […] sort of caesarean-style, sort of, you know... giant fibroids, not nice, really not nice. And one of my friends who had had a hysterectomy herself and was an ex-theatre assistant had said to me, "It takes you six weeks to feel vaguely human again, three months before you start feeling normal again, and 15 months before you are back to normal," and I was like, "Really?" She said, "Oh yeah." And the six week thing she was talking about was in fact when you turn the stitches over, and you, one day you just suddenly think, "I can turn over in bed," because up until then you cannot." (Mary)

Normality, like 'habit' and 'routine' is bound up in complex and interdependent social relations. Eleanor describes a normal life as one that allows her to do things that are beyond those that 'keep [her and her family] alive'.

"Well it is a big reason, I mean yeah it's, you know, I feel like I don't have much of a life, by the time I've sort of done the commuting and done my job and done the housework and given the kids what they need there's nothing left, you know, I've no energy left to do anything else other than a bit of art, you know, that sort of just about keeps me alive, but I don't have a social life really and I don't have a normal life in that sense." (Eleanor)

Responses to disruption are not always deviations from norms or routines, but on the contrary may involve following another established set of norms or routines (Jensen 2010) in producing mobility in a way that is socially and culturally acceptable.

"The agreement is that I go in three days a week, but it varies during teaching times, it's sometimes four days and then you know when the students are not around I'll reduce it to two days if I can. But that means that I leave, on a normal day going in I'll leave at 7 o'clock in the morning and get back at 7.30, but if I have a lecture at 9 o'clock I actually have to leave at 6 o'clock in the morning, it's the only way I can get there on time because there's only one train an hour and it takes me about two and three quarter hours door to door because of the, mostly because of the commute at the other end from the central station to the campus being a bit annoying with the bus being a bit unreliable and particularly on the way home because there's only one train an hour I can't afford to miss it, so I have to get the bus early enough, if I can battle the crowds of students, to get to the station, so I end up sometimes hanging around the station a bit." (Amanda)

CONNECTIONS BETWEEN A RANGE OF PRACTICES AND MOBILITY?

We found that some regular mobile practices (the school run, leisure travel and visiting friends and family) were valued both in and of themselves, and for the contribution they made to participants' lives, often through the possibilities for novelty, escape, comfortable routine or sociality that they provided: in other words as they were experienced as productive or quality time. However in most situations, it was the activity accomplished through mobility, rather than the use of a mode of transport itself, that provided these sorts of values and meaning.

The few situations where the mode of transport itself was considered to be valued in and of itself were linked to well-known affordances, meanings and associations: for example between active modes and exercise (in one case, described as meditation), between walking and cycling and the value of 'transition time' on commutes, between the car and convenience for transporting goods, or between passenger modes and other valued practices such as reading, listening to music, watching the scenery and day-dreaming.

> "[My father cycled] to keep his weight down basically, because he was in a management job, he was sat all day, it was his only way of exercising." (Felicity)

> "I'm hoping that I'm just going to get really fit, you know, like in a couple of months I'll be in really good shape because of all the walking." (Clara)

> "You had time to relax ... when I cycled it was too close and I needed to walk to have extra time ... I never had that time out to de-stress before coming to work or from work." (Niamh)

> "I'll walk home, It's a 45 minute walk, it's quite a nice de-stress at the end of the day." (Rachel)

> "I can work on it, read or phone or whatever. So that's what I like about the train… the use of time." (Helena)

Reflecting the central message of traditional transport research, the relation between distance and time associated with journeys between sites has a major and often decisive influence on modal choice, with the car often winning, but at shorter distances the 'active' modes (walking and cycling) can be used.

> "My bike has been my transport of choice this week - suitable for the journeys I've been doing - all more or less within the city centre really and, as I've said before, quicker overall than driving round and round the one-way system. There's just been one occasion when I've driven myself somewhere - to a singing rehearsal in a village twelve miles away and rather off the beaten track." (Helena blog)

If an individual and their lifestyle (in this case, self-employment at a variety of sites) allows it, multiple modes can be used, and the choice between them determined primarily by distances, and the times taken (usually based on traffic/congestion delays) and cost, travel time use and temporal flexibility:

> "In an average week, I will use almost every type of transport there is. At the moment I'm still going to Barrow once a week, and I nearly always go up there on train. I drive sometimes, but the reason I use the train is it's cheaper [...]. So that's what I like about the train, the price, and the use of time. What I don't like about it is it's a fixed time, [...] For places like- I mentioned the […] College where I work [...] we share the car, he drops me off usually or sometimes I drop him off. It depends who's doing what. But that day will definitely be a car day […] Tomorrow night for example I'll be going on the bus because my husband needs the car, Wednesday night I'll have the car., it really varies. And were this a summer conversation I'd probably say I'll cycle out there tomorrow night. So that's how I really do, and general things around Lancaster I walk for the most part." (Helena)

The research also showed that people quite often stick to rigid routines of using particular modes of transport for specific activities, even when their use is not part of everyday life. It is not surprising that both walking or running (including hill-walking, rambling, Nordic walking, and jogging) and cycling were found to be used for leisure by different participants, variously using cars, buses and trains to reach the start of these leisure trips. Sometimes exercise activities create new car journeys, primarily because of the need for equipment or clothing.

> "Car. Cos the bus never takes you to the exact start of the walk. And the bus takes forever [...] I'm sure it must be a very pretty ride, but it's kind of a bus ride to do for the sake of doing the bus ride, rather than have a bus ride to go and do something and come back home again." (Andrew)

> "Well driving to work so I can go to the gym at lunchtime. Also going to take swimming stuff if case I fancy going after work as I won't be able to go on Wednesday." (Niamh)

> "Went to sports centre 24th march by car for an hours swim. Car used. I just wanted to get there to have a swim and it was too cold for me to use the bike which is the means I should have used […] Car to sports centre this morning. Took wife into work at 9.00. I played table tennis. Car used because of equipment and time as had to be back for second session of T[able] t[ennis] which was walked to in 5 mins." (Joe)

However in some cases the leisure was anticipated and the mode incorporated into other practices (e.g. the commute):

> "If I go road cycling I normally cycle to work and then we'll head up from here round [the Trough of] Bowland." (Ruth)

In other cases modes of mobility and specific practices are compartmentalised, particularly between leisure and functional journeys. As examples, one participant cycled for pleasure until they had to commute by cycle, when they switched to walking for leisure, and another commuted exclusively by cycle (8+ miles) but was otherwise resolutely a driver.

> "He's very much a car user. In my opinion he's a car user and it's just he's got in his head he cycles to and from work and that's what he does. But he won't think about walking or cycling the rest of the time unless I'm forcing him out whereas because I'm driving to and from work now most of the time I'm much more keen to go for walks or cycles." (Niamh)

Certain practices (rather than people or areas) were found to be car-dependent, meaning that even those without a car needed to access one to fulfil them. These included long distance specialised shopping and visiting the tip.

> "As we had the car and we had some free time let's just go and do the sofa shopping. Because you can't get to the, well in Lancaster you can't get to any of the retail parks in Preston and stuff easily [...] when we have the car we make use of it. So when we've got the car we'll stop off at Ikea, or take stuff to the tip from the allotment or I want to pick up some compost, while we've got it we'll think what do we need the car for, and get it all done that weekend. So it's thinking ahead." (Ruth)

WHAT DO DISRUPTIONS TELL US ABOUT CHANGE TOWARDS LOWER CARBON MOBILITIES?

