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# ***Walking and Cycling Interactions on Shared-Use Paths***

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## **Abstract**

Central to this research are the interactions that take place between cyclists and pedestrians on shared-use paths and the impact of these on journey experiences. This research proposes that as active travel is promoted and as walking and cycling targets are set in the UK, there is a potential for levels of active travel to increase; putting pressure on shared-use paths, and potentially degrading journey experiences. Previous research on shared-use paths focuses on the observable aspects of shared path relations, such as visible collisions and conflict. However, this thesis suggests that it is necessary to investigate shared-path interactions in more depth, not only focusing on the visible signs of conflict but also examining the non-visible experiential interactions. Thus, this research addresses the following questions:

- What are the different kinds of interactions that occur on shared-use paths?
- How do path users experience and share the path?
- What are the respondents' expectations and attitudes towards the path?
- What are the practice and policy options in relation to enhancing shared-path experiences?
- Are video recordings a useful aid to in-depth interviews?

The Bristol-Bath railway path (Bristol, UK) was chosen as a case study site and a two phased data collection strategy was implemented. Phase I included on-site intercept surveys with cyclists and pedestrians along the path. Phase II involved a novel mobile method; using video recordings of the participants' shared-use path journeys as a discussion tool during in-depth interviews. Phase II enabled a more detailed exploration of the path users' experiences from a personal point of view. By implementing these methods and applying a novel theoretical framework (combining mobilities and social psychology theory), this research has uncovered findings relevant to practice and theory.

Exploring path user interactions revealed the types of coping strategies used by the respondents to share space. The findings also highlighted that different sensory aspects are prominent for cyclists and pedestrians. Processes associated with path-user identities and path-identity were also uncovered as important aspects of shared-path experiences. The usefulness of video mobile methods in accessing the experiential aspects of walking and cycling interactions has also been highlighted. The conclusion considers these findings and sets out recommendations including a code of conduct and an identity-influencing strategy for the path, along with ideas for future research.

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# **- CHAPTER I -**

## **1.0 Introduction**

### **1.1 Context and rationale**

The promotion of cycling and walking is prominent in local and national transport policy as a solution to problems relating to health, traffic congestion and climate change. Thus the understanding of how cyclists and pedestrians engage with and experience walking and cycling infrastructure is crucial, in order to encourage active travel. Walking and cycling shared-use paths are a specific aspect of infrastructure where users of differing modes are required to share space. Working from the Department for Transport's (DfT) definition, a shared-use path is; *'...designed to accommodate the movement of pedestrians and cyclists. Shared-use routes may be segregated or unsegregated. A segregated route is one where pedestrians and cyclists are separated by a feature such as a white line, a kerb or other feature. On an unsegregated route, pedestrians and cyclists mix freely and share the full width of the route'* (DfT, 2012a, p.5). Thus, whether the path is segregated or not, it is still defined as a 'shared-use path'.

Central to this research are the interactions between cyclists and pedestrians on shared-use paths and the consequential impact of these on journey experiences. Space on shared-use paths is often contested and tension or even conflict due to over-crowding can occur. According to the UK National Travel Survey (2002-2012) the number of cyclists choosing to cycle on the road has reduced from 46% (2002) to 38% (2012), but despite this there was also an increase in the percentage of people who cycle on cycle paths, off-road lanes and pavements from 25% (2002) to 30% (2012) (DfT, 2012b). To add to this, almost 5 million people use the National Cycle Network (Sustrans, 2015a) and there was a 7% increase in use from 2012-2013 (Sustrans, 2014b). The DfT aims to promote active travel and make walking and cycling 'more attractive' (DfT, 2011b). There have been attempts to increase cycling levels through initiatives such as the 'Cycling Demonstration Towns' and the 'Cycling City and Towns' (Goodman *et al.*, 2013) and through active travel funding such as the Local Sustainable Transport Fund and the Cycle City Ambition Grants (DfT, 2013). To the extent these initiatives are successful; this may be a further source of additional use of off-road paths.

This research proposes that as active travel is promoted and as walking and cycling targets are set in the UK there is potential for levels of active travel to increase; thus putting pressure on walking and cycling infrastructure such as shared-use paths, causing an increase in frequency of interactions between cyclists and pedestrians and potentially negatively impacting the off-road journey experience. Shared-use path design guidance (DfT, 2012a; Sustrans, 2014a, 2015b; TfL, 2014) provides recommendations in relation to the physical aspects of shared-use paths such as width, segregation and flow levels. However, many of the shared-use paths already in place are physically constrained with very little space for physical adjustments to the path. Thus, as an alternative to this and in order to ease the potential degradation of off-road walking and cycling journeys (as levels of active travel increase) it is necessary to develop an in-depth understanding of how cyclists and pedestrians interact and how they experience and share the space.

The importance of focusing on improving the quality of journey experiences is highlighted in the 'liveability' debate. The concept of 'liveability' suggests that it is just as important to focus on the experiential aspects as it is the safety and comfort aspects: 'we need to deal with the experiential quality of the urban environment, the level of satisfaction it provides on a daily basis: its appearance and other sensory qualities, as well as comfort and safety' (Southworth, 2003, p.344). Liveability is an important element of urban planning and design and has been a 'prominent concern' in planning for cities in the United States since the 19<sup>th</sup> century (Wagner and Caves, 2012). Southworth (2003, p.344) points out that due to issues such as increased congestion and a decline in the quality of public spaces 'many general plans are now concerned with improving liveability'. The concept has also been acknowledged as important in the UK (Liveable Cities, 2016).

Liveability is defined as 'the sum of the factors that add up to a community's quality of life' (Partners for Liveable Communities, 2016). Harvey and Aultman-Hall (2015) point out that these factors are varying and determined by the specific space or city. However, some factors relevant to this research include; wellbeing, social interaction, and a sense of place and identity. Factors such as positive social interactions and thus a positive experience and sense of place, were considered important aspects of liveability by influential authors such as Appleyard *et al.* (1981) and Jacobs (1961). Thus the concept of liveability sets the broader context for the importance of researching journey experiences.

The focus on journey experience and more specifically user experience has also been acknowledged by government policies in the UK, however only in the context of rail user

experiences (Transport Focus, 2015) and road user experiences (National road users' satisfaction survey, Highways Agency, 2014). The journey experiences on walking and cycling infrastructure, such as shared-use paths, should also be recognised at this level and the interactions that take place between path users are a key element of this. Additionally, the importance of quality of life has been highlighted by the DfT (2009). One of the five national transport goals, which are over-arching priorities of Local Transport Plans, is to 'improve quality of life and a healthy natural environment' (DfT, 2009, p.14). A major aspect of this goal is to 'improve the experience of end-to-end journeys for transport users'; highlighting the importance of gaining in-depth insights into walking and cycling journeys on shared-use paths.

Shared-use path experiences and the issue surrounding high frequencies of interactions, relating to possible conflicts between shared-path users, has been addressed by a variety of research projects to date (for instance Atkins 2012; Uzzell *et al.*, 2002; Sustrans, 2013b). These research projects have included methods which quantify and observe shared-use path interactions and conflict, by carrying out video observations and quantitative surveys; in order to categorise and measure interaction types and frequencies. For instance, Uzzell *et al.* (2002) measured conflict based on video observations; for every interaction, measurements were calculated to test whether or not the path users entered into each other's 'collision zones'. Based on these observations and calculations conflict on each of the case study paths was quantified.

The issue of shared-path interactions has also been acknowledged by the DfT, who commissioned an Atkins (2012, p.6) study into the 'factors which influence the design and operation of segregated and unsegregated pedestrian and cyclist shared use facilities'. Atkins (2012) measured conflict by carrying out quantitative surveys and observing video footage of segregated and non-segregated shared-use paths. Each of the visible and observable interactions between path users were categorised according to a pre-determined scale. This research concluded that there is little difference in the levels of conflict on segregated and non-segregated shared-use paths. Any interactions that were observed that did not result in any visible conflict or collisions were seen as relatively inconsequential. Thus much of the research to date on shared-use path interactions has taken a mostly quantitative approach, including methods such as video observation and categorisation of interactions, with a focus on the visible presence or absence of conflict. However, central to this thesis is the argument that it is necessary to investigate shared-

path interactions in more depth and not only focus on the outward visible signs of conflict but also to explore the non-visible experiential interactions.

This research project does accept that these previous approaches to shared path research, such as external observations of conflict, do provide useful and relevant data. However, to gain a more complete understanding of shared-use path journeys, the subjective and experiential aspects of sharing space should also be examined; these can impact on behaviour and in turn affect how users react to each other and share space. This research project argues that there are a variety of processes and encounters that can take place in mobile spaces such as shared-use paths that may seem uneventful and unorganised from the outside, however there is 'much more taking place than just people moving' (Jensen, 2010, p.400). There are often no words exchanged or no obvious interactions taking place, it is all about the 'intricate almost unconscious, network of voluntary controls and standards among the people themselves' (Jacobs, 1961, p.32).

There are many complex processes (physical, sensory, social and emotional) that take place during walking and cycling journeys which can impact on path-user interactions and experiences. For instance processes relating to: physical negotiation tactics and communication tactics between path users, sensory experiences such as the visual and physical, the development of perceptions, attitudes and identities, and the practice of social grouping and categorisation (all discussed in Chapters 3.0, 5.0 and 6.0). Thus, a more in-depth exploration of these subtle and often unobservable processes is required, taking into account the point that 'what may appear to an independent observer as a straightforward and relatively uneventful commute to work can actually be saturated with layers and contexts of meaning that subjectively transform a mundane routine into something entirely different' (Atkinson and Delamont, 2011, p.191). It is these layers and processes of mobile journeys on shared-use paths that this research is concerned with.

## **1.2     *Theoretical Context***

In order to address the central argument of this thesis (outlined above) the research draws from two main theoretical contexts; the mobilities paradigm and the social interaction literature within social psychology. These two sets of literatures complement one another and appropriately aid in the exploration and understanding of the interactions which take place between cyclists and pedestrians on shared-use paths.

A large part of the mobilities paradigm (Sheller and Urry, 2006; Urry, 2007) explores the embodied experience of different types of journeys (a detailed review of this literature is set out in Chapter 3.0). There is a focus on the importance of understanding how travellers experience their journey and how other travellers affect this journey. According to Urry (2007, p.18) it is about 'establishing a movement driven social science' there is a focus on fluidity, thus examining how mobile journeys interconnect. This research focuses on the aspect of the mobilities literature which Sheller and Urry (2006, p.216) categorise as the study of; 'the corporeal body as an affective vehicle through which we sense place and movement'. Thus there is a focus on the experiential aspects of walking and cycling; the sensorial, emotional, and social aspects of walking and cycling journeys on shared-use path. Thus the importance of the 'the act of moving itself' (Adey, 2010) is acknowledged. With this, corporeal and embodied aspects of walking and cycling such as fluidity, rhythm and the visual senses are all highlighted as important processes to take into account when exploring shared-use path walking and cycling experiences. The level of engagement that path users have with these aspects of their journeys has the potential to impact on their experiences.

Social-psychology literature provides an additional theoretical context from which to explore these corporeal and embodied mobile experiences, from this theoretical framework the issues surrounding social relations and interactions in a mobile context are relevant. The three main areas of the social interaction literature which this research draws from are; the formation and preservation of identity, the concepts surrounding group dynamics, and linked with these, the concept of conflict (these are outlined and discussed in detail in Chapter 3.0). Tajfel and Turner's 1986 'Social Identity Theory' and Turner *et al.*'s 1987 'Self-Categorisation Theory' are central to these areas of the literature and to this thesis. Social identity theory sets out the notion of intergroup relations, and the idea of in-groups and out-groups. Self-categorisation theory takes this further and provides additional details on the complexities of group dynamics. Furthermore, this research project draws from Jacob and Schreyer's (1980) Conflict Theory which identifies conflict as a complex and dynamic interaction process, highlighting that there are many subtle and unobservable aspects to it. These theories are crucial in order to gain detailed insight into path-user relations and the associated social complexities.

The mobilities literature explores the corporeal and embodied experiences of mobility, while the social psychology theory provides an interesting context from which to further explore this, from a social interaction point of view. The suggestion here is that the individuals' mobile behaviours and their sensory and embodied experiences of mobile

spaces can be explored in more depth by examining how they interact with other mobile sensory beings in the context of the processes highlighted by social interaction and social psychology literature.

### **1.3 Research Aims**

There are many factors to be addressed when considering shared-use path journey experiences; these include both soft and hard measures. This research aims to address the soft measures related to the social and experiential; it will not explicitly address issues of infrastructure design as this has already been well researched and comprehensive design guidance has been produced (for instance the Dutch CROW design guidance). The aim of this research is to gain an in-depth and holistic insight into the personal and experiential aspects of shared-path users' journeys and interactions. Thus, this research explores the visible and the non-visible, the obvious and subtle, the observable and non-observable aspects of walking and cycling journeys and interactions on shared-use paths. The aim is to uncover the complex processes which take place on shared-use paths when mobile individuals interact and share space; in order to develop understandings and recommendations on how to encourage a more enjoyable journey experience and reduce the potential for any tension or conflict that may exist between cyclists and pedestrians on shared-use paths. In doing so, this research considers Sheller and Urry's (2006, p.209) proposition; 'what if we were to open up all sites, places, and materialities to the mobilities that are always already coursing through them?'

More specifically, this research has three central aims which are connected: first, to explore walking and cycling experiences on shared-use paths, in relation to the interactions that take place between path users. Second, the specific context of these experiences will be explored in order to investigate whether or not the path users' perceptions and attitudes towards the path have an impact on their journey experiences, and interactions. The final aim is to make a methodological contribution to the field of mobile methods. It is important to note here that throughout this thesis an 'interaction' is understood and defined as two people or two groups of people passing each other; 'it could be people passing each other from opposite directions, or going in the same direction' (Sustrans, 2013a). Additionally, a 'journey experience' is understood as something that is made up of processes (social, emotional, sensory, and physical; discussed above in Section 1.1 and in more detail in Chapter 3.0) which an individual consciously and subconsciously engages with while

travelling, in this context while travelling on a shared-use path. The specific aims are outlined below:

- To explore journey experiences on shared-use paths and explain how and why interactions with other path users can influence these experiences.
- To consider how the path users' expectations and attitudes towards the path itself impact on journey experiences and interactions with other path users.
- To make a methodological contribution to the field of mobile methods by exploring the effectiveness of video recordings as a discussion aid to in-depth interviews.

#### **1.4 Thesis outline**

This thesis is structured into seven chapters (see Figure 1 below), these are briefly outlined below. The following Chapter II sets out the policy, design and management context for shared-use paths in the UK. The history of the place of walking and cycling in UK policy is firstly outlined, along with a discussion of the policy approach to and development of shared-use paths more specifically. A consideration of the design and regulatory setting for shared-use paths is then presented; following on from this initial contextualisation of shared-use paths, Chapter III sets out the theoretical context of this research. This chapter consists of two main sections, the first is related to the literature surrounding the experiential aspects of walking and cycling journeys, the second discusses the social aspects of shared mobile journeys. Following this the research questions are presented, setting the context for the discussion of the methodology in Chapter IV.