In general, we found that participants changed the role of mobility in their lives primarily as a result of major disruptions, usually chosen rather than imposed, at moments of key life-course change. For example, moving house, changing jobs, retiring, permanent or long-term injuries or illnesses, the moving out of adult children and 'downsizing' (giving up a car along with a managerial job) were all found in our data to be linked to rethinking mobility, and particularly giving up car use. Shorter term disruptions more often led to coping behaviours, often involving changing transport mode or retiming activities, but rarely leading on to a permanent change in mobility practices *per se*. The availability of car access was often important to these coping strategies.

"But I did rupture my calf muscle last spring, and for about three months I was limping on crutches, and in that time I used the buses and the train a lot more […] I couldn't cycle or really walk at that point." (Christoph)

"If I've known in advance I'm not going to have the motorbike, for example I've had to have the fork seal replaced, or it needs to go in for its MOT, or the engine's playing up, or something like that, I'll quite often either arrange for a lift or go on a pushbike […] Usually immediate response would be pull out a phone, call one of the lads who's going to work roughly the same time I'm going to work, usually fairly close to me and ask for a lift." (Ron)

"I used to get into a bit of a panic because if the bus didn't turn up I'd have to get home to get a lift, it would only take 15 minutes to drive anyway." (Abigail)

A number of factors are identifiable as enabling disruptions (short or long term, chosen or imposed) to shift people towards lower carbon mobility. In the first case, the same (valued) practices can sometimes be accomplished simply by substituting another mode of transport, and this usually requires that the time taken or convenience of the new performance of a practice such as shopping, commuting or the school run is at least as good as that of a car.

"If we're thinking of going down into town on a Saturday and don't intend to buy anything bulky then yes we get the bus, don't have to trawl around town looking for a parking space. And yes, and it drops you right in the centre of town." (Andrew)

Familiarity with the other modes (often due to past experience) also appears to be an important factor in being willing and able to adopt them in response to disruption.

 "Because I've never had a car, because I'm so central, I've adjusted, so I think of it well, before I never had a car, the convenience of being able to go to pick things up. But some days I think, oh I can't be bothered to walk round with all this stuff, or go and park, or go all round the traffic and turn round and park outside." (Alexandra)

Access to the actual physical elements (materials in practice theory terms) required for using an alternative mode is also vital – whether this means the presence of public transport infrastructures, or the provision of storage and showering facilities for cycling.

"I did get quite a lot of taxis at one point […] Just because the bus service wasn't as good as it might have been." (Helena)

"They don't run, I think the last bus goes […] about five or something. It's ridiculously early you can't get a late bus anywhere." (Richard)

"I've occasionally cycled […] It's a pain in the ass […] trying to get a shower before going to work. Well if you think about it, if I'm cycling that distance I'm going to be sweating. […] I don't really have anywhere to store things like clothing, towels and stuff like that, it has to come in on the back of the bike or in a back pack, so essentially then that's one more barrier to doing it […] if I could also not only store my kit day to day but also get a shower reasonably quickly, yes I would." (Ron)

Considerations of time and convenience also applied to shifts between other modes: the time spent at either end of particularly short, regular journeys where time was of the essence (such as the commute) was often a deciding factor in which mode to use. Disruptions that added to the times taken by the car or the convenience of using it could in theory be used to 'tip' people into using another mode.

"I have to walk to the bus, which is about 10 minutes. So the whole bus journey, from end to end, you have to allow about 35 minutes for actually getting into the office, whereas if I cycled everything, including taking wet gear off at the other end, is about half an hour, so there's no time advantage to getting the bus." (Rachel)

"one of the more annoying things although it sounds really silly, is that now I've got to leave my bike in the garden rather than bike lock up which we used to have at the old flat, so it means I've got to take the waterproof cover off the bike, wheel it through the flat you know, put up the rugs and stuff like that, it's just, and try not to let the cat out the front door, and although it doesn't seem like much like just doing that every morning is just a right hassle and it just make you not want to go." (Anna)

WHEN LONG-TERM CHANGE HAPPENS, WHAT MAKES IT ENDURING?

More important are the insights into permanent changes in mobility routines, especially those involving moving away from the car to a mixture of modes, public transport 'passengering', or active mobility modes. As stated above, empirically this was most often found related to key life-course changes, and was often consciously reflected on, expressing and enacting desired changes in lifestyle or values. A key finding is that the changes usually went beyond simple substitution of one transport mode by another. This is often required because discrete mobility practices (the commute, the school run, leisure) fit into the totality of everyday life. Change in one practice required re-jigging, retiming, re-routing and rescheduling whole sequences of practices to fulfil them all in a new configuration.

"I landed up doing more work closer to home because I was doing other things part-time that I wanted to sort of concentrate on. And then I decided actually that working closer to home was quite nice, really." (Mary)

"I decided quite actively when my son [...] was younger that [...] the role of fatherhood is one that has to kind of influence all the other decisions about things like where I work and how I get to work and so on, because it's all kind of... it's all rooted in that, really." (Roger)

"I looked at how often we used it and then why we used it, so it was for things like long journeys, which I'd rather take the train anyway, but you can't justify the cost when you own a car, it was for things like walking to more remote places and the food shop, so we tried the trains out and I signed on to Asda's online delivery because that's one of the things we were using the car for, and I much prefer now so I'd never go back now." (Ruth)

This was made more possible when the demands of life (responsibilities for others, requirements to be in fixed places at fixed times) were lessened. Long term changes are therefore more likely when children leave home, jobs change, people move house or become retired.

"I found you could pop in [...] I didn't feel tied to having to go at a particular time, I could go whenever it fitted in with what I was doing that day. [...] I might just nip in at three o'clock or whenever you've finished with me and nip to Sainsburys as well." (Katherine)

"Yes, I could easily walk to them. I don't because you can get there so much quicker [by bike], and also if you're doing any shopping I can't carry a lot now, so with the pannier it's a lot easier and you can get quite a lot in two bicycle panniers." (Katherine)

Other facilitating factors in different contexts were support networks, the availability and use of mobile phones and internet, the pursuit of new interests (e.g. the rising importance of exercise in middle age, the rediscovery of non-bulk-supermarket shopping with empty nest syndrome), swapping to online shopping, car hire, combining less regular practices into one trip, or doing things 'en route'.

"There's always something going on so nothing's ever straightforward and nothing ever takes like the least amount of time. So that's sort of impacted on my decisions about what activities we do or how structured things are or even like taking journeys, like if you feel like you've got a lot of time in your day then it's much easier to go, oh I'll just walk there and it doesn't matter if it takes a while." (Edith)

Some participants even stated that they consciously fought against the convenience offered by more carbon intensive modes experienced during a disruption, based on a commitment to e.g. cycling:

"You've, if you like, slipped into using a bus. But you still, you seem to want to get back to the bike again? Yes I suspect that if I let it run on any more I'd then begin to see so many advantages of getting the bus that I wouldn't go back to my bike." (Rachel)

Once again, occasional access to a car was often important to people during car-free periods of life to fulfil car-dependent practices:

> "My girlfriends had a car for the second and third year which was really handy because there was a great big Asda out of town, [...] so it was really good having a car because we could go out to the Asda, the 24 hour Asda and to get much cheaper shopping, [...] I don't know quite how we would have managed without a car for shopping, 'cos it is expensive, Sainsbury's, especially when you're a student, we wanted beans!" (Cilla)

> "I've shared a car with a neighbour for a while. [...] I went into sharing a car with another lady, which was her car, because my mum was getting more infirm, and again the flexibility to be able to respond quite quickly if I needed to get over and see her, and then when she went into a care home I needed a car, so I kept the car for a while." (Rachel)

> "Sometimes we'll go with Helen and her boyfriend. They've got a car so they'll drive us up there. In February a friend is coming up from Milton Keynes and he's driving, he'll drive us up there. But if we've got someone driving we'll go to more remote places because you've got a car." (Ruth)

FROM A PRACTICE PERSPECTIVE, WHY IS THERE NOT GREATER RECRUITMENT TO LOW CARBON MODES, AND HOW MIGHT THIS BE RESOLVED?

A practice analysis reveals numerous reasons why there is not greater recruitment to low carbon forms of mobility. It will not be surprising to hear that costs (ignoring the sunk costs of car ownership), convenience (ignoring complaints about traffic, congestion, and parking) and time (especially requirements to perform multiple practices at multiple sites in tight timescales) were all cited by participants as reasons why they didn't use low carbon modes more often. These came across in narratives that cars were necessary to achieve the car-based lives that they pursued.

> "The shopping, you know going straight after work […] we used the car quite a lot more [...] and ferried children around [...] if Joseph's got cricket we've got use of the car, we'll drive him there." (Felicity).

When certain aspects of these car-dependent lifestyles were removed (for example, the need to deliver children to school at the start of the working day) other practices in everyday life might have enough potential flexibility to allow reorganisation without the car. Rethinking the flexibilities of key social timetabling institutions thus seems key to maximising the flexibility of mobility practice and recruitment to low carbon modes of travel.

> "I needed a car [...] to drop the kids off at school and get to work in time [...] it was a logistical way to get to work on time." (Rachel)

Similarly once the sunk costs of car ownership were actually tracked by a couple of our participants, they were found to be higher than the costs of occasionally hiring a car for rarer long distance travel. Access rather than ownership (possible with hiring or car clubs and lift-sharing) was thus seen as the important factor relating to using cars.

> "So that was the main thing in the back of my mind that said ok this is ok for us […] not having a vehicle […] We could have the perfect vehicle for the situation in hand when we needed it." (Pete)

However these participants' shift to non-car ownership was only possible in the context of living on a bus route for commuting, and establishing other non-car routines such as online bulk shopping,

The convenience of the car is also a factor that often proves to be a barrier to the uptake of low carbon mobility practices, although sometimes the inconveniences of car use (particularly parking) are clearly

acknowledged as having an effect, particularly in certain contexts where facilities and other sites of practice are nearby.

> "I've got the convenience in the centre of town, but then I always look at it, because I've never had a car, because I'm so central, I've adjusted, so I think of it well, before I never had a car, the convenience of being able to go to pick things up. But some days I think, oh I can't be bothered to walk round with all this stuff, or go and park, or go all round the traffic and turn round and park outside." (Alexandra)

Some people appear to actively weigh up the convenience of different modes for different journeys in a multi-modal lifestyle in which routines still figure:

> "When you consider how long you can sit in traffic in Lancaster. If I get a bus out to [work] it can easily take 40 minutes. And even driving […] with the traffic in Lancaster it's easily a half hour. It shouldn't be because it's only 8 miles, but it can be. Whereas I say, cycling I can do it in almost the same amount of time. And get exercise…If we're doing a big shop my husband and I tend to go together. We take the car. Because […] it's a biggish shop […] we usually do that either a Wednesday or Thursday. We've got in the habit of that. I meet him there after work […] Other bits, lesser shopping as it were, I tend to do, well we both do. Often I'll be on my bike or on foot and I'll just get bits and pieces as we need it, and he'll do bits." (Helena)

Additional factors cited for not taking up low carbon mobility practices were lack of experiences of using other modes, especially in younger participants, and negative experiences (or assumptions) about other modes. A key factor for our older participants seemed to be the experience of other forms of non-car mobility in earlier life – an argument for the promotion of low carbon mobility competences along with maintaining and extending the availability of, and access to, materials and infrastructures of low carbon mobility:

> "I like cycling and walking and actually can see it as an option, kind of working around here. Whereas for other people they've always driven, they've grown up being driven to and from school, they're not actually used to like bus, train, walking as the norm ever […] I've grown up thinking I can walk and cycle any time and kind of having a mix of lots of things." (Niamh)

In conjunction with these policy needs, the positive meanings associated with different modes of mobility by different people need to be promoted.

> "I prefer walking ... Because I like the fresh air, and it's always a hassle getting on a bus, and they always were overcrowded, not necessarily overcrowded but they can be." (Niamh)

> "A blast of fresh sea air first thing in the morning and it really woke me up, and that was lovely ... cycle to work and feel energised by that, when you get to your desk after you've cycled to work you feel awake and ready to take on the day's tasks, so a nice way to start the day" (Adam)

4.5 WHAT MATTERS?

What, then, do our findings suggest the focus should be on in low carbon mobility policy? It is important not to underplay the inherent flux that we observed in the mobility practices of our participants. People are constantly negotiating mobility practices. Everyday mobilities do not take a linear path and so there are various options available just as we have various options available in everyday life. Everyday lives are not, then, as stable and rhythmic as often assumed. The following comments reveal this constant negotiation process.

> "Yeah, on Monday nights, I come home from school, get changed, have dinner and then go out to orchestra, on Tuesday, sometimes I have a violin lesson and then on Wednesday I have school orchestra. It's a bit funny because my violin lessons, they change every week because my teacher is so busy all the time, but I don't mind, I'm so used to it, I can like walk from school or get the bus from school or get the bus from home. And it's all at the same place, so that's easy for me." (Daria).

> "I was going up for a play rehearsal up there, so I had to contact the people up there to say I would be late. I'd left plenty of time so I was only going to be about 20 minutes late but it wasn't allowing me time to

do the 15 minute walk from the railway station to get there, so I had to phone a taxi to meet me at the station to get me to them, because a teacher friend who should have been able to meet me, her car had broken down that day so she had already cadged a lift with someone else. So it was all quite chaotic for a little while, but in the end I got there, via train and taxi and I was about 20 – 25 minutes late, but that was all." (Helena)

This highlights the potential for change if approached in the right way. Unlocking this potential should be the focus on policy. We suggest a number of lessons that can be taken from our research in terms of how this unlocking might occur.

DIFFERENCE IS THE KEY

An important starting point is to acknowledge that for some people, in certain places, at certain times, higher carbon emitting practices are acceptable and necessary, at least in the context of the society we currently live in. As we showed previously, disruptions are dependent on relationships and difference. Factors including what stage of life we are at, what our responsibilities are, and how we are involved in work, caring, education, shopping and a whole host of leisure and recreation activities affect how disruptions are responded to.

Policy-makers, therefore, need to consider these relationships and the fragility of them at times. Any attempts to promote low carbon mobility need to help people build in alternative arrangements, or not target those who might be most affected by, for example, constraints on automobility. To create an enabling social context, it is crucial to understand what mobility enables in everyday life for different people, what shapes the spatialities and temporalities of those activities that demand mobility, and how people could be enabled to achieve satisfactory lifestyles but with reduced need for mobility. This means that there is not a 'one size fits all' solution. Interventions need to recognise social, spatial and demographic contingencies amongst other things.

INDIVIDUALISED RESPONSIBILITY CAN ONLY GO SO FAR

Developing people's capacity to deal with disruptions should not be seen as solely about individual responsibility. On many occasions the things that stop change sticking are not down to the individual – support is needed to generate a context in which changes in mobility become possible.

We need to look at what makes some mobility practices less flexible and try to change whatever it is that causes the inflexibility.