Chapter IV sets out the research strategy, followed by a discussion of the theoretical perspective and epistemological and ontological setting of this research. Specifics of the methodological strategy are then presented. The research design and administration are then considered along with detail of the rationale, data collection strategy, recruitment and analysis (for Phase I and II separately). A discussion of the challenges faced by implementing each of the methods and a reflection on the methodological process is also provided.

Chapter V presents the empirical findings from the data collection. The findings are presented in three sections, reflecting the research questions. The theme of interactions is firstly presented, examining the interactions experienced by the respondents and interpreting how they occur and how they impact on journey experiences. Second, further

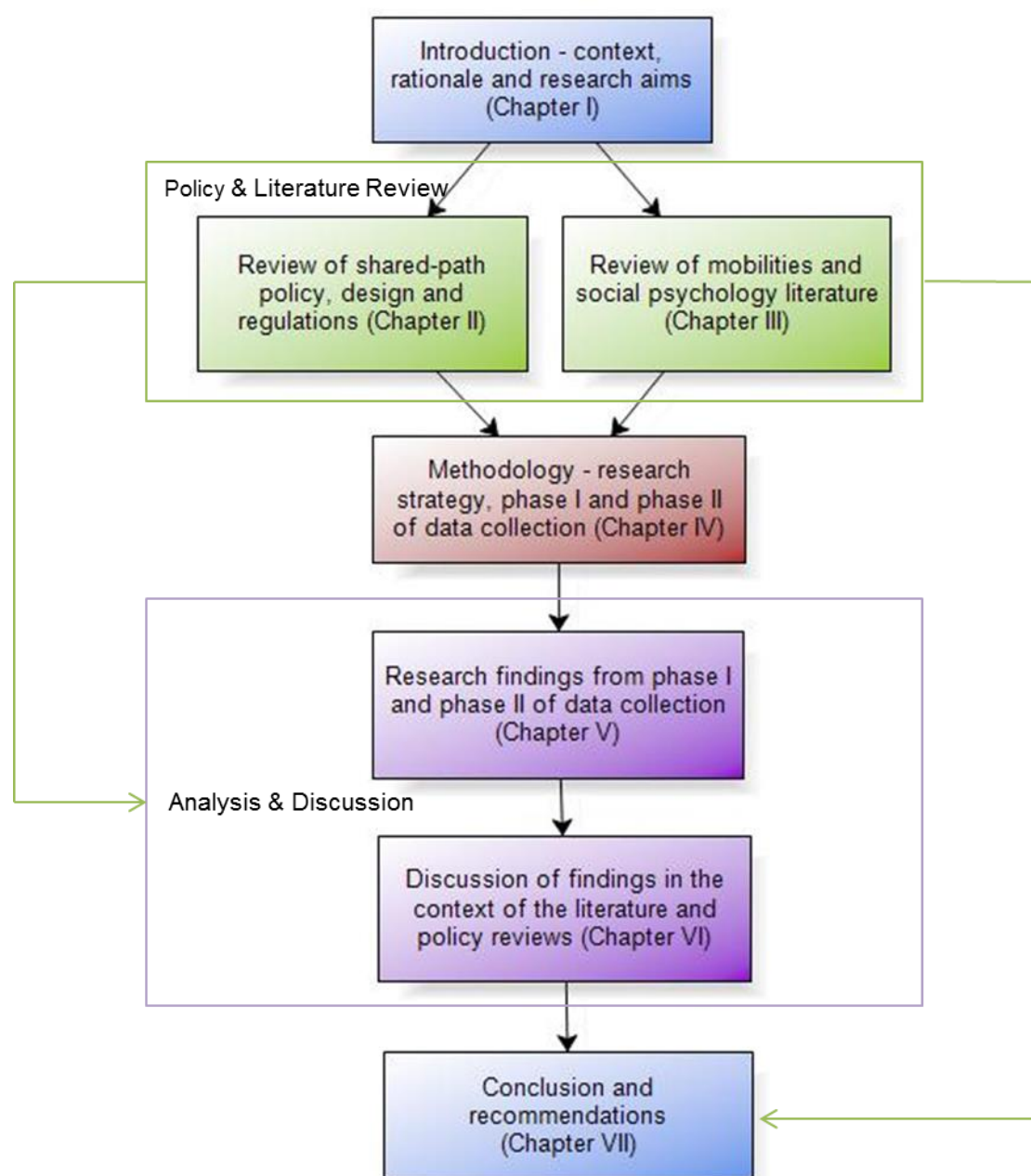


details on how the path users experience and share the path are presented, for example findings related to sensory experiences, perceptions and attitudes to sharing. Finally, results related specifically to the path itself are presented, highlighting the respondents' expectations and attitudes towards the space and how the path itself impacts on how the respondents interact and share the space.

Chapter VI then provides a discussion of these research findings in the context of the policy and literature context outlined in Chapters II and III. Particular themes are developed in this chapter to outline the contributions to knowledge provided by this research. For instance the key themes identified include: sensory experiences of walking and cycling, attitudes to sharing, path-user identities and more specifically the identity of the shared-use path itself.

A concluding discussion and recommendations are then presented in Chapter VII, providing detail on the impact of the research findings and a consideration of their relevance and importance to policy and practice. Detailed recommendations are provided relating to a re-branding of the path and its resources. A separate set of recommendations are also provided relating to the unique video method implemented for this research. The thesis finishes with suggestions for future research.

Figure 1 - Thesis Structure



## **- CHAPTER II -**

### **2.0 Shared-use paths: policy, design and regulation**

#### **2.1 *Introduction***

The aim of this chapter is to set out the policy, design and management context for shared-use paths in the UK. During the rise of the motorcar in the 1970s walking and cycling levels decreased in Western Europe. In response to this, differing transport policy decisions and strategies were implemented in each country, and thus walking and cycling levels recovered in some countries (such as Germany and the Netherlands) and did not recover in other countries such as the UK. This policy context of walking and cycling in the UK is discussed in Section 2.2 below. Additionally, and more specifically, the case of shared-use paths is also examined in Section 2.2. It is argued that there is a mismatch of policy guidance and practice in terms of shared-use path promotion and development in the UK. Use of off-road walking and cycling facilities is increasing, yet policy advises that the provision of off-road facilities should be the last resort for transport planners. Particular design measures (segregation, width and flow levels) are often implemented to accommodate the increase in use, these are discussed in Section 2.3. The final Section 2.4 provides an exploration of the regulation and management of shared-use paths. It is identified that there are very few regulations associated with shared-use paths in the UK. It is also important to clarify the definition of a shared-use path. As outlined in Section 1.1 a shared-use path is defined as a path that is shared by cyclists and pedestrians away from the road, vehicular traffic is not permitted. A shared-use path can be segregated, where cyclists and pedestrians are separated or non-segregated where path users mix freely across the path. Whether path users are segregated or non-segregated, this is still defined as a 'shared-use' path (DfT, 2012a).

#### **2.2 *Policy context***

This section outlines the policy context of walking and cycling in the UK. First a discussion of the cycling context is presented, followed by a focus on walking. The difficulty for walking and cycling to gain a policy stance due to the dominance of car centric policies is discussed. The conflicts between policy and practice, regarding walking and cycling infrastructure, are

also considered. 'Shared-use paths' were formally incorporated into the UK's walking and cycling infrastructure with the development of networks such as the Milton Keynes Redway System and Sustrans' National Cycle Network (NCN) in the 1970s. These paths have had varying success and the place of cycling and walking within the UK's transport policy agenda has improved since their development, yet it still has a way to go.

*'Cycling is an important part of urban transport. However, for many years its role has been neglected in the UK, with the focus mainly on the needs of motor traffic'* (Gallagher and Parkin, 2014, p.3)

*'... being a pedestrian in Britain has become increasingly constrained as the road space allocated to pedestrians has become progressively defined and restricted to give priority to the demands of the car'* (Pooley et al., 2013, p.29)

Cycling levels in Great Britain, with cycling making up 2% of all trips, are low compared to other Western Europe countries: Germany (10%), Denmark (19%) and the Netherlands (26%) (Gallagher and Parkin, 2014, p.4). The current situation in these countries reflects how they responded to the rise and dominance of the motorcar in the 1970s. Since the decline in cycling in Western Europe between the 1950s and 1970s, differing policy investment and approaches to transport strategies emerged and thus cycling 'trends have diverged both between and within countries' (Golbuff and Aldred, 2011, p.3). There was a distinct policy shift in favour of cycling in most German, Dutch and Danish cities. In the UK however, there was less of a policy shift and weaker government commitment and thus, as Pucher and Buehler (2012) outline: since 1978, the average daily kilometres cycled per individual increased from 0.6 to 1.0km in Germany, 1.3 to 1.6km in Denmark, and 1.7 to 2.5km in the Netherlands. However, in the UK there was a decrease from 0.3 to 0.2km. Pucher and Buehler (2008, p.496) also state that the UK has 'given the green light to the private car...in sharp contrast, cycling has prospered in the Netherlands, Germany and Denmark...precisely because these countries have given the red light...to private cars'.

From the 1970s cycling pressure groups emerged and the reaction to these pressure groups was an initial determinant of the policy approach of each country; and thus the cycling trends that were to follow. Golbuff and Aldred (2011, p.7) highlight that: 'popular protests in Denmark and the Netherlands are largely regarded as unleashing political will to reverse car-centric policies and declining rates of cycling, and beginning a shift towards more integrated planning approaches'. Gallagher and Parkin (2014) also point out that government support

was the main factor which influenced the 1970 recovery and future increase of cycling levels in the Netherlands. For instance, in 1972 the Dutch Economics Institute published a report advising an expensive expansion of the road network, yet almost all the political parties agreed that this 'future full of roads with dozens of lanes' was unacceptable and this was also the conclusion adopted by the Dutch Ministry of Transport (Ministry of Transport, 1999, p.41). Additionally, in the early 1970s research was carried out in the Netherlands exploring a variety of options for mixing and/or segregating road users. Following this, the 1972 bicycle traffic plan was developed, advising and implementing segregation between cyclists and motor traffic (Ministry of Transport, 1999).

On the other hand, the UK government took the 'predict and provide' approach which is defined by Parkhurst and Dudley (2008, p.51) as: 'calculating how much unconstrained demand for road travel exists and adopting policy measures and providing funding streams to deliver the required capacity'. The 'predict and provide' approach is associated with the 1989 White Paper 'Roads for Prosperity' which led to car focused transport policies and planning strategies, aiming to build more roads to cater for the growing numbers of cars. Hence, cycling levels in the UK were not increasing from the 1970 plummet. Meanwhile in the Netherlands, 'the annual distance cycled per capita increased by 30%' from the late 70s to the late 80s (Wardlaw, 2014, p.243). Also during this time, the distance of cycle tracks in the Netherlands increased from 9,000km to 16,000km (Wardlaw, 2014).

A change in attitude did develop in the UK in the 1990s with Goodwin's (1991) new realism approach which criticised 'predict and provide' and called for a new approach to transport planning; taking cycling into account. This work informed the 1998 'A New Deal for Transport' (DfT, 1998, p.5) which explicitly accepted that: 'simply building more and more roads is not the answer to traffic growth...predict and provide didn't work.' Then by the late 90s cycling began to be associated as a possible solution to problems such as health issues, congestion and climate change and so; 'a broad range of stakeholders had begun to voice increased interest in cycling as a mode of transportation, whether appealing to congestion, to health, or to environmental concerns' (Golbaff and Aldred, 2011, p.13). In 1996 a 'definite policy support for cycling was becoming clearer' (Tolley, 2008, p.126) and the UK's first National Cycling Strategy was published with specific targets in place to increase cycling. The targets were to double the number of trips by bike from 1996 to 2002, and also to double this figure again by 2012. The strategy also included guidance for local authorities with a model local cycling strategy (Tolley, 2008). It is interesting to note that by this time (from

the 1970s to the mid-1990s) cycle facilities had expanded greatly in Germany, the Netherlands and Denmark. For instance 'in Germany, the bikeway network more than doubled in length, from 12,911km in 1976 to 31,236 km in 1996' (Pucher and Buehler, 2008, p.511).

The case for walking during the late 90s and early 00s in the UK was slightly different to that of the policy situation for cycling. Unlike the situation for cycling, a National strategy for walking was not developed and walking did not yet have a presence within transport policy. Historically, specialist walking groups such as 'The Ramblers' and 'Living Streets' campaigned for walking. The Ramblers, originally known as 'The Ramblers Association' (founded 1935) was initially mainly concerned with rural walking (Ramblers, 2015). Living Streets (originally the Pedestrian Association) was founded in London in 1929 and campaigned for pedestrian safety and pedestrian rights on the road, as the motorcar began to dominate (Living Streets, 2012). Living Streets campaigned for safer streets, pedestrian crossings, the development of a highway code, and for pedestrians to gain more priority on roads. In 1996, the same year that the National Cycling Strategy was released, there was an increased focus on the importance of a formalised inclusion of walking in transport strategies and policies. The Walking Steering Group released a discussion document ('Developing a Strategy for Walking'), this document highlighted that 'to be successful, walking must be considered as part of an overall strategy and not just in isolation' (Tolley, 2008, p.126). This discussion document increased awareness for walking and highlighted the importance of setting walking specific targets (Tolley, 2001). With this, there were plans to develop a National Walking Strategy in 1998. However at this point the government was becoming 'increasingly nervous about promoting walking, lest it be seen as 'anti-car'' (Tolley, 2008, p.127) and the planned strategy was never released.

The proposed National Walking Strategy was eventually replaced by the document: 'Encouraging Walking: Advice to Local Authorities,' however Tolley (2008, p.127) points out that this advisory document was quietly released 'without a launch or other publicity'. Thus the case for a strategy specifically for walking was not successful. However, in the meantime (as mentioned above) the 1998 White Paper 'A New Deal for Transport' (DfT, 1998) was released. Within this, a transport policy framework was outlined for the UK. Walking was included in this and addressed with cycling. The aim for walking and cycling was to make it 'easier and safer to walk and cycle' and to 'encourage healthy lifestyles by reducing reliance on cars, and making it easier to walk and cycle more' (DfT, 1998). Thus from 1998, walking

officially became part of the policy picture, addressed alongside cycling. In 2004 'The Future of Transport – White Paper' was published (DfT, 2004a). At this time cycling and walking were becoming promoted and linked even more so as a solution to broader health issues and with this, cycling and walking 'became re-defined as 'active travel' in the fight against obesity' (Golbuff and Aldred, 2011, p.32).


The 'Walking and Cycling: An Action Plan' was also released in 2004 (DfT, 2004b), this officially identified that the 'overall level of walking and cycling in England had not risen above the baseline level of 1996' (Tolley, 2008, p.129). Also, within this action plan the National Cycling Strategy targets were abandoned. However, during this time, walking was starting to be recognised in policy as a transport mode in itself, for instance a specific 'Walking Plan for London' was released in 2004 (TfL, 2004). The aim of this plan was to encourage an increase in walking and a specific six-point action plan was outlined. Middleton (2010, p.575) asserts, in relation to walking: 'what was once a relatively marginalised activity promoted by specialist interest groups...is now gaining significant attention'. The policy approach of promoting walking and cycling together as 'active travel' was continued with the development of the 2010 'Active Travel Strategy' (DfT, 2010). The policy context for cycling and walking was now broadening into sectors wider than transport (health and environment) as they were re-defined and addressed as 'active travel'. Thus, walking and cycling have developed recognition within policy documentation. However, levels of walking and cycling are still not rising; walking levels in the UK are the second lowest in Europe (DfT and DoH, 2010). Similarly, 'since 2005 the overall levels of utility cycling have scarcely changed and...remain well below levels in comparable continental European countries' (Pooley *et al.*, 2011, p.2).

Perhaps this is due to the contradictory situation which exists in the UK in relation to specific infrastructural guidance and practice for walking and cycling; there appears to be a mismatch between the design guidance (DfT, 2008a, 2012a) and much of the actual design practice (Sustrans, 2015a). When the UK's National Cycling Strategy was launched in 1996, the message in relation to cycling infrastructure was to cater for cyclists without segregating them from the road, 'to design for safe and convenient cycle use of the road network' (Golbuff and Aldred, 2011, p.15). This approach was supported by many cycling organisations and campaigners such as the Cyclists' Touring Club (CTC). They were against the provision of off-road paths as they 'feared that cycle paths would lead to the banning of

cyclists from major roads’ (Melia, 2015, p.72). Thus they supported on-road cycling and sharing the space with motor traffic rather, than off-road facilities.

The CTC worked with the DfT to communicate this message more specifically through the ‘Cycle Friendly Infrastructure: Guidelines for Planning and Design’ (IHT, 1996). Within this, a hierarchy of provision was outlined as a design guide for cycling infrastructure. This hierarchy was updated in 2008 (DfT, 2008a) and still sits as the current hierarchy of provision (Figure 2) when designing for cyclists in the UK (DfT, 2012a). Thus, it is advised that the priority should be to improve road conditions and cater for cyclists on the road. Cycle paths away from the road and conversion of footpaths to mixed use should be a last resort (DfT, 2012a). As Melia (2015, p.76) states, cycling organisations such as the CTC originally supported this ‘flawed compromise because they feared any alternative might threaten their right to ride on the road’. In 2012 however, the CTC published a new policy taking a stance which is more in favour of separate off-road cycling facilities (Melia, 2015).

**Figure 2 - Department for Transport's Hierarchy of Provision (DfT, 2012a)**

Consider	Possible Actions	
First	Provide for cyclists in the carriageway	Traffic speed/volume reduction HGV reduction Junction/hazard site treatment Reallocation of carriageway space
 Last	Create new shared use routes	
	Convert pedestrian routes to shared use	

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However, while the Hierarchy of Provision (IHT, 1996) was being promoted and published by the government, the National Cycle Network (NCN) was also launched by Sustrans officially in 1995. Interestingly, the NCN is made up of mostly off-road and some on-road walking and cycling shared-use routes, thus providing walking and cycling paths away from the road. As Golbuff and Aldred (2011, p.17) state: the approach taken by the DfT with the hierarchy of provision ‘contrasts with that taken by Sustrans in designing the NCN’. Melia (2015) also points out that the hierarchy ‘ignores the successes’ of many of the off-road NCN routes. The hierarchy also differs greatly from the approach taken by the cycling policy ‘leaders’. For instance, the Cycling Embassy of Denmark (2012, p.53) clearly states that ‘cycle track design and maintenance should always be of such a standard that cyclists never choose to ride on the carriageway instead’. Additionally, providing for cyclists off-road, away from motor traffic, has been the approach in the Netherlands since their policy turn in the early 1970s (Ministry of Transport, 1999, p.38). Off-road facilities were also acknowledged as important



in the UK around this time, but in contrast the implementation was viewed as unattainable. In 1977 the Labour Government's White Paper stated that off-road cycle paths would be too expensive (Golbuff and Aldred, 2011). Again, in 1981, the Conservative Government's Cycling Consultation Paper acknowledged the benefits of off-road facilities, yet it was not seen as achievable due to the space and money it required (Golbuff and Aldred, 2011). Currently however, the hierarchy of provision (DfT, 2012a) sets on-road provisions as the first priority.

Furth (2012) states that it is not enough only to provide on-road cycling facilities, as this does not cater for or attract new cyclists, or those who are discouraged by motor traffic. There has been much research to suggest that the fear of motor traffic is one of the main barriers to increasing cycling levels. For instance, Gallagher and Parkin (2014, p.7) state that 'fear of traffic is one of the main factors that discourage people from cycling'. Similarly, Transport for London (TfL) found that danger and a poor cycling environment were in the top three of the most frequently mentioned factors that discourage people from cycling (Gallagher and Parkin, 2014, p.7). Also, according to the National Travel Survey (comparing results from 2002-2012) the number of cyclists choosing to cycle on the road has reduced from 46% to 38%. In addition, there has been an increase in the percentage of people who cycle on cycle paths, off-road lanes and pavements from 25% to 30% (DfT, 2012b). Furth (2012, p.107) suggests that where on-road cycling is promoted and/or provided as the main cycling facility (as is suggested in the hierarchy of provision) this limits 'utilitarian bicycle use...to the fraction of the population that is 'traffic tolerant''.

In relation to walking, there is also evidence that pedestrians prefer walking facilities away from traffic. Pooley *et al.*'s (2011, p.10) research highlights the importance of providing walking and cycling facilities away from traffic; 'from our analysis of the influence of the physical environment on walking and cycling it is clear that traffic is a major deterrent'. Other studies have also been carried out which highlight that a pedestrian's proximity to road traffic can impact on their journey experience and well-being. Taylor (2003, p.1623) for instance, concludes that 'most people find the sensory and cognitive invasiveness of traffic aesthetically unpleasant and often oppressive'.

The usage figures of Sustrans' NCN add to this debate and highlight people's preferences for off-road infrastructure, even if it does mean shared-use between cyclists and pedestrians. Almost 5 million people use the NCN (Sustrans, 2015a) and there was a 7% increase in use

from 2012-2013 (Sustrans, 2014b). Additionally, half of all users are actually walkers, highlighting that there is a mix of cyclists and pedestrians using the facility. The network 'stretches over 14,000 miles across the length and breadth of the UK' (Sustrans, 2015a). The popularity of the NCN was also highlighted in 2007 when Sustrans' proposal to extend and enhance the NCN won the National Lottery's public vote on 'which third sector project should win £50 million of good causes funding' (Tolley, 2008, p.130). The Scottish Government has committed to providing dedicated funding for the NCN and envisions the network as crucial in helping to 'achieve a meaningful shift to more active and sustainable modes of transport' (Scottish Government, 2010, p.17). The Scottish Government also specifically advise local and regional authorities to engage with and develop the network.

The increasing use of the NCN can also be seen at a local level. Examples of converted railway paths are used here as this is the specific type of path under study for this thesis. Several paths converted from railway links have experienced a range of increases, for instance the annual average daily bike count for the Derwent Walk Railway Path in Durham increased by 13% from 2010-2013. Usage increased by 30% on The Bristol and Bath Railway Path from 2010-2013, and by 86% on the Chester Railway Path from 2010-2014 (Sustrans and local council data, unpublished). However, with this also comes the risk of some paths becoming over-crowded, leading to tensions between path users. For instance, the comments and discussion threads in response to online blogs, articles and forums relating to user relations on shared-use paths, highlight the unease that can exist between path users (for example: Davies, 2012; Hembrow, 2014; Lakin, 2015). Of course, there may be differences between perceptions of and actual experiences of conflict. Nonetheless, it is a live issue that can impact on how individuals experience shared-use paths. Thus, the important role of off-road and shared paths for walking and cycling are highlighted by: the research outlined above (Furth, 2012; Pooley *et al.*, 2011 and Gallagher and Parkin, 2014), the popularity of the NCN amongst the public, and by the approach taken in countries with high levels of cycling. However, an increase in frequencies of interactions on these paths can create potential conflicts.

Walking and cycling in the UK has historically struggled to gain acknowledgment in a policy setting which is mainly dominated by car policy. The current policy focus on walking and cycling is related to promoting both walking and cycling as 'active travel'. There appear to be implicit conflicts in policy: much of the policy advises to provide on-road facilities for cyclists (DfT, 2012a), however much of the practice and research suggests that off-road provisions,

including shared-use paths, are important for promoting and encouraging walking and cycling. As these off-road facilities continue to increase in popularity, further measures have been developed to improve the quality of the user experience. The factors which make up a high quality user experience are considered in the following sections, in the context of path design (segregation, width, and user-flow), management and regulation (code of conduct, official regulation and signage).

### **2.3     *Shared-use path design***

In the UK there are a number of guidance documents on shared-use path design (DfT, 2012a; Sustrans, 2014a, 2015b; TfL, 2014); the ultimate aim of designing a ‘successful’ (DfT, 2012a) or ‘good’ (TfL, 2014) walking and cycling scheme is to encourage a high quality journey experience. Thus, the factors that determine the quality of journey experiences on shared-use paths are discussed below, in the context of the design guidance.

The DfT associate three major factors with the development of a high quality scheme, or in their terms ‘a successful scheme’. They highlight that ‘the properties desired for a successful scheme’ include: ‘convenience, accessibility, safety, comfort and attractiveness’ (DfT, 2012a, p.11). Similarly, TfL (2014, p.60) guidance refers to the aim of developing ‘good design outcomes’. In their terms a high quality journey involves the following set of factors: ‘safety and comfort, directness, coherence, attractiveness, adaptability’. However, the definitions of a ‘successful’ and ‘good’ (DfT, 2012a; TfL, 2014) scheme suggest that a certain quality of design will result in a certain quality of journey experience; this is not necessarily the case as there are also many complex social factors to consider, for instance how users interact and react to one another. Additionally, both sets of factors are ambiguous, particularly the factors ‘comfort’ and ‘attractiveness’; these could be addressed and interpreted in many different ways in order to create a high-quality journey experience. For instance, the use of a shared-path can be made more attractive through soft measures such as providing information and influencing perceptions and attitudes towards off-road walking and cycling paths, as well as through harder design measures. In order to facilitate and implement a successful/good shared-use path, and to satisfy the factors outlined above, the guidance discusses many specific design factors such as: gradient, surfacing, lighting, access, segregation, width, flow. The latter three are further discussed below, as they are most relevant to shared-path interactions.

In certain circumstances the decision to segregate cyclists and pedestrians on a shared-use path can greatly improve journey experiences; however, if segregation is implemented where the circumstances are not suitable then this could potentially degrade the user experience for both cyclists and pedestrians. Thus it is a critical decision when designing and upgrading shared-use paths and extensive guidance is provided (for instance DfT, 2012a). When the terms segregation and non-segregation are used in this section it is in reference to segregation between cyclists and pedestrians on shared-use paths.

The DfT has recently released an updated Local Transport Note (LTN) on shared-use paths (DfT, 2012a). The key change in the LTN 1/12 compared to the previous LTN 2/86 is that segregation is no longer advised as the starting point for design. Segregation was previously encouraged as the best option for shared-use paths, in order to minimise conflict between path users, however the LTN 1/12 guidance now encourages designers to thoroughly think through all options instead of automatically opting for segregation between cyclists and pedestrians. It is recommended that designers make 'decisions appropriate to the scheme context rather than adopting certain features as a starting position in the design development process' (DfT, 2012a, p.33). To add to this, the guidance highlights a list of specific factors which should be considered when deciding whether or not to segregate cyclists and pedestrians: 'design objectives, geometry and visibility (sight lines), gradients, available width, frontages along the route, the overall setting, movements across the route, and the volume and composition of different user types' (DfT, 2012a, p.33).

Nevertheless, the approach taken in LTN 1/12 when assessing the appropriateness of segregation and non-segregation appears to favour non-segregation. It highlights the advantages of non-segregation and segregation (see Table 1 below) but these are followed by a cautionary note referring to the additional disadvantages of segregation (it has a higher cost and is only effective if the path width is appropriate). However, there are also concerns about the impact of non-segregated paths on the quality of journeys for vulnerable users. For instance research with visually impaired path users uncovered feelings of stress and anxiety towards non-segregated shared-use paths (TNS, 2010). Vulnerable users are acknowledged in the guidance, the DfT (2012a) note that segregation between cyclists and pedestrians is most appropriate when there are: significant numbers of vulnerable users, high user flows, predominantly linear user movement, high bicycle speeds and high levels of non-travelling users (e.g. social activity on the path). It appears that the majority of guidance and research suggests that the decision to segregate or non-segregate a shared-use path depends greatly on the individual site (DfT, 2012a; Sustrans, 2014c; Jones, 2011; TfL, 2014)

and when implemented correctly it can improve the quality of both cyclist and pedestrian journey experiences.

**Table 1 - Advantages and disadvantages of segregation (DfT, 2012a)**

<p>Effective segregation can be useful where:</p> <ul style="list-style-type: none"> <li>- the route is intended to accommodate significant flows of cyclists, especially high speed flows;</li> <li>- large flows of pedestrians and cyclists are expected at the same time;</li> <li>- the number of cyclists relative to pedestrians is expected to be high;</li> <li>- predominant user movements are along rather than across the facility;</li> <li>- heavy cycle flows pass numerous frontages;</li> <li>- a significant proportion of vulnerable users is likely to use the facility; and</li> <li>- there are high levels of non-travelling users (e.g. people congregating at an attraction, shoppers, etc.).</li> </ul> <p>Some disadvantages of segregation are that:</p> <ul style="list-style-type: none"> <li>- splitting the route reduces the width available to both user groups;</li> <li>- physical segregation features further reduce effective widths;</li> <li>- to maintain effective widths, land take increases;</li> <li>- kerbs or barriers can make crossing movements difficult, particularly for wheelchair users;</li> <li>- white line segregation is often ignored;</li> <li>- implementation costs might be significantly higher; and</li> <li>- maintenance might be more difficult.</li> </ul>
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There are two main forms of segregation on shared-use paths: the first, 'level surface' (DfT, 2012a) or 'partial separation' (TfL, 2014), includes a painted white line (see Image 1 below), a raised white line, or contrasting surfaces. The second, 'level difference' (DfT, 2012a) or 'full separation' (TfL, 2014) includes a kerb (see Image 2 below) or barrier so that cyclists and pedestrians are physically separated and have dedicated paths. 'Level difference' is recommended as the preferred type of segregation by the DfT (2012a) and it is suggested that kerb segregation should be used over barrier segregation. This preference is informed by research carried out by Atkins (2012) that states that pedestrian and cyclist compliance to white line segregation is relatively low. CTC (2014, p.5) add that if a decision has been made to segregate cyclists and pedestrians, this should be done so with a raised white line, however they point out that segregation should only be implemented if there is sufficient width and at sections of the path where people do not have a need to cross the path; 'where movement patterns are mostly (if not wholly) linear'.

In Ireland, The National Transport Authority (NTA, 2011, p.24) clearly advise; 'do not use painted white lines' to segregate shared paths. In relation to segregation the NTA (2011) apply the 'up equals safe' (*up=safe*) principle, which involves segregating by a level change

to provide a guide for visually impaired users. Ker *et al.* (2006) also state that physical segregation between cyclists and pedestrians is the preferred option, if segregating a shared-use path in Australia. However, Sustrans (2015b) warn that achieving segregation between cyclists and pedestrians through level difference such as with kerbs can greatly increase the implementation and maintenance costs, especially when added to a previously level surface.