Of course, transport matters – for instance improved public transport, cycle paths etc. are important. In both our cities people felt that, because of relative spatial compactness, in the parts of the city where there is good provision of bus services (but not elsewhere) disruptions can be more easily handled, and giving up driving as a long-term change is more feasible:

"When I moved to Brighton I sold it [the car] because I couldn't see the point of having it because of the public transport and you can walk everywhere." (Clara)

"So although I didn't have a car, I automatically, I already had but I'd hardly used it before, a bus pass for anywhere our buses go. So it made the transition quite easy because I could always, almost always get a bus where I was going without thinking about it and it didn't cost me anything." (Roger)

"But it's the great thing about Lancaster, worst case situation there isn't anywhere that you can't walk to and from." (Pete)

But, on their own, transport interventions are not the whole solution. It also depends on where these activities take place, where we live, and how we manage to timetable this all together to create everyday lives. Transport policy alone cannot help think about how such factors might be shaped in ways that stop them being deterring us from taking up low carbon mobility opportunities. So what does this mean we might consider beyond the usual transport interventions, and in terms of a societal level strategy?

CONNECTING MOBILITY AND THE PLACE AND TIME OF PRACTICE

Unsurprisingly, low carbon mobility tends to be easier when people are near to the places they need to get to:

> "When we purchased our house in Heysham that was a big thing for us, and if we ever moved again that would again be a big thing we'd look at, like the primary school being local, in walking distance. Even though we've both got a car, and we've both got bicycles as well that we could always use, but shops being within walking distance and facilities..." (Felicity)

and more difficult when they are not:

> "I'm already taking public transport, driving feels like a step in the wrong direction, but I feel like I'm almost being forced into it living where we do and of course my parents won't move, so you know, either we're gonna have to figure out a more sustainable solution locally and sustainable not just in eco terms, but also in kind of personal, emotional terms as well, or else we're gonna have to move and moving will bring with it a whole host of new problems I can just see, you know, not to look at everything in a negative light but, you know, having to manage the kids on my own is going to be challenging, not having that kind of support and back up there." (Eleanor).

One spatial intervention that could increase people's ability to stick with lower carbon emitting mobility is making sure we have good local provision of services, so we don't have to use the car to do everyday things. Relatedly, reducing the fixity of the times and places associated with practices is important, something allowing home working can facilitate:

> "One thing I think that would help all of this would be if there was a greater push towards encouraging home working and flexible working, for example my job, there's no reason why I need to be here every day, but it's kind of seen as like a soft option, like I think that people do think that you should be present in the office and like they can see you, I don't know whether it's a lack of trust, not you know, not, I'm sure if you know, I did push for it here they would kind of consider it but you know, nationally or even locally throughout all organisations if we encouraged home working." (Anna).

A temporal intervention which exemplifies how reducing the time-fixity of activities can create possibilities for low carbon mobility is supporting parents with childcare initiatives. Removing the need to rush from/to school before/after work has the potential to create time for walking, cycling or using the bus that wouldn't exist otherwise:

> "Because I work full time, luckily the primary school she goes to has a breakfast club which starts at 10 to eight…which is sort of what allows us to be adaptable." (Felicity)

In summary, making interventions that allow everyday lives to continue but with less need to travel significant distances, and with less time pressures that tie people to their car, seem crucial in enabling change.

RECOGNISING SYSTEMIC EFFECTS

It is also important to recognise that a range of systemic effects have 'engineered out' low carbon mobility. Most straightforwardly this relates to the material infrastructure for walking and cycling – our environments promote car driving. There is widespread recognition of this problem, and initiatives such as enhanced cycle lane provision (present to some degree in both cities) are starting to address some of the problems.

> *What's cycling like around here?*

> "Round Lancaster? Really good round Lancaster. Got loads of cycle tracks. I haven't got much to compare it with because I haven't lived elsewhere, but it is known for its cycle routes being good. I tend to avoid roads if I can because I don't trust cars." (Emmeline)

However, our study revealed that there are other important systemic effects beyond infrastructure provision.

The life history interviews we conducted with our participants revealed that those people most likely to respond to disruptions or change more permanently to bus, cycle and walking mobilities are those with significant experience of multi-modality. In particular, developing the various competences needed to use the bus, cycle or walk is reliant on exposure to the different modes at different life stages.

> "I do feel confident travelling, even when it isn't somewhere I know, it's just knowing about procedures and how the ticket machines might work and all that sort of thing […] I think that probably is a result of it was just my mum and I, and I've done that from a fairly early age. Between us, or as soon as I got to be old enough, sometimes it would be me that sorted things out" (Helena)

> "I was about 15 […] I was quite happy on public transport on my own […] as a teenager when my friends would go up to London I would always be directing them on the tube […] I think cos I liked looking at maps and like examining things […] So once I'd been out somewhere, and even now, if it's somewhere new I'll go to the map afterwards and look […] When I used to be 16 or 18 years old, I'd go out walking and pick a new way to go […] Completely by myself […] in my first year [...] it was just on foot […] when my dad brought me to university […] the first thing he had to do was buy me a map book cos I wasn't doing anything without a map book." (Niamh)

> "If it's possible I'll walk. It's cheap, free, and I just always have really. In our family, even when we had a car we wouldn't use it for a ten minute walk sort of journey, we'd only use it when necessary. So I've always grown up with walking whenever possible […] I like it. It's good easy exercise. I like the fresh air, I like to walk places and listen to music while I'm doing it, and then if walking's not possible I'll get a lift […] get the bus or train if that's not an option. And occasionally at the end of a night out get a taxi because I can't really walk then if it's just me or just me and another girl walking across town sort of thing." (Emmeline)

> *If you look back at your childhood, what was your general travel behaviour then?*

> "Walking or pushbike. Occasionally, if I wanted to go to Manchester I'd use the bus. But for the majority I went round on my pushbike […] I'm not going to have the motorbike, […] I'll quite often either arrange for a lift or go on a pushbike […] if the weather is good is I'll pushbike it in." (Ron)

> "When people are disrupted they will react what you think will be atypically but essentially it's a case of comfort, it's going for what they know. So if you had somebody who has for example as a kid been cycling a lot during, when they were at school, using that as a mode of travel, if their car for example goes on the blink, they'll happily pull out their bike. Whereas somebody else would go, ah I've got to get it repaired or in my case I would be a bike person or go on public transport." (Ron)

> "It just didn't dawn on me in a way to use the car. Maybe it's because I've been brought up not really using it, but for most people it's a case of oh, you don't have to use the bus any more, but I quite like using the bus." (Ruth)

Childhood is crucial in this regard. Learning how to cycle, and in particular how to negotiate road traffic safely, is crucial if cycling is to become a means of mobility (for work, shopping etc.) later in life.

> "[Daughter 1] loves her bike, [daughter 2] won't learn to ride and hasn't learnt to ride and doesn't want to but I thought maybe if I did it might encourage her 'cos I never learnt to ride when I was a kid either […] one more source of embarrassment and shame, you know, that at my age I not only can't drive a car but can't ride a bike either, something that most people can do by the time they're eight, and I don't want to go there. That's, yeah [laughs]. I feel a bit incompetent sometimes when it comes to getting around in the society." (Eleanor)

> "Maybe, my dad used to be a keen cyclist, maybe it's just something I've picked up and it's been with me all the time." (Andrew)

This means learning how to ride a bicycle, but also the equipment that allows comfort (appropriate waterproofs), porterage (panniers) and safety (lights, helmets etc.). Whilst this may all seem obvious, failure to

develop such competences, for example through school based training, acts as a significant barrier to cycling in later life.

> "But I used my bike as well, because I had a bedsit. I can remember a bike was very useful in London because you've got good acceleration, you can outdo the cars"

> *It sounds like the bike has been quite a significant part of your life really?*

> I'm a cyclist, yes, but that was because of the fact that I couldn't drive and the bicycle was my life." (Joe)

Similarly, bad experiences on buses at a young age, or reliance on being dropped off and collected from school by car, results in limited willingness to use buses, and a lack of understanding of how bus systems operate.

> *You never mention buses?*

> "Maybe because I find them slow, overpriced and quite frankly don't go where I want them to go, and having been using a pushbike quite a lot when I was younger I have a particular hatred of bus drivers." (Ron)

> "I just was surprised. I'm not used to buses yet. […] although I've been here a year I don't quite know the routes of all the buses […] work out where I want to go and sort of where I'm going to end up and plan the buses in-between. This is where I find the maps not very good […] so I do find that difficult. And then, you know, you ask people at the bus stop they don't always know and the bus drivers, some of them, most of them are helpful but it's, you know, you queue up and you might have missed another bus that's come round the back or something, you know, it's not really, not terribly easy." (Adrienne)

Creating the capacity for multi-modality through systemic interventions that ensure the material infrastructure is in place, but also the competences to use low carbon modes is thus crucial. This means ensuring competency is developed in childhood, but also considering how those who are not skilled multi-modal travellers might be assisted in developing the necessary competences.

> "I was looking around the Lancashire County Council website and I actually found that they said, they actually have instructions, if you're foreigner or you really new to a bus, it's trying to say what you do. You get on the bus, you say this to the driver, they'll tell you this is when you press the bell. Why don't we have that out and about for the students? They might be but I don't, actually thinking at the bus stop instead of just saying this is the price of the bus to town, this is what you do when you get on the bus.

> *And this is what you say?*

> "Yes you ask for a return to Lancaster or you ask for a single to Lancaster. You don't say town because it could be Morecambe or it could be Lancaster." (Niamh)

> "I didn't drive until I was 30, which had significant problems for both my career, for transport, for everything. It's amazing how not driving affects you and I think that had a big negative effect on my own life, but I managed to get to university irrespective of it all, one way or another, and got myself into medicine, etc. […] I've never really used buses. […] you look at a timetable and I just, I'm not that stupid but I just can't work out what this darn thing means. This was how I used to think of buses. How do I work out when this bus is coming? I just couldn't have the patience to work out a bus timetable. It was always so complex […] But now that you get to know them they're much more useable […] it is not as easy as they make it. They could make it so much more easy […] Yes maybe people need to be taught how to work timetables. There must be something simpler, I can work it out, it needs to be, you need to stand back and look at how you can present the information. You could have buses going more frequently, something pictorial rather than numerical. I don't know. But that requires standing back and radically looking at how they can just change it. " (Joe)

In the case of cycling, we saw some evidence that 'buddying' schemes might have some effect, as accompanied cycling led, in one case, to its wholesale adoption. The practice theory insight from this is that embodied practical knowledge is the key to recruitment.

CREATING THEN LEVERAGING AN ENABLING CONTEXT

An interesting finding from this research is that the experience of disruption can be transformed from a negative to a positive. However, to ensure this happens, the steps outlined above need to be taken to create an enabling context that recognises difference and the current barriers people face in terms of shifting to low carbon mobility.

Dealing with transport and non-transport issues that make disruptions difficult to respond to is important because, when such issues are removed, disruption can lead to a questioning of people's mobility practices and the wider social factors that allow change. Even if this is often an uncomfortable experience, it can be experienced positively, or at least as bringing about a positive change - if you are a certain person, in a certain place at a certain time with the right kind of support from work, school or other key service providers in your everyday life.

> "That very snowy winter we had I walked, and that was brilliant. Wonderful! Because there's a straight line you can draw from the university to my house and a lot of it is actually public rights of way, over the fields behind Bailrigg, and between Moorside and the University of Cumbria and then straight across Williamsons Park. It's a fantastic route. And I did that in the snow when it was frozen enough that you were just walking on ice, walking in as the sun rose, and going home as the sun set. I was walking home, and sometimes I would get the bus home if it was in the dark. And yeah, it was just delightful." (Rachel)

> "I've always kind of had that sort of relationship with a car, needing to get around, until about three years ago I suppose, when I must be the only person, just around certainly anyone I've met, who... thieves nicked my car and the DVLA crushed it because it wasn't taxed. But I was really pleased. I mean, they've done that to lots of people, but I was really pleased because I thought, "Well, OK, that's the impetus I need to try and manage life without it." And you know, I can look back on it and it's great. You know, it's made me do things like, you know, when I had a car I used to drive it because it was there, so I'd like, you know, need to get some food and I'd think, "Yeah, I'll drive to the supermarket," and now I walk to the corner shop and that's actually loads better in loads of ways." (Roger)

A number of our participants were 'tipped' into giving up the car due to a disruption, either an accident or a breakdown or MOT failure, but in almost every case when the car was given up, it was due to some element of financial and convenience factors – other modes were seen as being as cheap, fast or convenient.

> "I had a car when I lived in Burgess Hill but then when I moved to Brighton I sold it because I couldn't see the point of having it because of the public transport and you can walk everywhere." (Clara)

Notable about all the comments above, in addition to the positive interpretation of disruption, is the discovery of the potential for alternative modes of mobility. For these individuals, combinations of their particular life stages, the locations and timings of the activities they valued as part of everyday life, and positive experience of alternatives made change stick. But we cannot assume everyone will experience such possibilities. As noted, above, people in different places, with different identities and needs require support to make change possible.

5. GEOGRAPHICAL CONTEXT

Our research took place in two UK cities – Brighton and Lancaster. Table 5 provides summary descriptions of the two cities. Both cities were awarded 'Cycling Demonstration Town' status in 2005. Whilst the two cities have as many differences as similarities, a number of common themes with regards to responding to disruptions and changing to low carbon mobility emerged and are described below.

Table 5: Characteristics of case study cities (Local Authority areas)

Feature / City	Lancaster	Brighton (and Hove) UA
Population (ONS 2014a)	139,665	275,762
Density (km^2: people/km^2) (ONS 2014a)	576: 243	83: 3,336
Average house price 2013 (ONS 2014b) – UK average £251,000	£175,000 (North West)	£305,000 (South East)
Average wages 2011 (ONS 2011) UK average £26,244	£18,911 (Lancaster and Fleetwood)	Brighton Kemptown £21,525 Brighton Pavilion £23,200
Urban form	Historical post-industrial small city. Little urban sprawl, rural perimeter. Linked ribbon development through to coastal resorts.	Coastal ribbon development, circled by hills, Victorian holiday resort. Suburban fringe.
Road infrastructure	A6 passes through, M6 parallel, central circular one-way system, pedestrianized core. Limited river crossings.	Bypassed by A27, A23 link to London central to town. One way streets in central shopping areas, no gyratory.
Rail infrastructure	On West Coast line linking London-Scotland, one station. Branch lines to Morecambe/Heysham	Regular services to London. Links to coastal lines. 4 stations in main urban area.
Cycling infrastructure	Cycling Demonstration Town. Good leisure paths by river and canal, links to coast and to long distance paths, city provision patchy.	Cycling Demonstration Town. Some excellent lanes on A roads, others patchy.
Refs: Office of National Statistics (2013, 2014a, 2014b)		

Responding to disruptions and changing from car to other modes of mobility was facilitated in both cities by their spatially 'compact' nature. Whilst both cities had longer distance commuters (in Brighton to London especially), and participants travelled longer distances to provide care to family members, attend particular specialist recreation activities etc., many participants noted that on a day-to-day basis the two cities could be navigated relatively easily using multiple modes. This was due to the concentration of key sites of practice (particularly in Lancaster) within a small area of around 3 miles.