**Image 1 - Shared path segregation by white line**



Ainsley, 2010 (CC Attribution-Share Alike Licence)

**Image 2 - Shared path segregation by kerb**



(Used with permission of Sully, 2012)

In countries with high levels of cycling, such as the Netherlands and Denmark, they often design so that cyclists and pedestrians are completely separated, and cyclists have their own network of routes (Ministry of Transport, 1999; Jensen, 2002). The Dutch CROW design guidance proposes the concept of 'sustainable safety' (Wegman *et al.*, 2005), part of this highlights the importance of separating modes which are of differing speed, mass and direction. One of the five key principles related to this concept is 'homogeneity of mass and/or speed and direction' so that sharing only occurs between modes of similar speed (SWOV, 2013, p.2). According to this, a high quality shared-use path experience would involve the segregation of cyclists and pedestrians; due to their differing speeds they would be interpreted as 'incompatible traffic modes' (SWOV, 2013, p.2). This however raises the issue of space; as outlined below, segregation of a shared-use path also has the potential to degrade the journey experience if there is insufficient width or if the path is physically constrained. In this case there are often attempts made to implement physical design features in order to slow down faster path users such as cyclists, to encourage more compatible path-user speeds. Thus, the decision to segregate and the format of segregation is complex and critical to the development of a path that encourages a high quality user experience. Guidance advises that it should be considered carefully based on the specific context of the path (DfT, 2012a). As Jones (2011, p.9) states; 'there is no ideal form of segregation'.

In addition to segregation, guidance is also provided for width and user flow; in order to develop a path that is conducive to sharing between a variety of users and to enhance journey experiences. The DfT (2012a, p.17) state that 'width strongly influences the quality of shared-use routes, and any additional width is welcome'. It is also useful to take user flow into account. Transport for London (2014) highlight that different flow levels determine the desired width of shared-use paths (see Table 2). The EU funded cycling initiative, PRESTO (2009) (carried out research into best practice of cycling infrastructure, in order to offer a set of tools for technicians to create high quality cycling experiences in urban environments) recognises pedestrian density as a major factor when deciding on segregation or non-segregation between cyclists and pedestrians. PRESTO (2009) refers to the Dutch guidance to suggest cyclists and pedestrians can share paths up to a maximum of 200 pedestrians per hour per meter of available space anything above this will negatively impact on journey experiences. In Australia, the width guidelines for non-segregated paths are a minimum of 3m, for segregated paths the cyclist side should be a minimum of 2.5m and the pedestrian side should be a minimum of 2m (Ker *et al.*, 2006).

**Table 2 - Recommended widths for partially separated and shared paths (TfL, 2014)**

	Partially Separated	Shared
Very low/low cycle flow	3.0m (cycle track 1.2m-1.5m*)	2.2m
Medium/ high cycle flow	4.5m (cycle track 2.5m-2.8m*)	3.0m
High/ very high cycle flow	5.9m (cycle track 2.5m-3.5m*)	4.5m

\* Ranges are given to account for variations in pedestrian flows (at the time of peak cycle flows). Where pedestrian flows are expected to be high or very high, then more width than is shown in the table above may be needed.

Similarly in the UK, Sustrans (2014a) recommend that urban traffic free shared-paths should be a minimum of 3m wide (where high usage is expected a minimum of 4m is preferred). For segregated paths they advise a minimum of 3.5m each for cyclists and pedestrians. The LTN 1/12 (DfT, 2012a) also advises that non-segregated paths should be a minimum of 3m and the cyclist side of a segregated path should be a minimum of 2m (but 3m if it is a two way track) with the pedestrian side also a minimum of 2m. However, these guidelines are merely recommendations; there are no legal requirements of enforcement for these widths.

In order to encourage high quality journey experiences for a variety of users on newly designed shared-use paths, detailed design guidance is available. However, many of the factors considered to make up a high-quality user experience are social, or related to path management rather than design and infrastructure. For instance, TfL outline that it is important ‘to manage users in a way that removes discomfort, conflict and the perception of conflict’ (TfL, 2014, p.61). Additionally, there are many shared-use paths in the UK that already exist which are physically constrained and as CTC (2011) point out, many of the UK’s shared-use paths do not live up to the recommended standards. With this, some attempts have been made to manage path users and encourage behaviour conducive to sharing, in order to facilitate high quality journey experiences. Codes of conduct and signage are examples of these attempts and these are discussed in Sections 2.4.2 and 2.4.3 below.

## **2.4 Shared-use path regulation**

### **2.4.1 Legal requirements of shared-path users**

One factor putting increased pressure on shared-use path management measures is the legal framework; there are few legal requirements associated with how users should behave on shared-use paths in the UK. If one reads the UK Highway Code (DfT, 2015) as a pedestrian there is no mention of how pedestrians are advised to share space with cyclists. There is also very little guidance for cyclists: they are advised to be cautious when passing



pedestrians and to give them adequate space (DfT, 2015), however this is not stated as a legal requirement. Cyclists *are* legally required to keep to their side of a segregated path (DfT, 2015), yet this is not the case for pedestrians. Thus according to the Highway Code the only legal requirement associated with shared-use paths is that cyclists must not move into the pedestrian space of a segregated path. The DfT (2012a) state that pedestrians usually have the right of way on shared-use paths, yet it is not stated in the Highway Code (DfT, 2015) or the Road Traffic Act (1991) that cyclists are required to give way to pedestrians (or vice versa). Cyclists are legally required to cycle ‘carefully’ and ‘considerately’ on shared-use paths according to the Road Traffic Act (1991). Thus, there are very few regulations for cyclists on shared-use paths and there are even fewer regulations for pedestrians. Table 3 shows a summary of the UK’s legal guidelines for shared-use paths. They are quite ambiguous; many of them are dependent on how each individual would interpret the terminology. For instance a cyclist may be ‘taking care when passing pedestrians’ or riding with what they believe is ‘reasonable consideration’, however this may be interpreted as dangerous riding by a pedestrian.

**Table 3 - Summary of shared-use path legislation**

- There is no law that says cyclists should give way to pedestrians (with the exception of zebra crossings, junctions, bridleways and in some individual cases based on Local Authority byelaws).
- ‘If a person rides a cycle on a road without due care and attention, or without reasonable consideration for other persons using the road, he is guilty of an offence’ (the definition of a ‘road’ indicates that it includes shared-use paths: ‘any highway and any other road to which the public has access...this includes footpaths, bridleways and cycle tracks’) Road Traffic Act, 1991.
- Cyclists are advised to ‘take care when passing pedestrians, especially children, older or disabled people, and allow them plenty of room...always be prepared to slow down and stop if necessary’ this however is not a legal requirement (DfT, 2015).
- By law when cyclists are using a shared-use segregated path they must ‘keep to the side intended for cyclists as the pedestrian side remains a pavement or footpath’ (DfT, 2015). Although pedestrians still have the legal right to use the cyclists’ side of the path (DfT, 2004c).

Salomon (2001, p.3) suggests that to gain maximum benefit from walking and cycling infrastructure shared-use paths should be regulated just like roads, however there are varying levels of detail and specificity of guidance associated with shared-path use. In Denmark and the Netherlands shared-use paths are not considered as part of the normal cycling infrastructure and thus there is little guidance on regulations associated with these. However, in a shared situation in Denmark for example, cyclists *are* expected to give way to pedestrians (Ker *et al.*, 2006). Ireland takes a similar approach to this; the Irish National Cycle Manual recommends that shared facilities for pedestrians and cyclists should be avoided in urban areas. However, wherever they are present it is stated that pedestrians always have priority and 'cyclists should consider themselves as cycling on the footpath' (NTA, 2011, p.23). Similar to the UK, the Land Transport Rule in New Zealand sets an ambiguous context for shared-path regulations. All users are expected to use shared-paths in a 'careful and considerate' manner and must not use the path in a manner that 'constitutes a hazard to other persons' (PCA, 2004).

The Australian regulations communicate a similar message to the UK regulations, however they are more detailed and definite. There are notes on what users *must* and *must not* do rather than advice on what is recommended, and these are included in the Australian Road Traffic Act (Government of South Australia, 1961). Ker *et al.* (2006) outline a useful summary in Figure 3 below. In Australian legislation pedestrians are prohibited from using the cyclists' side of a segregated path, this rule only applies to cyclists in the UK. Also, in the Australian regulations it is specifically stated that on non-segregated shared-use paths cyclists (only) should 'keep left' and they should give way to pedestrians. However, Ker *et al.* (2006) recommend that the 'keep left' rule should apply to all path users.

**Figure 3 - Summary of Australian shared-use path legislation (Ker *et al.*, 2006)**

<p><i>Pedestrians</i></p> <p>Rule 236 – a pedestrian must not unreasonably obstruct the path of any driver or another pedestrian.</p> <p>Rule 239 – a pedestrian must not be on a part of a separated footpath designated for the use of bicycles, unless the pedestrian is crossing the path.</p> <p>Rule 243 – a person travelling on rollerblades, roller skates, or a similar wheeled recreational device, must not be a part of a separated footpath designated for the use of pedestrians.</p> <p><i>Bicycle riders</i></p> <p>Rule 249 – the rider of a bicycle must not ride on a part of separated footpath designated for the use of pedestrians.</p> <p>Rule 250 – The rider of a bicycle riding on a footpath or shared path must a) keep to the left of the footpath or shared path unless it is impracticable to do so and b) give way to any pedestrian on the footpath or shared path.</p> <p>Rule 253 – the rider of a bicycle must not cause a traffic hazard by moving into a path of a pedestrian.</p>
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#### **2.4.2 Codes of conduct**

The previous section highlighted that the legalities surrounding shared-use paths are ambiguous and there are differing rules about priority and which side of the path to move on for cyclists and pedestrians. In order to add further detail to and clarify the legal framework, many organisations have developed a recommended ‘code of conduct’ for shared-use paths. Parker (2006) describes a code of conduct as an ‘informal tool’ which can promote particular behaviours and structure the ‘consumption (and production)’ of space. For instance, the Paths for All (2011, Scottish charity promoting walking) and Cardiff Council (2010) codes of conduct advise that cyclists should give way to pedestrians; they also specifically advise, along with Sustrans (2014d), that all users should keep left. TfL (2014, p.72) explains that the implementation of a code of conduct can ‘help to keep all users, particularly cyclists, aware of sharing and the need for courteous behaviour’. They can be useful for promoting positive etiquette; however, some codes of conduct are ‘lengthy and only apply to specific users or activities’ (Paths for All, 2011, p.12). For instance, the two main codes of conduct for shared-use paths in the UK (Sustrans, 2013a; DfT, 2004c), published to inform path users and path managers, are targeted at cyclists only. They provide guidance on how best to share a mixed-use path; however this is for cyclists only.

Many local codes follow this practice (for instance Lee Valley, 2015) and also provide a cyclist only code of conduct for shared-use paths in the local area. However, in doing this, the focus from 'shared-use' is removed and the responsibility of path user relations is placed on the cyclist users only.

There are some codes of conduct which refer to both types of path user, such as the Two Tunnels (Sustrans, 2014d) and Hailey Park (Cardiff Council, 2010) codes of conduct. Again however, these are laid out in a way that there is separate guidance for cyclists and pedestrians. This draws attention to the 'us and them' message (see Section 3.4.2 for further discussion on in-out groups) rather than promoting shared-use. For instance, the Two Tunnels code specifies that cyclists should 'slow down on narrow stretches' and pedestrians should 'avoid spreading across the width of the path' (Sustrans, 2014d). These points could refer to all users and thus set out a message of sharing rather than differentiating points for each path user. Rather than encouraging a sense of sharing (by addressing all users), noting that cyclists should 'take care when passing other users' (Sustrans, 2014d) may actually promote the perception that cyclists, in particular, do not take care.

Brown (2012) also discusses this issue of setting out specific guidance for different modes, she points out that the Scottish Outdoor Access Code provides supplementary advice in the 'responsible actions' section which is specific to cyclists only. Brown (2012, p.805) suggests that this sets out a 'hierarchy of mobile subjectivity' where 'cyclists are scripted to carry the vast majority of the burden of attentiveness and anticipation, and are urged to be active in alerting other users to their presence'. Brown (2012, p.805) also points out that when a code of conduct is presented in this way it causes an 'explicit problematisation of the co-presence of cyclists' and identifies cyclists as 'those more likely to be deviant and irresponsible'. On the other hand, the Paths for All 'Etiquette for Shared Use Paths' (Paths for All, 2011) provides a good example of how a code can be developed to cover the key issues and to communicate a shared-use message by addressing all users (see Figure 4 below). Paths for All (2011) aim to provide a 'simple and concise' message about shared-use, this is mostly related to rural recreational paths however.

**Figure 4 - Etiquette for Shared Use Paths (Paths for All, 2011)**

<p>Etiquette for Shared Use Paths</p> <p>Enjoy Scotland's outdoors. Walkers, cyclists, horse riders, other non-motorised users, and people with disabilities using a wheelchair or motorised vehicle built or adapted for their use, have a legal right of access on most paths and other land, provided they act responsibly. The Scottish Outdoor Access Code explains your access rights and responsibilities.</p> <p>Please ...</p> <ul style="list-style-type: none"><li>- Expect to meet others – including cyclists, horse riders and people with disabilities.</li><li>- Be considerate and courteous to other path users.</li><li>- Keep to the left and let other users pass safely.</li><li>- Cyclists and riders should give way to walkers and other path users. If passing, warn of your approach with a friendly call or two rings of your bell, slow down and leave space.</li><li>- Avoid using paths, verges or soft ground, if you may cause erosion.</li><li>- Avoid disturbing wildlife or disrupting farming or forestry operation. Follow land managers' advice.</li><li>- Keep dogs under close control and out of the way of other path users.</li><li>- Remove litter and dog dirt and avoid horses fouling the path.</li></ul>
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Regardless of presentation and specificities there are some similarities throughout the variety of codes of conduct that are in place in the UK. The general messages include points on: consideration for others, minimising litter, keep left (in some codes), and the importance of clear communication with other path users. Other issues regarding shared-path interactions which have not been picked up on in the official legislation (as discussed at the beginning of this section) have been addressed in many of the codes of conduct, such as speed and keeping dogs under control. There is no speed limit for cyclists on shared-use paths, however the DfT's (2004c) code for cyclists advises that they should ride at a 'sensible speed for the situation' and cyclists moving at more than 18mph are recommended to cycle on the road. Also, Sustrans (2013a) advises to keep dogs under control. Thus there is very little legislation around shared-use paths, this has been attempted to be addressed by the development of a code of conduct for users. However, the approach and specificities of a code of conduct must be carefully considered in order to promote sharing rather than blaming or putting the responsibility on one type of path user.

### 2.4.3 Signage

Signage is another aspect associated with shared-use path regulations. There are two main signs which indicate a shared-use path; this can be segregated or non-segregated (see Figure 5 below).

**Figure 5 - Shared-use path signage**



Segregated



Non-segregated

It is advised that signage should be used at the beginning of a path (DfT, 2012a). The previous guidance (DfT, 2008b, p.154) stated that this signage 'must be used as a repeater, at regular intervals to remind both pedestrians and cyclists that pedal cycles can be legally ridden on the footway or footpath'. However, this has been altered and now there is only a requirement to have one minimum repeater sign instead of at regular intervals (DfT, 2012a). This is in line with the DfT's advice to carefully consider which signs are actually necessary, '...consider what signing is required as a legal minimum...then before adding anything else, consider who can act on information provided by any additional signing and whether they need the information in the first place' (DfT, 2012a, p.25). Thus, signage must be used to indicate the type of shared path; however practitioners are advised to keep signage to a minimum.

In the UK the regulations for shared-use cyclist and pedestrian paths are few. The official guidance (Road Traffic Act 1991; Highway Code 2012) provides generalised advice that is ambiguous and open to a number of different interpretations depending on the type of user. Although the codes of conduct developed by Sustrans (2013a) and the DfT (2004c) do provide more in-depth guidance, this is for cyclists only. In order to promote shared-use perhaps a code addressing all users (such as the code presented by Paths for All, 2011) is needed. Also, a better understanding of path users' experiences and attitudes could add to this as a code of conduct is about 'civilising' interactions (TfL, 2014, p.72); it is about setting

a tone for the space and encouraging positive perceptions. A deeper understanding of individuals' experiences, and thus their perceptions and attitudes to the path and other path users, is needed.

## **2.5 Chapter Summary**

This chapter has identified that off-road walking and cycling infrastructure sits within a complex policy, guidance and practice context. Even though the main policy guidance (the DfT's Hierarchy of Provision) encourages accommodating for cyclists on-road; the off-road walking and cycling infrastructure, such as shared-use paths along the NCN, are increasing in use. In some cases overcrowding is even occurring (for example the Chester and Bristol-Bath railway paths) and causing tension between path users.

Design guidance is available in the UK in order to encourage the development of new facilities, however, there are many paths already in place that are physically constrained and thus softer measures have been encouraged, to reduce any possibilities of friction between path users. When planning these softer measures, account should be taken of people's perceptions and attitudes towards the path and other users. This is something that needs further exploration by asking questions such as: how do individuals experience the space independently? How do they share the space? How do they perceive others? In areas where there is not an option to physically improve the path (such as widening) these factors must be considered. With this, the following Chapter 3.0 discusses the theoretical context of these issues and sets out a framework from which to explore how cyclists and pedestrians experience and share space.

## **- CHAPTER III -**

### **3.0 Mobilities and Social Interactions Literature**

#### **3.1 *Introduction***

Chapter 2.0 outlined that there have been attempts to manage shared-use paths and path users in order to reduce any tensions that may exist and to promote an enjoyable walking and cycling journey experience (for example: code of conduct and signage). However, as Brown (2012, p.805) states, often these strategies are developed based on what is currently accepted or expected as the norms of behaviour and/or misbehaviour; ‘...codes tend to be built upon established norms as much as creating them’. Thus, central to this chapter is the proposition that by exploring the experiences of path users from a more detailed and personal point of view, a greater insight can be gained into how individuals experience walking and cycling journeys, and thus their needs can be better catered for and addressed. Section 3.2 identifies the mobilities literature as an insightful platform from which to do this.

It is argued that by considering the mobile processes outlined by the mobilities literature an alternative outlook on walking and cycling experiences and interactions on shared-use paths can be developed. Section 3.2.1 discusses these processes such as the sensory experiences, rhythmicity and fluidity of mobile journeys. It is suggested that there are potential differences in the mobile processes related to walking and cycling journeys which have an impact on how cyclists and pedestrians interact and share space. Section 3.2.2 discusses how material objects also impact on interactions and experiences; the hybrid nature (involving the human and non-human) of mobile journeys is explored. Section 3.3 deals specifically with interactions and discusses the negotiation tactics and strategies of self-presentation which Goffman (1959, 1972) suggests exist in situations of social interaction. It is argued that individuals take on particular communication tactics in order to share space, they also present themselves in a particular way in order to attempt to control the way in which they are perceived by others. These aspects of social relations are then taken further in Sections 3.4 and 3.5, drawing from social psychology theory to discuss identity and conflict (recreational theory is also drawn from when discussing conflict). It is proposed that in order to gain a detailed insight into shared-path interactions these strands of social



psychology relating to identity (self-identity, group relations and transport identity) and conflict (definition and associated methods) must be examined.

### **3.2     *The new mobilities paradigm***

In 2006 Sheller and Urry asserted that the ‘new mobilities paradigm’ was emerging across many disciplines within the social sciences (for instance; anthropology, cultural studies, geography, transport studies, sociology). This mobilities turn (Sheller and Urry, 2006; Kellerman, 2006; Urry, 2007; Adey, 2010; Shaw and Hesse, 2010; Cresswell, 2011; Cresswell and Merriman, 2011; Jensen, 2013) has a wide scope and includes research into the movement of, for example, objects, media, technologies, people and information at a local, national, and global scale. It is about ‘establishing a movement driven social science’ (Urry, 2007, p.18) and central to this is the point that ‘mobilities need to be examined in their fluid interdependence and not in their separate spheres’ (Sheller and Urry, 2006, p.212). Therefore, when mobile spaces are under research they are seen as ‘fluid forces’ with no specific starting or ending point (Thrift, 2004). With this, mobilities research is often understood in opposition to transport geography due to the view that: ‘geographical knowledge often assumes a stable point of view, a world of places and boundaries and territories rooted in time and bounded in space’ (Cresswell and Merriman, 2011, p.4).

However, Shaw and Hesse (2010, p.307) highlight that this understanding ‘falsely assumes a significant degree of homogeneity’ within each of the disciplines (mobilities and transport geography). The authors do agree that ‘traditional empiricist or model-based inquiry’ of conventional transport geography sits at the opposing end of the continuum to the ‘new’ theoretical and cultural mobilities research. However, Shaw and Hesse (2010) point out that there is also heterogeneity within each of the disciplines and thus there are in fact many similarities which exist between the two approaches, towards the centre of the continuum. Shaw and Hesse (2010) propose a new agenda in which the commonly ‘policy-driven’ research in transport geography and the ‘experiential’ driven mobilities approach are merged. This would allow the traditional approach of transport geography to be broadened and the policy context of the mobilities approach to be considered, in order to encourage ‘impact beyond immediate academic circles’ (Shaw and Hesse, 2010 p.309). This combined approach is already evident in transport research such as Jain and Lyons’ (2008) study of the experience of travel time and Laurier *et al.*’s (2008) study of the experience of driving and

being a passenger. Thus, a mobilities approach examining the experiential aspects of walking and cycling is taken for this research, however the wider policy context is also considered, as outlined in the previous chapter. This section will now specifically address the mobilities context of this thesis.

One aspect of the mobilities literature focuses specifically on the personal experience of travel: there is an exploration of 'the act of moving itself' (Adey, 2010, p.134). There is attention to the embodied experience of different types of journeys. However, a specific definition of 'embodiment' is rarely provided. Perhaps this is because 'if there is an essential characteristic of embodiment, it is indeterminacy' (Csordas, 1994, p.5). Csordas (1994) develops a discussion around embodiment from which to better understand this concept, which is central to mobilities. Csordas addresses the 'embodiment paradigm' and in this he begins with a discussion of the understanding of the body. This understanding has moved on from the traditional assumption of the body as 'a fixed, material entity, subject to the empirical rules of biological science' (1994, p.1). The body is now understood as a more complex experiencing agent: 'not as a constant amidst flux but as an epitome of that flux' (1994, p.2). In acknowledging the body as a complex agent, Csordas (1994) refers to the 'multiple body' where there is an appreciation of both the physical and social body. When specifically addressing embodiment, Csordas (1994) uses 'text' and 'textuality' to define and distinguish body and embodiment. He states: 'I prefer 'text' and 'textuality' and to them I would like to juxtapose the parallel figures of the 'body' as a biological, material entity and 'embodiment' as an indeterminate methodological field defined by perceptual experience and mode of presence and engagement in the world' (1994, p.12). Thus embodiment is broadly defined as the way in which the body experiences, perceives and engages in the world.

As no specific definition is provided in the mobilities literature, this thesis summarises embodied experiences as being about the immaterial, the non-visible and the internal. For instance, Adey (2010, p.137) explains that the mobilities turn is about exploring the aspects of mobility that are non-visible. Using the example of attempting to describe a moving arm, he explains that mobilities research aims to 'examine what is left over from the mechanical representation of an arm moving, a body mobile'. Embodied mobile experiences are difficult to observe: they are about 'experiences, feelings and sensations' (Adey, 2010, p.137). This then suggests that when cyclists and pedestrians share the mobile space of a shared-use path, there are many non-visible instances of interaction and embodied experiences taking

place, which have the potential to impact on mobile journeys, and which can only be accessed through in-depth discussions with the path users. However, it should be noted here that there is an additional aspect of embodied experiences to be considered; materiality. Mobile experiences are 'hybrid systems' (Sheller and Urry, 2006) which are made up of and constructed by both the immaterial *and* the material, this aspect of materiality is further discussed in Section 3.2.2 below.

As Adey (2010, p.134) highlights, mobilities research seeks to 'explore the multi-sensorial and felt characteristics of mobility as they constitute many important social actions and phenomena'. Thus, this PhD research will examine the embodied experience of walking and cycling and draw from the aspect of mobilities research which Sheller and Urry (2006, p.216) categorise as the study of; 'the corporeal body as an affective vehicle through which we sense place and movement, and construct emotional geographies'. By examining the mobilities of walking and cycling in this way, and by implementing a carefully designed methodology, the associated complex and intertwining experiences, sensations, and feelings will be uncovered. Additionally, the encounters, interactions and exchanges that occur between the two mobile modes will be addressed. 'Each means provides different experiences, performances, and affordances,' (Sheller and Urry, 2006, p.216) thus when two means (pedestrians and cyclists) interact across space and impact on each other this results in an even more complex space of mobility to be examined. The following section will now discuss the aspects of the mobilities literature which are specifically related to the embodied experiences of walking and cycling; the fluidity, rhythms and sensory experience of movement. To add to this, Section 3.2.2 will then address the concept of materiality and mobile embodied experiences.

### **3.2.1 *Flow, rhythm and mobile sensory experiences***

The sensory experiences and fluidity of movement are important aspects associated with the mobilities of walking and cycling. Much of the mobilities literature focuses on the experience of this fluid motion and the 'satisfaction which accompanies the maintenance of an established forward motion' (Taylor, 2003, p.1620). This is particularly relevant when discussing cyclists and pedestrians as the manoeuvring of their body is linked with their transport mode. As Sheller and Urry (2006, p.216) state 'there is a complex sensuous rationality between the means of travel and the traveller'. Thus the mobile sensory experiences of cycling and walking are dynamic because they involve both the kinaesthetic

sensation (tactile sensation of motion) and all the other senses stimulated by the surrounding environment (Taylor, 2003). These sensorial experiences are discussed below in the context of walking and cycling.

In order to understand how cyclists and pedestrians impact on each other's mobile experiences it is important to understand the intricacies of this sensory experience. Taylor (2003, p.1616) highlights one aspect of this complex sensory experience of motion. He points out that often an individual's kinaesthetic sensation takes over and the surrounding environment becomes 'incidental or vicarious...secondary to the sensations of motion'. Spinney's (2011) account of a commuter cyclist moving through the city confirms this. He describes the surrounding urban environment becoming out of focus and the visual senses almost disappearing at points with the kinaesthetic experience taking over. Consequently, the tactile sensation of motion takes over and all the other senses are lessened. Taylor (2003, p.1617) states that this kinaesthetic sense is enhanced when 'the effort of self-propulsion is greater,' thus cycling can be a highly kinaesthetic mode.

The mobile mode of walking is also sensory, as Bridge and Watson (2003, p.440) highlight, an urban pedestrian is 'a sensual being – smelling, remembering, rhythmically moving – jostling with other bodies'. When discussing rural walking, Edensor (2000, p.82) highlights that it is a mobile practice which achieves a 'reflexive awareness of the self and particularly the body and the senses'. Where cycling often predominantly stimulates the kinaesthetic senses, walking with its 'sensations felt at a slower rhythm' (Edensor, 2000, p.87) often predominantly satisfies the visual senses. Due to its pace, walking can often capture 'particularly treasured views unobtainable by other modes of transport' (Edensor, 2000, p.85). Thus, because of the somewhat slow speed of things moving past, pedestrians can be more sensitive to their surroundings and the people they share space with. Walking is also often non-linear which makes it 'synonymous with the idealised irregularity of the picturesque' (Edensor, 2000, p.86) again capturing the visual senses. Thus the literature suggests that flow, speed and linearity are aspects of the embodied mobile experience which highlight differences in the sensory experiences of walking and cycling.

However, in busy spaces often the mobile senses are numbed due to being 'constantly invaded by new streams of experience' (Featherstone, 1998, p.910). Individuals develop a coping strategy to deal with the intensification of sensory overload which often occurs in urban mobile spaces, Simmel (1971) describes this as the 'blasé outlook'. Kellerman (2006,

p.44) has also classified this strategy as 'filtering'; 'a mental process that permits moving people to cope with the profusion of stimulation occurring when on city streets and roads and resulting in overload of inputs' (further detail on this is provided in Section 3.3 below). Edensor (2000, p.85) adds to this by asserting that urban walking is often 'highly regulated, defensive, passive, sensually deprived'. He goes on to explain that function and speed have become more prominent than sensory experience in urban settings and thus resulting in 'rapid mechanized transit without arousal'. However, the movement spaces of shared-use paths are often neither in wholly urban nor rural settings, thus this leads to the question of how walking and cycling sensory experiences unfold on shared-use paths?

Another factor associated with the sensorial experience of cycling and walking is the importance of fluidity and the individual moving through the journey in one constant flow. The maintenance of this forward motion is highlighted as being an important factor for cyclists in particular (Brown, 2012; Spinney, 2011; Jones, 2005). For instance, Spinney's (2011) research on commuter cyclists concluded that one of the main aims of the cycling journey was to ensure that it was 'full of flow'. The maintenance of continuous movement while cycling was said to constitute the ideal journey. Similarly Jones (2005) gives an account of a cyclist 'performing the city,' he describes the bicycle as being a 'seamless extension' of the body. The rider moves with the bicycle as one and experiences the journey as one fluid movement. However, once the cyclist is unexpectedly forced to stop in traffic and end this fluid journey (in the wrong gear) there is a sense of frustration and unease; 'the bicycle in the wrong gear was no longer a seamless extension of my body, it was a heavy, unwieldy object, hampering my movement' (Jones 2005, p.823). As Taylor (2003) points out, the kinaesthetic and sensory experience of motion is often positively pleasing and so when this motion is interrupted this can lead to feelings of tension.