> "My social life and work have evolved in response to my decision to live in the centre of a small city and not depend on a car. Everything I do socially is cheap and local. And fits together into a rich and flexible pattern […] I have lots of alternatives for my regular journeys, each of which has its pros and cons. Because the journeys are local (3 miles-ish) my schedules are not scuppered by a change of mode. Walk/cycle/bus/lift all get me to and from work in an acceptable time frame." (Rachel - scrapbook)

> "I think it's also Lancaster, speaking to other people [...] So we mainly use public transport, bikes or walking to get round actually, which again Lancaster I think is fine and is doable but I think if we were to move elsewhere it would be a bit trickier." (Ruth)

> "The Co-op on the corner [...] And then the hairdresser's just a little bit further on from the Co-op, you know, there's a greengrocer and a cheese shop and lots of delis so it's, you know, I don't really need to go into town for anything, except clothes and…"(Adrienne)

Similarly, walking was often not prohibitively time consuming.

"I've always lived close if I can, so I can walk and you're not reliant on the car, because although it's an advantage, I park round the back, so sometimes I may not use it for three or four days, which is quite nice, not to be reliant on it. But it's there if I need it for something particular." (Alexandra)

"It's not like we live isolated in the country and I've had to learn in order to see my friends, it's just not so necessary at this point in my life […] But yes it's never nice to have to rely on any sort of transport when you can be somewhere where you can walk." (Emmeline)

"Lancaster – work and pleasure – usually means walking and the only thing that will change that decision is really bad weather, in which case again I'll drive." (Abigail)

Exemplifying this, comments from both cities reflected upon the fact that spatial compactness led to a density of bus networks, this making it highly likely that locations that needed to be accessed could be reached by a direct bus, often with a choice of routes.

"I would just go for convenience and drive but in Brighton convenience is exactly the same as taking public transport though, it's so regular […] you can do it all on the buses." (Cilla)

"About five […] on the way back there's more of a choice 'cos there's the 25 or the 28 I think it is, and the 28 goes to Churchill Square, and the 25 either stops at the Steen or Churchill Square, or Palmeira Square or Portslade, so Palmeira and Portslade means I can get one bus straight home, I don't have to change. If it drops me at the Steen sometimes I'll wait and see if there's another one to jump on, if the weather's nice I normally just walk, depending what my shoes are, what shoes I'm wearing sometimes I'll walk, so I don't mind, I like finishing off with a walk, the way home by walking." (Evelyn)

"I've probably said before that things would probably be very different if we didn't live somewhere where it was convenient to use public transport." (Pete)

"I walk a bit further and then get like the 25 or the 49." (Anna)

"We had the inner circular, the outer circular and all routes in between radiating out from the bus station or the high street. We lived out at the nether edge and that was, as I say I think the buses were about every 10 or 15 minutes." (Richard)

In addition, key "quality bus corridors" in the cities service the Universities, leading to overcrowding during term time, but also (along with subsidised bus passes for staff and students) leading to a different demographic and experience of bus travel:

"I think the buses at the university, to and from town and the university are good. I don't think there's an issue there." (Abigail)

"Especially, I think in Lancaster, I mean the bus we get, I explained this to someone, the bus isn't full, ok you get the odd chavs and stuff and then people getting on various, but it's mainly academics and students, we don't experience the bus travel that when we lived in Birmingham you don't sit in the top deck of the bus in Birmingham. Because I wanted to go and sit, no you don't do that that's where all the drug addicts are […] we kind of live in a bubble I think. Lancaster is a little bubble." (Ruth)

Significant about this observation is not only what it says about the importance of bus provision, but also the insights it provides in to the effects of the spatial and temporal rhythms of everyday life. In both cities, spatial compactness provided opportunities for the various sites of everyday practice, from work to shopping and leisure, to be located close enough in proximity so as to allow low carbon mobility in the constraints of time pressures. For instance, all secondary school children who participated in the research in Brighton walked to and from school. Indeed, participants commonly observed in both cities that there was little time benefit to be gained from driving, with walking, cycling and catching the bus often being very similar in terms of time taken to travel between sites of practice.

However, we still found that many families with caring responsibilities relied on the car for various activities, such as taking children to before/after-school activities, or caring for elderly relatives. Despite dense public

transport infrastructures, participants still found the car a preferable option, especially when travelling with younger children. With the presence of a car in the household, it easily becomes the default option for any but the most obvious low carbon journey, and continues to be associated with freedom:

I never needed to drive. There was no particular need. I quite half liked the idea of learning to drive, and getting that freedom and independence. But because again I lived with my mother and my sister centrally in Lancaster, I've worked centrally in Lancaster. I've never really had any reason to drive. I've had friends; if we've gone anywhere I've used the train quite happily, so there's never been a real reason to learn to drive. But it's funny. My mum learned to drive in her forties, so did my grandma […] all three of us, generations learned to drive in our forties. We never had an inkling to, but I think out of necessity we become drivers. And I love driving now. (Alexandra)

6. CONCLUSIONS

The sections below summarise the way our findings address the research questions that initially motivated our study. There are four overriding conclusions that we can draw from the data collected in relation to the insights that studying disruption brings to research on mobility.

MOBILITY AS EMBEDDED IN EVERYDAY LIFE

The starting point for understanding disruption is to understand how mobility has become embedded in everyday life. Our in-depth qualitative study of participants over a two year period reveals the way that mobility is entangled in complex ways in the activities that comprise contemporary lives. As such, cultures of mobility are intricately associated with cultures of everyday consumption and practice. For different people the role and meaning of mobility varies, and it is important to recognise that socio-economic status, location, and relational features such as the effects of employers and the nature of intimate relations all help produce different demands and meanings for mobility. Nonetheless, there is an important general observation that for everyone, everyday life and mobility cannot be decoupled.

By highlighting the embeddedness of mobility in everyday life, we shift the focus from transport alone to 'transport and society'. In order to understand the potential for low carbon mobility we have to understand the opportunities and barriers at the societal level that are tied to the way mobility allows people to perform 'acceptable' everyday lives. As such, low carbon mobility is not simply a transport problem. It is an issue that requires a richer understanding of how society can be organised to enable 'acceptable' everyday lives that are enacted through low carbon mobility.

DISRUPTION IS NORMAL BUT RESPONSES AND EFFECTS VARY

Through longitudinal study of the role of mobility in our participant's everyday lives, we have shown that disruption and the negotiating of change are common. Disruptions are part of everyday life and, even when they occur at the micro level, they can escalate quickly into something perceived of as significant. As such, the concepts of 'normality', 'routine' and 'habit' should be discarded as the baselines for mobility. Averages hide the complexity of mobility practices, and also the capacity that may exist for change to occur. In addition, the effects of disruption also vary significantly, from positive experiences and change that sticks, to annoyance, temporary changes and a desire to regain whatever is disrupted.

Disruption means different things to different people and therefore cannot be easily defined. Different groups have different opportunities and affordances that enable them to deal more easily with disruptions e.g. social networks, levels of experience, location, money and other resources. However everyone deals with disruption in some way in the course of their own everyday life

Some people are better placed to translate disruptions into mobility practices that are lower carbon emitting. Life experience that involves using multiple modes of mobility, and/or experiencing a range of disruptions, enables people to look more positively on disruption, but having social and physical circumstances that allow for flexibility is also important. However, more carbon emitting mobilities are inevitable/necessary in the

current context of individualised responsibility e.g. people who need cars to care for others, find that cars are the only way to deal with disruptions. The idea that focusing on disruptions can make them a positive experience has some potential for groups who have particular mobility affordances that allows them more flexibility.