However, these intersections can also be viewed as something which enhances the mobile journey. Rhythm analysis literature (Lefebvre, 2004) examines the mobile experience of time and space together in the form of rhythms. 'Rhythm unites elements which mark time and distinguish moments in it' (Spinney, 2010, p.114). This literature says that disruption of an individual's flow and rhythm can indeed be positive as it allows the individual to 'temporarily inhabit place' (Edensor, 2011, p.200). Thus when an individual's flow is interrupted their rhythm becomes irregular and they are forced to become more aware of their whole surroundings and of other modes within the space. They can then attach a sense of place to that space. When examining the interactions between pedestrians and cyclists it

is important to understand that different mode users within the same space may have a differing sense of place due to their contrasting rhythms. There are even differing rhythms between the same modes, for instance Middleton's (2009, p.1946) work highlights the 'multiple rhythmicities of walking'. Middleton (2009) points out that a disruption of rhythm can also cause unease and tensions. Due to the temporal pressures of our surrounding networks such as timetables and schedules 'regulated rhythms' have become the norm and when these are disrupted it can cause unease (Middleton, 2009). This is a crucial insight to further understand the potential processes and pressures which may be present when cyclists and pedestrians interact and potentially disrupt one another's regulated rhythms.

When the modes of walking and cycling encounter in a contested space such as a shared-use path there will be a contrasting of mobile expectations, desires and rhythms. There is potential for these interactions to enhance the mobile experience, yet there is also potential for tension and unease. This perspective of cyclists desiring fluidity of movement and carving their own spaces out of the city (Jones, 2005), along with pedestrians moving slower and in a non-linear direction, often satisfying their visual senses (Edensor, 2000), sets a complex context of differing mobilities working at once.

The rhythms and movements of mobile modes are influenced by their surrounding environment and the networks within which they move. There is a reciprocal relationship between the mobilities that move through space and the systems that make up this space. This has been explored in the context of motor traffic, for instance Edensor (2010) discusses how the synchronised rhythm of traffic is controlled and regulated by timetables, traffic laws, signage, speed limits, road markings etc. The modes of walking and cycling and their surrounding systems and networks of mobility have also been addressed (Middleton, 2009; Spinney, 2010; Hornsey, 2010), however this has been in the context of the car dominated road space. Spinney (2010, p.113) states that 'when encountered using a different instrument of mobility – the bicycle – the appropriateness of many of the rhythms embedded in the built environment to facilitate the rapid passage of car-drivers are called into question'. He states that cyclists are forced to alter their rhythms to adjust to the mobile space they move in, which is ultimately designed to cater for the car. Thus the surrounding road space influences the rhythms of cyclists; 'weaving time and space together in unintended and 'inappropriate' ways in order to navigate the city and produce specific spatio-temporal orderings' (Spinney, 2010, p.113).

Similarly, in the context of the road space, Hornsey (2010) discusses how pedestrians must alter their rhythms in order to safely share space with cars. Hornsey (2010) refers to the interwar time when the car began to take over the streets and intrude on pedestrian rhythms. He states that pedestrians' rhythms have been moulded and changed over time so that they were forced to re-learn how to cross the road and how to move and share space with motorists; 'a matter of both speeding up one's movements and developing a sharper acuity concerning how and when to enter the carriageway' (Hornsey, 2010, p.101). Thus, an interesting aspect within this is the question of how this affects spaces where the car is not present. How do cyclist and pedestrian rhythms develop and unfold in spaces such as shared-use paths where the car is not present? Are pedestrians and cyclists required to 'realign their corporeal rhythms' (Hornsey, 2010) and re-learn how to move in space while taking each other into account without the presence of cars? It raises questions such as which mode dominates when the car is not present? Do cyclists and pedestrians continue their learned and adjusted rhythms within this space even though there are no cars present, if so how does this impact on the other users? Or are new rhythms created within this space, and how do they develop? This research aims to address these questions.

Due to their kinaesthetic nature and their reciprocal relationship with the surrounding environment, the modes of cycling and walking are sensitive and interactive. Therefore, for this research it is also important to note that the mobile experiences of cycling and walking can be influenced by other modes. According to Taylor (2003) people's interactions and experiences of others within the city are becoming less personal, however if the motorcar is removed from the equation then the situation may become very different. This research proposes that cyclist and pedestrian experiences of each other are not depersonalised and that there are in fact many complex interactions and experiences taking place. Compared to motorists, who often relate to each other as moving objects (Taylor, 2003), cyclists and pedestrians can communicate and influence each other's journey because they are not physically enclosed in a privatised space (Merriman, 2009).

The mobilities paradigm provides a useful insight into the sensory and corporeal processes that can take place during walking and cycling journeys. These processes are personal and internal and are not necessarily outwardly visible to an observer. The mobilities literature highlights the importance of the 'embodied experience' to mobile journeys. There is an awareness of aspects of mobility which are non-visible; there is a focus on feelings, sensations and experiences. For instance, as discussed above, the embodied experience of

motion and the desire for fluidity and rhythm of movement. However, as mentioned in Section 3.2 the concept of materiality is another element of embodiment to be considered.

### **3.2.2 Materiality**

In order to fully address the notion of embodiment in the context of the mobilities literature, it is important to consider the concept of materiality or as Latour (2000) describes it, the 'nonhuman'. The ways in which visible 'things', for example objects and equipment, can impact on particular mobile experiences and encounters will be addressed in this section. For instance the embodied experiences of flow and rhythm, discussed in Section 3.2.1 above, are influenced by the hybrid nature of mobility where the human and nonhuman are interlinked. Spinney *et al.* (2015, p.334) point out that 'mobility is always caught up in a multitude of emerging, contemporary socio-technical processes and systems'. Socio technical processes include the interactions that take place between the human and non-human. Cyclists and pedestrians often use equipment/technologies/nonhuman objects during their journeys, thus it is necessary to acknowledge the 'socio-technical processes' involved in shared-use path journeys and encounters.

Objects and technologies are interlinked with and part of the embodied experience, they are 'closely inter-woven with the corporeal' (Sheller and Urry, 2006, p.221). For instance, Hornsey (2010) discusses how the street has become 'culturally redefined' so that now the rhythm and flow of an individual's journey are influenced by and ordered by material objects such as traffic lights. Additionally, as can be seen from Spinney *et al.* (2015) and Michael's (2000) research, nonhuman objects add to the complex processes which take place during mobile journeys. Michael (2000) explores the 'mundane technology' of walking boots and highlights how these can impact on the embodied walking experience. His research focuses on the impact of objects on relations between humans and the natural environment, thus it is relevant to shared-path users and how they may interact with their surrounding environment and indeed with other path users. Michael (2000, p.119) highlights that objects/walking boots can be engaged with and interpreted in many different ways thus they are not simply 'intermediaries' they are part of the communication process and the 'exchange of meanings...they transfer messages to and fro, re-shaping those messages'.

Walking boots can be engaged with from many points of view: mechanical (or painful if they do not work correctly), to portray style and identity, as a process of standardisation and as



damaging to nature (Michael, 2000). The different ways in which objects are engaged with and interpreted have the potential to impact mobile journeys and encounters. For instance, Michael (2000) explains that if the walking boots fail in their mechanical role then this can cause pain, negatively impacting the journey. In the context of shared-use paths this pain or discomfort could cause the individual to engage negatively with others. Michael (2000) also points out that walking boots can act as a way of exuding a particular type of identity. His research found that 'serious walkers' were interpreted as those who were concerned with the practicality of walking boots and not interested in the style; 'the denial of the aesthetic dimension marks difference from those who are concerned with style, and who are thus not serious about walking' (Michael, 2000, p.118). Thus the terms by which particular boots are interpreted can determine how individuals perceive one another.

Spinney *et al.* (2015) also highlight the impact of objects on mobile encounters, with a specific focus on the relations between HGVs and bikes on the road. They point out that 'HGV safety technologies (mirrors, cameras and sensors)...may not simply function as reliable 'intermediaries' benignly taking on new roles' (Spinney *et al.*, 2015, p.334). They found that in terms of the relations between cyclists and HGV drivers, HGV technologies place an increased responsibility 'away from the HGV system and further towards the driver' (Spinney *et al.*, 2015, p.334). Thus, both Spinney *et al.* (2015) and Michael's (2000) research highlight that technologies are not just 'innocent mediums', Spinney *et al.* (2015) say that in fact, objects play a role in changing the dynamics of interactions and mobile experiences.

In the context of shared-use paths, Spinney *et al.* (2015) and Michael's (2000) reading of materiality suggests that technologies and the nonhuman are important as they play a part in constructing and influencing experiences and encounters. Thus mobile experiences are 'hybrid systems' that are made up of many processes involving 'objects, technologies, and socialities' (Sheller and Urry, 2006). It is the 'socialities' that will be dealt with next. In order to maintain or enhance the mobile processes outlined in the above sections, individuals develop strategies of negotiation and self-presentation; these are related to the social aspects of interaction.

### **3.3     *Strategies of negotiation and self-presentation***

Much of the mobilities literature outlined in Section 3.2 above has been influenced by the social and urban theoretical texts of Georg Simmel (1971) and Irving Goffman (1959, 1972). More recently, Kellerman (2006) and Jensen (2010, 2013) have taken these works forward. The work of these authors, along with the work of Seamon (1979), are discussed in this section in order to specifically explore the ‘corporeal tactics’ (Symes, 2012) of ‘negotiation in motion’ (Jensen, 2010) that occurs between individuals sharing mobile space. The literatures illuminate the idea that within movement spaces there are often no words exchanged or no obvious interactions taking place, it is about the ‘intricate almost unconscious, network of voluntary controls and standards among the people themselves’ (Jacobs, 1961, p.32). There are a variety of processes and encounters that can take place in urban spaces that may seem uneventful and unorganised from the outside, however there is ‘much more taking place than just people moving’ (Jensen, 2010, p.400). This section also discusses the way in which individuals consciously present themselves in social situations; Goffman’s (1972) concept of self-presentational performance is outlined. As Buscher and Urry (2009, p.104) highlight: ‘embodied conduct is also ‘broadcast communication’, enabling others to make sense of (some of) the same thoughts, intentions, emotions and social relations from a distance’.

One aspect of Goffman’s work (1972) explores the idea of trust; he explains that trust is a major factor of how individuals share public spaces, to avoid collisions for example. He states that ‘the participant must trustfully put himself into the hands of others’ (1972, p.7). Part of this is being able to read others so that ‘collision and mutual obstruction are systemically avoided’ (1972, p.6) and ‘voluntary coordination of action is achieved’ (Goffman, 1972 p.17). Goffman (1959, 1972) outlines the details of this coordination of actions; Seamon (1979), Kellerman (2006) and Jensen (2010) have also added to this. Goffman (1972) sets out two main processes which are associated with this concept of trust: externalisation and scanning. Externalisation involves using body gestures or facial expressions to communicate intended actions thus providing an ‘intention display’ communicating ‘something that others can read and predict from’ (1972, p.11). He explains that individuals also maintain a scanning area which includes ‘those to the front of a close circle’ around them and thus these individuals are checked, anyone outside the ‘check-out area’ is not seen as a threat of collision and so fades out of focus (Goffman, 1972, p.11).

In Kellerman's (2006) 'Personal Mobilities' he adds the idea of 'filtering' to this process, this is linked to Simmel's (1971) 'Blasé outlook' (discussed in Section 3.2.1). Filtering is 'a mental process that permits moving people to cope with the profusion of stimulation occurring when on city streets and roads and resulting in overload of inputs' (Kellerman, 2006, p.44). The author explains that pedestrians carry out the filtering process by only paying attention to those closest to them; they also scan the surface they are walking on. However, this then leads to the question of what happens when the above processes of communication such as externalisation, scanning, the provision of 'intention displays' and filtering are intentionally or unintentionally ignored or miscommunicated by one of the individuals involved in the interaction. Goffman (1972, p.14) outlines two outcomes of this miscommunication; the 'hesitant condition' and the 'chicken challenge'. These occur when there is uncertainty between the individuals attempting to negotiate one another, one or both of the individuals find it difficult to read the other's 'intention display' and the resulting negotiation is a near collision. For instance, if a cyclist and pedestrian are coming towards one another in a narrow space and the cyclist does not make their intention display clear then the pedestrian is uncertain about their movements and both path users move in the same direction, causing confusion and a potential collision. Similarly, a complex situation may occur when pedestrians and cyclists with differing scanning, filtering and externalisation standards share space.

At a similar time to Goffman, but in the discipline of behavioural geography, Seamon (1979) developed the 'awareness continuum'. This was an early attempt at categorising everyday mobile encounters. This continuum places encounters on a scale between 'towards mergence' and 'towards separateness'. Seamon (1979) suggests that there is a boundary between self and the world and the strength of this boundary will determine the type of encounter and how inclined the individual is to engage in an interaction ('towards mergence') or not engage in an interaction ('towards separation'). Seamon's (1979) scale highlights the variety of encounters that can take place such as 'obliviousness', 'watching', 'noticing', 'heightened contact', 'basic contact' and 'at-homeness'. He suggests that these encounters may not be visible but are still a large part of the mobile experience.

Along with the above processes, which are proposed as influencing factors to the types of mobile interactions that can take place, Goffman (1972) sets out further detail with the concept of 'territory'. This is particularly relevant to constrained spaces such as shared-use paths. Goffman (1972) distinguishes between 'personal space' and 'use space'; the level of

importance each individual assigns to these spaces will determine their comfort and ease of sharing space with others. Goffman (1972, p.29) explains that personal space is ‘the space surrounding an individual, anywhere within which an entering other causes the individual to feel encroached upon’. Use space or territorial space is ‘the territory immediately around or in front of an individual, his claim to which is respected because of apparent instrumental needs’ (Goffman, 1972, p.35). For instance, cyclists or path users with a pushchair will have greater use-space and expectations to be granted this space by others. Goffman also highlights that sensitivities to intrusion of these spaces ‘vary greatly depending on what it is that intrudes’ (1972, p.49). This thesis suggests that there is potential for an individual’s perception of their ‘personal’ and ‘use’ space, and thus the way they behave towards and negotiate others, to be influenced by their perceptions of themselves and of others in the space. This links to the discussion around identity, presented in Section 3.4 below.

From research carried out at a busy central square in Denmark (open to pedestrians, cyclists and buses) and influenced by Goffman’s work, Jensen (2010, p.397) developed categories of ‘mobile negotiation techniques’ (see Tables 4 and 5). These ‘need to be verified by further research to become elevated to more robust action types’ (Jensen, 2010, p.400). However, they provide a categorisation of responses or physical actions which might occur as a result of the ‘reading’ (Jensen, 2010) tactics, facilitated by body language and facial expressions, outlined by Goffman’s (1972) work. A point to note from these categorisations is the observation that cyclists make different sized curves around pedestrians depending on their speed. Faster cyclists make larger curves when passing around pedestrians and slower cyclists make smaller curves, passing closer to pedestrians. This links with Goffman’s (1972) discussion surrounding ‘personal’ and ‘use’ space, thus speed may have an impact on whether or not cyclists infringe on pedestrian spaces. It will be interesting to consider what other factors might influence on the amount of ‘personal’ and ‘use’ space shared-path users allow each other.

**Table 4 - Pedestrian-pedestrian negotiations (Jensen, 2010)**

Group passing other pedestrian	The group come closer together making room
Group letting stranger in	They split and let the stranger between them
The classic dance/ confusion	No one gives a clear signal which way they are going
Both giving in	Both give in a little and pass each other by
Zigzag turner	Pedestrian in a hurry zigzagging through the site
Stop to pass	Pedestrians stop for each other and pass

**Table 5 - Cyclist-pedestrian negotiations (Jensen, 2010)**

Cyclist analyses the situation	Slows down, zigzags around pedestrian without communication/confrontation (small curve, closely passes pedestrian)
	High speed makes large curves around several pedestrians goes through without slowing down
Cyclist does not analyse the situation	Potential confrontation, possible eye contact required to stop to avoid incident
	Sometimes no agreement is reached and 'opponents' face each other head-on
Cyclist takes a risk	Cyclist totally ignores others and passes any confrontation at high speed. Does not see other potential 'collision parties' and takes a risk

Also linked with this 'negotiation in motion' (Jensen 2010) is the idea that individuals present themselves in a particular way to others. According to Goffman (1972, p.185), an individual in urban space is 'constrained to sustain a viable image of himself in the eyes of others'. Goffman (1959) uses a 'dramaturgical' framework from which to explain this. He states that social life and social interactions are like a performance and each performer attempts to control how they are perceived by others. Thus people take on particular roles and present a performance in order to create a particular impression of themselves for others. Goffman (1959) sets this out in the context of front and back stage, or the public and private self. Front stage is where the performance takes place and backstage is where the performer can relax and rehearse; it involves a 'putting on and taking off of character' (Goffman, 1959, p.123). When carrying out this performance an individual's 'expressive equipment (clothes, gender, position and so on) act as that person's auxiliary tools in expressing their message' (Kristiansen, 2009, p.216). For instance Aldred's (2012, p.10) research highlights that for some cyclists 'assuming the uniform of a cyclist...could be seen as a means of ensuring respect on the roads'. The concept of a performance has also been used by others to explore social interactions in mobile settings. For instance: Jacob's (1961) in the context of 'sidewalk ballet,' Seamon (1979) uses the concept of 'place ballet', and more recently Symes (2012) takes on the notion of performance and choreography to examine social interactions. Therefore, on a shared-use path for example, path users will present themselves and perform in a particular way, using their clothing, equipment, movements, behaviour, etc. in order to create a character which they want to be perceived as by others.

This section has started to look at the potential social aspects related to interactions and shared-use paths; in terms of negotiation tactics and self-presentation. Individuals take on particular communication tactics in order to share space, they also present themselves in a

particular way in order to attempt to control the way in which they are perceived by others. Goffman's work (1959) sets out the idea of a dramaturgical framework, from which to examine these tactics of self-presentation. In order to access and explore these proposed social interaction processes, an in-depth exploration from path users' personal points of view is necessary. These social aspects of interaction are further discussed in the following sections, specifically related to social psychology literature around identities (Section 3.4) and conflict (Section 3.5). This provides an additional theoretical context from which to explore aspects of shared mobility.

### **3.4     *Identities***

Identity and group dynamics are two main concepts outlined by social-psychology literature, these help with the understanding of how cyclists and pedestrians may present themselves and interpret and react to others when sharing space. Individuals set goals and standards for themselves based on their desired identity and these are carefully maintained through self-regulation and evaluation. If these identity goals are not met this often leads to dissatisfaction. Also, if people have differing perceptions of the ideal self then this may cause tensions when they are required to share space/interact. This concept of identity will be further discussed in the following section. Additionally, identity formation is strongly linked to its social context and thus group relations also become relevant. 'Social identity theory' and 'self-categorisation theory' outline the processes of 'in-group' and 'out-group' dynamics and the cognitive processes that take place when individuals place themselves and each other in groupings, this is discussed in Section 3.4.2. Interrelated to self-identity and group dynamics is the notion of transport identity. This is a complex social concept and is difficult to define. Due to the research focus of this thesis on cyclist and pedestrian interactions, it is necessary to consider the idea of transport identity and it is discussed in Section 3.4.3 below.

#### **3.4.1     *Self-Identity***

In 1890 William James introduced the concept of the 'self' to the discipline of psychology in his 'Principles of Psychology'. He presented the self as a complex concept with three interlinking aspects; the material, social and spiritual self. James (1890) identified that an individual can have multiple social selves and that social interaction is critical to the formation of these; 'if no one turned round when we entered, answered when we spoke, or

minded what we did...a kind of rage and impotent despair would long well up in us' (James, 1950, p.184). Thus the concept of self and the development of self-identity are tightly linked with how individuals view and interact with others. Hewstone *et al.* (2010, p.90) define identity as 'an ensemble of psychological experiences (thoughts, feelings, motives, etc.) that reflect and contribute to a person's understanding of his or her place in the social world'.

Identity is maintained and developed through self-regulation and self-evaluation. Self-regulation is based on personal goals and desires; it refers to 'the process of controlling and directing one's behaviour in order to achieve desired goals' (Hewstone *et al.*, 2010, p.99) and so, identity is developed by managing and achieving a 'desired self' and avoiding an 'undesired self'. According to Higgins' (1987) self-discrepancy theory, this process is guided by 'ideal self-guides' (what the person would ideally like to be) and 'ought self-guides' (what they think they should be). People also regularly evaluate their identity based on their internal expectations of themselves; self-evaluation involves the 'evaluation of one's own behaviour, physical appearance, abilities or other personal attributes, against internalised standards of social norms' (Hewstone *et al.*, 2010, p.101). And thus, through these processes of self-evaluation and self-regulation an individual will present themselves in a way which matches their desired goals (see Goffman's (1959) dramaturgical framework Section 3.3 above). If the 'ideal self-guides' are not met this can lead to disappointment and dissatisfaction, and if the 'ought self-guides' are not attained this can lead to agitation, fear or anxiety (Hewstone *et al.*, 2010). Thus if individuals, for instance those sharing a mobile space, have contrasting identities and attitudes towards the 'ideal' and 'ought' self, then this may also cause dissatisfaction or agitation as there will be conflicting standards and norms of behaviour.

The development of identity involves two aspects; personal identity and social identity. According to Skinner and Rosen (2007, p.83), identity 'encompasses both people's sense of who they are (what might be termed personal identity) and their sense of who they are like and who they are different from (what might be termed social location)'. Individuals often identify themselves by comparing themselves to others, particularly in the context of social groupings. In the case of shared-use paths individuals may be perceived by others as being part of a particular social group. The social identity perspective provides a useful theoretical framework from which to discuss this, it includes Tajfel and Turner's (1979, 1986) Social Identity Theory and Turner *et al.*'s (1987) Self-Categorisation Theory. These are considered next.

### 3.4.2 Group relations

Tajfel and Turner's (1979) social identity theory sets out the notion of intergroup relations. Central to this theory is the idea that 'categorisation into in-group (a group to which one belongs) and out-group (a group to which one does not belong) provides the germ for the development of a group based social identity' (Hewstone *et al.*, 2010, p.104). Individuals often perceive the in-group positively and the out-group more negatively. Tajfel and Turner (1979, p.38) explain that this social grouping and 'the mere awareness of the presence of an out-group is sufficient to provoke intergroup competitive or discriminatory responses on the part of the in-group'. For instance, those who commute on a shared-use path may view non-commuters as different or 'others' who are part of the out-group of path users and thus may interact differently with them. Conflicting goals can often exist between in-groups and out-groups, resulting in tensions and negative evaluations of the 'other' group. Negative interdependence occurs when the out group is a 'barrier to achieving the own groups goals...accordingly, members will devalue, dislike, and reject the other group' (Hewstone *et al.*, 2010, p.295). Positive interdependence can also exist between groups when the out-group is necessary in order to achieve the in-groups goal, with this, more positive evaluations and relations occur.

Turner *et al.*'s (1987) self-categorisation theory adds further to social identity theory by expanding the focus on intergroup relations and exploring intragroup behaviours. Turner *et al.* (1987) outline that as well as in-group and out-group identities there are also differing identities within groups, these are defined in three levels: human, social and personal. These identities are formed around self-categorisations: 'the formulation of cognitive groupings of oneself and other people as the same in contrast to some other class of people' (Hewstone *et al.*, 2010, p.106). Self-categorisation at the human level is 'based on one's identity as a human being...in contrast to other forms of life' (Turner *et al.*, 1987, p.45). Identity formation at the social level is based on an individual's identification with a particular social grouping. Categorisation at the personal level is related to an individual's identity within a group. Personal identities are based on intra-group comparisons such as 'me vs you' whereas social identities are about inter-group comparisons such 'us vs them' (Hewstone *et al.*, 2010). Turner *et al.*'s (1987) self-categorisation theory also states that different behaviours and perceptions of the self will emerge based on whichever identity (for example social or personal) is more salient (Ellemers *et al.*, 2002).



This categorisation of people is also linked with the concept of stereotyping. Lippmann (1922) first developed the concept of a 'stereotype' in his book 'Public Opinion'. In order to explain the concept he presented the notion of 'pictures in our heads,' Lippmann (1922, p.13) described stereotypes as pictures inside individuals' heads; 'the pictures of themselves, of others, of their needs, purposes, and relationships'. Lippmann (1922, p.8) proposed that in order to process the complexities of our environments and social interactions, we create simplified versions (stereotypes) in our minds; 'the real environment is altogether too big, too complex, and too fleeting...we have to reconstruct it on a simpler model before we can manage with it'. Thus stereotypes are defined as 'oversimplified schema of traits about a group of people' (Gatersleben and Haddad, 2010, p.42).

Stereotypes form when an individual takes on 'working assumptions' about another individual's or group's behaviours and motivations (Christmas *et al.*, 2010), these assumptions can be positive or negative. Stereotypes are 'automatically activated' (Hewstone *et al.*, 2010) and determine how we group individuals and associate them with particular traits. Christmas *et al.* (2010) highlight that stereotypes can have a basis in evidence and personal experience. However, they can also often be highly inaccurate. Thus a cyclist may have had a negative experience when sharing space with a dog walker and thus begin to associate a negative stereotype with future dog walkers that they share the space with. The stereotypes that people attribute to particular groups are also influenced by how they perceive themselves and to which group they think they belong.

These identity concepts provide an important perspective from which to explore the relations between the varying types of shared-path users. These concepts outline the processes of how individuals may interpret and relate to each other on shared-use paths. However, they also lead to questions such as what are the impacts of these identity and grouping processes on shared path relations? What impact does this have on how individuals interact and share space?

### **3.4.3 Transport identities**

Identity theory has also been explored more specifically in terms of transport identities and like any other identities they are often overlapping and sometimes conflicting (Aldred, 2012). For instance, a cyclist may also be a motorist and will also be a pedestrian. Thus, in terms of categorising and researching 'cyclists' and 'pedestrians', there will be many different 'personal identities' within in-groups and varying 'social identities' across out-

groups. The definitions and categorisations of walking and cycling identities are numerous (DfT, 2012a, 2004b; Christmas *et al.*, 2010; Aldred, 2010, 2012).

In fact, Skinner and Rosen (2007) outline the difficulty of defining transport identities. They carried out interviews with cycling commuters and found that people often do not identify with a specific 'transport identity'. Their research found that the categorisation often put on people depending on their mode (motorists, cyclists etc.), does not match how people identify themselves. The authors actually found that 'the identity of people who commute by bicycle tends to involve them setting themselves apart more from *other cyclists*...this is the case even for those who are actively promoting cycle commuting within their workplace' (Skinner and Rosen, 2007, p.92). Their study found that most cyclists did not see cycling as part of their identities (the choice to cycle was based on other factors not related to cycling specifically).

When respondents did see cycling as part of their identities this was 'constrained within a set of boundaries that exclude the negative aspects of cycling'; the respondents in the study 'define themselves as distinct from other road users, both cyclists and drivers' (Skinner and Rosen, 2007, p.92). The authors outline that this backs up the 'dominant world view of the good, responsible self, struggling against bad society' (Skinner and Rosen, 2007, p.95) they are not like other cyclists who behave dangerously and break the rules. However, in relation to the respondents who did not identify themselves as a 'cyclist', this then leads to the question as to what identity they relate with? As someone who cycles to work, by setting 'cyclists' as the out-group who do they identify as their in-group? And how does this impact on how they relate and interact with those in the 'cyclist' out-group?

Skinner and Rosen (2007, p.86) highlight the complexity of defining transport identities; they draw on three different models relating to transport and identity in order to show this. Model one suggests that identities 'pre-exist and shape transport experience and behaviour'. Model two suggests that experience shapes identity, 'cyclists come to share a common outlook and interests through the experience and conditions of cycling'. Model three suggests that 'transport and identity are caught up in a circular process in which social and self-identities both influence and are influenced by transport behaviour and experience'. It is this final model and definition which Skinner and Rosen (2007) suggest as the most appropriate way of understanding and approaching transport identities. The authors (2007, p.192) call for a 'more sophisticated account of the interplay of identity and transport' they explain that it is not enough to accept that an individual's transport mode is

a sufficient basis for identity formation. Thus, transport identity is a complex concept in which social and self-identities, along with transport experience and behaviour, are interconnected. In order to explore transport identities and address the questions set out in the previous paragraph, an in-depth analysis of shared-path user behaviours, experiences and interactions with others is required. This research will uncover what identities shared-path users relate to, explore the process of identity formation and question how this impacts on their interactions and relations with others on shared-use paths.

### **3.5 Conflict**

In the context of social mobile interactions, the issue of conflict is also important, and links with social psychology concepts such as identity and group dynamics, discussed in the previous sections above. Conflict has also been widely explored in bodies of literature such as recreational research and it is a common research theme in policy research surrounding shared-use paths specifically. However, there are two difficulties with this; firstly there are many different definitions and understandings of 'conflict' and often the research studies do not provide a definition. Much of the earlier recreational research mostly explores the presence/absence of conflict and attempts to quantify it (Watson *et al.*, 1991; Ivy *et al.*, 1992 and more recently Arnberger and Eder, 2008). Recently there has been more research into the detailed meaning and cause of recreational conflict (Cessford, 2003; Carothers *et al.*, 2001; Tumes, 2007; Mann and Absher 2008; Walker and Shafer, 2011; Vaske *et al.*, 2000).

Much of this recreational research is influenced by early recreational conflict theories such as Jacob and Schreyer (1980) and Owens (1985), more recently these theories have been furthered by work such as Vaske *et al.* (2000) and Carothers *et al.* (2001). However, much of the current transport policy literature examining conflict, particularly on shared-use paths, is still focusing on quantifying conflict and exploring where, when and between whom it occurs (for instance; Atkins 2012; Sustrans, 2013b; Uzzell *et al.*, 2002; Queensland Transport, 2006). An exploration of the meaning and root causes of conflict are often overlooked. Uzzell *et al.* (2002) do acknowledge the theory of conflict; however this is not much evidenced in their chosen methods. This leads to the second difficulty; that of the chosen methods of enquiry. In studies where there is a deeper understanding and appreciation of the meaning of 'conflict', often the methods implemented do not fully address it. This section will now discuss these two difficulties (definition and methodology)

associated with researching mobile interactions and conflict. Recreational research literature and shared-use path transport policy research will guide this discussion.