There is also evidence from our research that disruptions can be leveraged to drive change if change is conceived of as being more than just transport related. Most of the disruptions we studied did not relate to the transport system. They involved disruption to aspects of everyday life – from familial responsibilities to leisure activities. When the disruption led to changes in mobility that stuck, it was usually because non-transport aspects of everyday life changed, and in particular the spatiality and temporality of these. As such, it appears that disruption reveals the importance of reconfiguring everyday lives as part of attempts to change modes of mobility.

Cutting across our data on disruption is a clear and important message that a range of social and spatial differences also generate variations in experiences and responses. Moving beyond aggregates and segments as a way of representing people is thus crucial to better factor in the complexities that affect the role of mobility in everyday life, the implications of disruptions to it, and possibilities for low carbon change.

TACKLING EMBEDDED MOBILITY MEANS MOVING BEYOND THE INDIVIDUAL

Given the embeddedness of mobility in everyday life, and the complex array of factors that determine experiences and effects of disruption, it is necessary to think about how changes towards low carbon mobility can be facilitated and supported at the societal level. Whilst individuals have the ability to exercise influence over some aspects of the socio-spatial context that influences modes of mobility, many of the most powerful factors are outside of individual control.

Our findings thus lead us to suggest that a shift in emphasis is needed in policy if the apparent capacity to change is to be fully developed. This means not only considering the forms of difference already noted, but also considering the societal factors that lead to little uptake of low carbon mobility. These factors relate to infrastructure, but also more widely to systemic effects on multi-modal competency, and to issues of spatial and temporal coordination in a society that assumes the flexibility of the car can be used to achieve everyday practices.

Tackling societal factors means investing in collective low carbon mobility infrastructures, but also considering the way employers, education, healthcare, retail, leisure provision and other elements of everyday life contribute to making low carbon mobility more or less possible. An integrated and holistic approach is thus needed that does not assume that people currently have the ability adopt low carbon means and simply need incentivising or nudging into action.

MOBILITY, NOT TRANSPORT STUDIES

Methodologically our study began by asking about everyday practice and the role of transport within it. As such, it focused on mobility as a variety of forms of movement and flow which are connected to the performance of everyday life. The in-depth qualitative study allowed such a perspective to be operationalised, with longitudinal analysis helping reveal the constant negotiations that go on in terms of connection between mobility and everyday life.

Our approach was important in revealing the way differences in personal circumstances affect experiences of and responses to disruption, and also how transport is tied to sites and times of practices. This suggests that mobility studies are an important way forward as part of efforts to transition to low carbon travel, thus helping move emphasis away from modes themselves and towards the entanglement of travel practices with the other activities that produce and shape them. This implies a need to develop policy that addresses these entanglements. We need mobility policy not transport policy. This is more than just a semantic shift, in that it requires giving attention to the multiple factors that shape when mobility is needed and which modes can service these needs. Mobility policy means connecting together studies of transport to employment,

education, health, cultural and other policies to ensure that the societal structures that create demand for mobility do not work against efforts to encourage low carbon change.

In summary, changing mobility practices to reduce carbon emissions from transport is not simply an individual responsibility, because so much of what we do and the decisions we make are interlinked with our relationships and responsibilities to others. We need social supports and recognition that some mobility practices are easier to change than others. It's important to be aware of changes in mobility through the life course and how experiences of life events, like having children, moving house, changing jobs, or retiring, might disrupt mobilities in ways that can either increase carbon emissions or allow people to adopt lower carbon ways of living. Similarly, mobility is generational - people of different generations have more and less capacity to change, especially if their experiences are negative ones. We contend that lower carbon mobility means accepting that, for certain people at certain times, higher carbon emitting practices must currently be considered necessary and acceptable, whilst more stringent restrictions could be placed on those with a greater capacity to change, such as those with fewer caring responsibilities and more flexibility in their daily practices.

Policies need to take into account people's mobility experiences and involve ordinary citizens - including particular groups whose insights about mobility are often overlooked, such as deaf or blind people, physically or mentally disabled people, children and older people. Policies that might succeed in changing our culture of mobility which regards car travel as the norm, need to take into account emotional and multisensory experiences of mobility – these are the experiences that underpin what people do and the choices they make.

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Table 1: Select participant characteristics in Brighton.

No.	Age group	Occupational status	Caring responsibilities	Car access	Distance to work/school
1	65+	Retired	None	Car owner	N/A
2	41-64	Employee	Child outside household	Driver with access	4 miles
3	19-40	Unemployed	Child in household	Car owner	N/A
4	41-64	Self-employed	Child in household and children outside household	Driver with access	1.1 miles
5	65+	Retired	None	Driver with no access	N/A
6	65+	Retired	Grandchildren outside household	Car owner	N/A
7	11-18	In education	None	N/A	1.2 miles
8	41-64	Employee	Child in household	Car owner	65 miles
9	41-64	Employee	Child in household	Car owner	3.5 miles
10	11-18	In education	None	N/A	0.5 miles
11	41-64	Self-employed	Children in household	Car owner	3 miles
12	11-18	In education	None	N/A	1.2 miles
13	41-64	Employee	Children in household	Car owner	1.2 miles
14	11-18	In education	None	N/A	1.2 miles
15	11-18	In education	None	N/A	0.6 miles
16	41-64	Employee	Children in household	Car owner	4 miles
17	41-64	Employee	Children in household	Car owner	N/A (works from home)
18	11-18	In education	None	N/A	1.2 miles
19	41-64	Self-employed	Children in household	Car owner	1 mile
20	19-40	Employee	None	Driver with access	4 miles
21	19-40	Employee	None	Driver with no access	3 miles
22	19-40	In education	Children in household	Car owner	30 miles
23	41-64	Employee	None	Driver with no access	3.5 miles
24	65+	Retired	Older adult outside household, grandchildren outside household	Driver with no access	N/A
25	19-39	Employee	Children in household, Older adults in household	Non-driver	65 miles
26	0-10	In education	None	N/A	8 miles
27	0-10	In education	None	N/A	2 miles
28	11-18	In education	None	Non-driver	10 miles
29	41-64	Employee	Older adult outside household	Car owner	1.8 miles
30	41-64	Employee	None	Non-driver	2.1 miles
31	41-64	Employee	Children in household	Car owner	1.5 miles
32	19-40	In education	None	Driver with no access	5 miles
33	19-40	Employee	None	Driver with no access	3.2 miles
34	41-64	Employee	Children in household	Car owner	3 miles
35	0-10	In education	None	N/A	1.2 miles
36	41-64	Self-employed	Children in household	Car owner	N/A (works from home)
37	11-18	In education	None		
38	11-18	In education	None		
39	11-18	In education	None		
40	41-64	Employee	Children in household		
41	0-10	Pre-school	None		
42	0-10	Pre-school	None		

Table 2: Select participant characteristics in Lancaster

Participant	Gender	Age group	Occupational status	Caring responsibilities	Car access	Distance to work/school
1	F	19-40	Unemployed	Children in household	Car owner	1 mile
2	F	0-10	In education	None	N/A	1 mile
3	F	41-64	Self-employed and employee	None	Driver with access	0.5-40 miles (different jobs)
4	F	41-64	Employee and in education	Children in household and child outside household	Car owner	4 miles
5	M	41-64	Self-employed and employee	Children in household and child outside household	Car owner	0-240 miles (works from home and around UK)
6	F	41-64	Employee	Children in household	Car owner	3.5 miles
7	F	41-64	Unemployed	Children in household	Car owner	4 miles
8	M	0-10	In education	None	N/A	4 miles
9	F	19-39	Self-employed	Children in household	Car owner	0-40 miles (works at home and away)
10	F	0-10	In education	None	N/A	0.5 miles
11	M	65+	Employee	Older people outside household	Car owner	4 miles
12	M	41-64	Employee	None	Driver with access	6.5 miles
13	F	41-64	Employee	None	Car owner	7 miles
14	M	65+	Retired	Child outside household	Car owner	N/A
15	F	65+	Employee	None	Car owner	8 miles
16	F	65+	Employee	None	Driver with no access	4 miles
17	F	11-18	In education	None	N/A	2 miles
18	M	65+	Employee	None	Driver with access	2 miles
19	F	65+	Retired	Grandchildren outside household	Driver with access	N/A
20	F	65+	Retired	None	Car owner	N/A
21	M	65+	Retired	None	Car owner	N/A
22	F	19-39	Employee	Child in household	Driver with access	3 miles
23	M	19-40	Employee	Child in household	Car owner	3 miles
24	M	19-40	Employee	Child in household	Driver with access	4.5 miles
25	F	19-40	Employee and in education	None	Car owner	4.3 miles

First formal (life history) interview

Structure

The interview might broadly be divided into five parts:

1. Basic info
2. Background
3. About everyday life
4. About relationships
5. About mobility
6. About disruption

Estimated length

Between 1 hours and 90 minutes, no longer.

Suggested topic guide (with prompts in italics)

Part 1: Background

Tell me about yourself

How long have you lived here (in this town; in this house)

Who lives here?
Who else is in your family? Where do they live? What do they do? What are you doing at the moment in terms of work, looking after the children etc.?
What does your partner/other members of the household do?
What are your childcare arrangements?

Part 2: Background

Tell me about your background

Childhood through to present
Where you grew up, a bit about the people you grew up with, and how you've ended up living here today and doing what you do?
Where did you go to school/college/university?
What do you do?
Where do you work?
How long have you done this?
Who did you live with and who did you have the most important relationships with when growing up?

Part 3: About everyday life

Tell me about a typical day in your life

Some of the things you do, as part of your normal life?
The most important activities
Same everyday?
Weekends?
Holidays?

Anything recently changed what you normally do? How?
Where do you do your food shopping/how often
Other things that do – activities/leisure/pub

Part 4: About relationships

Tell me about the people in your life

Who are the key people in your day-to-day life?
Family?
Friends?
Children's friends?
Close friends in other places?
How often see?
Where see?
What kind of support do you have locally? (extended family, friends, organised groups, playgroups, do you get on with your neighbours, other organised services that you use in local area)
How help?

Part 5: About mobility

Tell me about how you get around

General picture of how your family travel over a week?
Do you have a car/bike?
How often bus
What mode prefer
How get to e.g. work, school, doctors, leisure, pub…..
Would change anything if you could?
General travel behaviour when you were a child? Did your family have a car? How did you travel around?
Street/s you lived in? – your house, how busy the road was, how close primary school, how close to the local park or an open space to play
Everyday travel changed at different stages in your life?
Travel with the child/ren when they were babies/toddlers. Different ways for different children? Did you limit your travel to particular times/ to particular places?

Part 6: About disruption

Tell me about disruptions in your everyday life

Prompts only to be used here if necessary

Do things differently from 'normal

Farewells:
- Discuss methods to be used in future – provide participation / methods toolkit booklet (5 mins)
- Leave any equipment needed and explain use (5 mins)
- Agree commitment to use chosen method(s) (5 mins)
- Arrange follow-up phone call or meeting (whichever seems appropriate) to review progress
- Discuss arrangements for meeting other family member(s) or friend(s)
- Agree strategy for staying in touch

Second interviews example schedule (second and subsequent interviews individualised)

Review participant's self-produced data

Ask participant to show and talk through the data they have collected since the first interview.
Please talk me through the material that you have collected/produced
What made you choose to record this/these particular practices?

- Tell me about some of the things you've been up to since I saw you last.

- Tell me about a typical week right now.

- Has anything changed in last few months?

- What was summer like? Holiday? Autumn?

- Partner's work same? Commute same?

- What different forms of transport do you use regularly? – which prefer?

- Come back to this later using structure below

- Times when activities or getting around changed?

- One practice in detail.

- Disruptions – any particular? What impact? How react to it?

Review of participant's first interview
Review first interview and first interview schedule and ask any questions that were not asked and include in relevant section below.
Look at key activities and if anything has changed.
Use prepared list of key items from first interview to discuss issues that need more detail or clarification
- Is there anything that you thought about after the first interview that you would like to discuss?

Review of methods

Use prepared list of data already gathered from participant and discuss issues that need more detail or clarification
- How is the research going for you?

- Is there anything that you are unhappy with?

- What do you like about the research?

Practices and their mobility dimensions (mobility practices)

Look at practices identified in the data collected and the first interview – prepare summary of discussion on practices

Explore practices discussed in first interview in more detail using following prompts (but not leading):
- mobility dimensions
- Interconnections with non-transport objects (clarification from James on this)
- organisations and policy that affects decisions and practices

- emotional elements of practices
- Mobile identities
- What do these different mobilities represent: ease, health, freedom, novelty, sociality
- How do values produce certain practices

Have you done anything in the last few months that we haven't already discussed in the first interview? – tell me about what you have done

Specific mobility practice in detail

Can you describe in detail (specific practice that have mentioned) including what time, where, who with, who else part of this practice

Use following for prompts (but not leading):
- Mobile withs
- Mobility norms
- Mobility rights

Disruptions
Tell me about disruptions in your everyday life (Prompts only to be used here if necessary)
This question can be asked even if already asked in first – interesting to compare.
Use following prompts to discuss (but not leading):
- Responses to disruption: acceptance, alternative mobilities, coping mechanisms, awareness of alternatives, immobility, openness to change, opportunities for change, rethinking values, seeking familiar, seeking stability, trust
- Impacts of disruption: cost, environmental, mobility practice alteration, diversion, gain, loss, substituted, productivity, wellbeing
- Critical situations and tipping points
- Multi-faceted disruption
- Types of disruption
- Scales of disruption

Key Family members

Use data collected to identify the family members/support networks involved in participant's life (and their key practices), further discuss relationships with these individuals, and then arrange interviews with them (if not already completed)?

Third interviews
Tell me about some things that you have been up to since I saw you last
- Any changes to your everyday activities or journeys? (if so what prompted these changes, what are the effects of these changes?)
Has anything changed in how you think and/or feel about disruptions since last time I saw you?
- Can you think of an example of a disruption over the last year and tell me about how you dealt with it?
- What do you think about the idea that the car enables people to better deal with disruptions?
- Have there been any lasting effects of any disruptions you have experienced?
What do you think are the key things that affect the choices you make about your travel?
- What role does concern for the environment play in your travel decisions? How do you feel about this?

- What do you value/enjoy about the way you travel now?
- What would you be happy to change, or what would you change if you could?
- Are there things you can't change / don't want to change?

If you think back over your life – did you feel differently about your travel/journeys/transport at different points in your life?

- Were there any specific events that changed how you felt about your travel/getting around?
- Has how you dealt with disruption changed at different points in your life?

Can you tell me a bit about the physical experience of travelling, does it feel different at different times or in different places, or with different people?

- What do you value/enjoy about different ways of travelling?
- Is there anything you dislike?
- is there anything that would make it easier to deal with disruptions to those journeys?

What are your plans or aspirations for the future, near and long-term?

- Do you think that your journeys will change?