### **3.5.1 Definition of conflict**

This section will now examine the meaning of conflict with a particular focus on Jacob and Schreyer's (1980) theory of recreational conflict; in order to get a better understanding of the complexities of the interactions and reactions that occur in contested spaces such as shared-use paths. In doing so, there will be many overlaps with social psychology and social interaction literature (outlined in Sections 3.3 and 3.4 above). Important concepts relating to shared-path interactions are uncovered, such as the following: power relations, space ownership, in-out groups, stereotypes, identity, standards and norms of behaviour.

Jacob and Schreyer (1980, p.369) set out to define conflict and highlight 'its behavioural dynamics and origin'. Their research was based on existing literature, case studies, and interviews with recreationalists in conflict situations. Their aim was to 'give coherence to future investigations while suggesting theories and hypotheses that might unify the many disparate concepts of recreation behaviour' (Jacob and Schreyer, 1980, p.369). According to Albritton *et al.* (2009, p.56) 'Jacob and Schreyer's theory has served as the dominant framework to examine perceived conflict for almost 30 years'. Jacob and Schreyer (1980) suggest that 'often the symptoms of conflict, such as fights and vandalism, are confused with their cause' (1980, p.369). With this, they state that the idea of conflict is actually more dynamic than those obvious symptoms.

Jacob and Schreyer's theory explores the social and psychological aspects that are associated with the potential causes of conflict, in turn they highlight it as a 'dynamic social interaction which can go through several stages' (1980, p.378). There are two aspects which are central to this theory of conflict; goal interference and attribution. They define conflict as 'goal interference attributed to another behaviour' (1980, p.369). They suggest that an individual's satisfaction/dissatisfaction with a recreational activity is defined by the achievement of particular goals; when these are interfered with by others this can cause conflict. However, the origins of these goals are person/group specific and quite complex. Jacob and Schreyer propose that in order to understand these goals, and in turn the cause of conflict, there are four main aspects which should be considered; activity style, resource specificity, the mode of experience, and tolerance for lifestyle diversity. These will now be discussed below.

*Activity style:* Jacob and Schreyer (1980) propose that individuals develop 'standards of behaviour' for particular recreational activities. These standards are based on personal meanings and interpretations of what is a 'good' or 'normal' activity style. Thus individuals or groups of individuals will often have contrasting standards of behaviour; it is these contrasting behavioural expectations of activity style which are the root of the conflict, and not the activity itself. For instance, one path user's expectations of a 'good' cycling style may include speed and agility, whereas another may view cautiousness as a good standard of cycling behaviour. Jacob and Schreyer go on to explain that there are two factors which influence the development of these standards of activity style (intensity of participation and status).

Intensity of participation; some individuals will place a higher importance on the activity than others, and so participation in the activity may be closely linked to their identity. Thus they will develop stricter standards of how the activity 'should' be carried out and are therefore more prone to conflict if these standards are not met by those of lower intensity of participation. Status can also influence the development of standards of activity style; hierarchies of activity style status are often based on equipment and expertise. Jacob and Schreyer (1980, p.372) state that conflict can occur: 'between different status hierarchies, within the same status hierarchy, and between participants who pursue or reject status as a recreation goal'. For instance there are cyclists who avoid particular cycling equipment such as 'full body lycra' as they do not want to appear 'too competent as a cyclist' (Aldred, 2012, p.11). Similarly, others do not wear helmets to avoid being identified as a 'serious cyclist' (Christmas *et al.*, 2010, p.68). Thus their status hierarchy would conflict with those who put importance on this type of cycling equipment due to their appreciation of the performance aspect of cycling (Christmas *et al.*, 2010). Of course pedestrians will also have another set of similar and conflicting status hierarchies.

*Resource specificity* is the second factor which Jacob and Schreyer suggest should be considered when exploring recreation conflict. This is to do with differing expectations of norms of behaviour based on the specific activity space. It is about 'conflicts involving varying definitions of place' (Jacob and Schreyer, 1980, p.373) and these are influenced by a variety of factors. Often individuals develop a sense of ownership if they are regular users of the space, they can develop a 'possessive attitude'. For instance, shared-path users who use the space daily for commuting, or those who live nearby to and regularly use the space to walk their dog, may develop a strong sense of ownership. Jacob and Schreyer (1980, p.374) suggest that 'conflict results when users with a possessive attitude towards the resource

confront users perceived as disrupting traditional uses and behavioural norms'. *Status* is again relevant here, but this time status hierarchies exist in relation to levels of specific knowledge of the resource/space. For instance, there may be individuals who place high importance on knowledge about particular routes or about the history of the space. Thus, Jacob and Schreyer (1980) assert that conflict is likely when 'high status' informed users share the resource or space with 'lower status' users.

Jacob and Schreyer (1980) assign *mode of experience* as the third factor. They explain that the way in which individuals experience a space can be set on a continuum ranging from unfocused to focused; 'the greater the gap between two recreationists along the unfocused-focused continuum, the greater the potential for conflict' (1980, p.375). This factor is strongly related to the variety of sensory and embodied mobile journey experiences that individuals can have, as discussed in Section 3.2 (the literature surrounding the experience of walking and cycling, particularly in the context of the mobilities paradigm). This focused/unfocused continuum relates to Christmas *et al.*'s (2010) findings about what cyclists described as a 'pleasant cycling experience'. Christmas *et al.* (2010, p.20) identified two main themes; 'the first was about being out in the open, enjoying the fresh air, scenery and sunshine, surrounded by nature' this relates to the focused end of the continuum.

The second focused on 'the dynamic aspects of cycling, such as the wind in your face or the rush of going fast' (Christmas *et al.*, 2010, p.20) which relate to the unfocused end of the continuum. In the unfocused mode the sensation of movement is more important than satisfying the senses with the surrounding environment. At this end of the continuum conflict can be avoided 'as long as movement is unhindered' (Jacob and Schreyer, 1980, p.375). The mobilities literature (Section 3.2) emphasises the importance, for cyclists in particular, of maintaining a constant flow of movement. In the focused mode, movement is interrupted in order to engage with the surrounding environment; 'an intimate knowledge of the place and its inhabitants are central to the recreation experience' (Jacob and Schreyer, 1980, p.375). In the context of shared-use paths this continuum could be used to suggest possible causes of conflicts between those who may use the path with the goal of achieving a sense of place (engaging with the surrounding natural environment and/or community) and those that may use the path to achieve a sense of space (using the path as a space for facilitating the embodied experience of walking or cycling).

The final and fourth factor which Jacob and Schreyer (1980) suggest as a cause for potential recreation conflicts is *tolerance for lifestyle diversity*. This aspect covers the issue of in-out

groups and the development of 'recreation related stereotyping' (see Section 3.4.2 above for further discussion on social groupings and stereotyping). They state that 'unwillingness to share resources with members of other lifestyle groups is an important source of conflict in outdoor recreation and society at large' (Jacob and Schreyer, 1980, p.376). Individuals often develop stereotypes about 'other' lifestyle groups. The stereotypes that people attribute to particular groups are also influenced by how they perceive themselves and which group (or 'lifestyle group' as Jacob and Schreyer refer to) they think they belong to. Gatersleben and Haddad (2010, p.42) assert that 'people tend to see the in-group (to which they feel they belong) in a more positive light than the out-group (to which they do not belong)'.

For instance, Vaske *et al.*'s (2000, p.309) research on the interactions between snowboarders and skiers gives an example of this; 'skiers reported more unacceptable behaviour with snowboarders than with fellow skiers...snowboarders also identified more out-group than in-group conflict'. To add to this, Williams *et al.*'s (1994) research on the relations between snowboarders and skiers highlights that particular stereotypes can develop about different modes of recreation. The skiers felt intimidated by the snowboarders due to their different approach to using the space and due to their behaviour and clothing. The snowboarders were perceived as purposefully creating situations of conflict. In contrast, the snowboarders perceived the skiers with less concern and viewed their movement on the slopes as predictable (Williams *et al.*, 1994). These examples provide a possible insight into the development of stereotypes and the impact of in-group and out-group relations between shared-path users. Indeed a ski slope is a very different space to a shared-use path, however the two types of users show similar characteristics to walkers and cyclists; there are potentially contrasting speeds, identities and equipment.

Jacob and Schreyer's (1980) theory does provide an in-depth understanding of how issues around recreational conflict can be understood. This theory is also relevant for mobile spaces such as shared-use paths where a variety of 'recreationists' compete for space; such as joggers, commuters, pedestrians and cyclists. Jacob and Schreyer's (1980, p.396) theory has a main focus on 'goal interference conflicts' whereby the cause of conflict is 'identified as another group or individual's behaviour', the other group or individual must be present in order for conflict to be experienced. However, both Owens (1985) and Carothers *et al.* (2001) take this theory further by suggesting that conflict can still occur, independent of physical presence.

Like Jacob and Schreyer (1980), Owens (1985) states that conflict should be examined and understood through the acceptance that an individual's past experiences can have an impact. Watson *et al.* (1994, p.373) add that conflict is a cumulative process and 'conflict episodes have a foundation in previous events'. Owens (1985, p.252) takes Jacob and Schreyer's (1980) theory further by explaining that conflict 'is not a purely behavioural reaction invoked as one mechanism in a coping response strategy'. He states that an important aspect to this understanding of conflict is that it should be viewed as an *experience*; an experience that develops over time and that can still impact on the user even when the source of conflict is not present during a recreational activity on a particular day. 'Conflict endures so that a user who happens to visit the setting on a day when conditions happen to suit his/her needs does not immediately cease to harbour feelings of conflict, though he/she may be satisfied with the particular outing' (Owens, 1985, p.252).

Carothers *et al.* (2001) build on this point and provide a distinction between 'goal interference conflict', as outlined by Jacob and Schreyer's theory, and 'social values conflict'. Carothers *et al.* (2001) explore 'social values conflict' as an additional theoretical explanation to the cause of recreational conflicts. Social values conflict occurs when recreational users have differing values, norms and beliefs. This however, unlike goal interference, is 'independent of the physical presence or actual contact between the groups' (Carothers *et al.*, 2001, p.48). The source of this conflict is related to their individual beliefs and norms of behaviour. Thus, if an individual reports conflict in a recreational space but has not actually experienced it, then Carothers *et al.* (2001, p.58) suggest that 'the evaluation must stem from a conflict in social values'. If a respondent has actually experienced a situation of conflict then, according to Carothers *et al.* (2001), they may be expressing social values, goal interference, or both. The authors recommend that research relating to user conflicts should distinguish between the two sources of conflict so that the policy/practical implications can address the correct source of conflict. For instance, if reported conflicts of a particular space are mostly 'social value conflicts' then attempts to diffuse particular stereotyping or in-out groupings may improve the situation.

The theoretical literature on recreational conflict outlined above, highlights that there is more to be explored by investigating the *sources* of conflict rather than solely quantifying and observing conflict. Conflict is not an objective state, it 'should be seen not as a static yes-no condition but as a dynamic interaction' (Jacob and Schreyer, 1980, p.396). Thus research should not only examine the presence/absence of conflict (as is done in many



transport policy and recreational research) but should take it as a 'dynamic interaction' and investigate it in this way.

### **3.5.2 Methodological approach to exploring conflict**

This leads to the second difficulty surrounding research into conflict between mobile users of a shared space; methodology. Watson (1995, p. 237) asserts that 'there has never been agreement on how recreation conflict should be measured'. However, Edensor and Richards (2007) add that this aim to 'measure' conflict is actually the downfall of much of the recent recreational and leisure studies. They seek to measure and quantify conflict so that 'contesting performances, sensual experiences and expressive styles are typically neglected in favour of rather shallow quantitative analysis...searching for statistical regularities, seemingly untouched by theoretical developments outside' (Edensor and Richards, 2007, p.99). Thus the theoretical underpinnings of the meaning and source of conflict, as presented by authors such as Jacob and Schreyer (1980), Owens (1985) and Carothers *et al.* (2001) are somewhat overlooked when it comes to methodological design. It is certainly important to measure the 'when', 'where', and 'who' of mobile interaction conflicts, however additional in-depth exploration of the meaning and reasoning behind conflict from a personal and experiential aspect is also necessary.

For example, Watson *et al.* (1991) examined conflicts between hikers and mountain bikers in a national recreation area in Montana, USA. They aimed to determine how 'mountain bike riders and hikers differ in the way they relate to the recreational resource' (1991, p.61). They were interested in; how participants related to the activity they were taking part in, the recreational space and the social aspects of the activity. Watson *et al.* (1994) also explored conflicts between hikers and recreational stock users in California, USA. Both of these studies are grounded in Jacob and Schreyer's (1980) conflict theory, thus the authors acknowledge the complexities that are associated with the concept. However, the methods implemented do not address these. Both studies involved a quantitative user survey using predetermined Likert scales to test for Jacob and Schreyer's conflict determinants, again aiming to quantify and test conflict. Arnberger and Eder's (2008) study implemented a similar methodology to measure conflict, in the context of user interactions on shared trails in an urban forest in Vienna. Users included mountain bikers, walkers, dog walkers and joggers. An on-site interview survey and a video observation of path users were carried out to identify and quantify user conflicts and interactions. There has been a substantial body of

work carried out on recreational conflict, yet the methods implemented have mostly taken a quantitative approach, which does not necessarily address Jacob and Schreyer's (1980, p.396) theory that 'conflict should be seen not as a static yes-no condition but as a dynamic interaction'. As Edensor and Richards (2007) state; the sensory, performance and expressive aspects of the activities relating to Jacob and Schreyer's determinants of conflict are not fully dealt with.

Recently however, there has been more research into the meaning and cause of recreational conflict. For instance, Tumes (2007) examined conflict between bushwalkers and mountain bike riders on a recreational trail in Western Australia. This research gained a more in-depth understanding of the causes of conflict. Interviews were implemented, discussing the experiences of conflict between bushwalkers and mountain bikers. The participants' expectations, attitudes, and personal experiences were addressed; thus exploring the concept of conflict in more depth. Also, Walker and Shafer (2011) specifically explored the 'mode of experience' and the unfocused-focused continuum aspect of Jacob and Schreyer's (1980) theory. On a walking and biking trail in Texas the authors examined how trail users focus their attention; 'conflict appeared to be dependent on how [different] types of focus interfered with each other' (Walker and Shafer, 2011, p.21). This involved participants photographing their focus of attention at particular sections of their journey (as instructed by the researcher) and a follow up interview exploring personal experiences and sensory interactions. This developed a more in-depth understanding of users' experiences and thus a better interpretation of the 'mode of experience' aspect of conflict. It should be noted that this thesis does accept the importance of the more quantitative approaches to researching conflict (such as Watson *et al.*, 1991, 1994; Ivy *et al.*, 1992; Arnberger and Eder, 2008). However, it is suggested that other methodological approaches such as those outlined in this paragraph, to better understand conflict from a personal and experiential point of view, are also necessary and are beginning to emerge in recreational research.

However, this is taking place less so in the urban transport policy research arena. Many of the studies carried out assessing conflict between shared-path users still have differing definitions of the concept of conflict (and in some studies no specific definition at all). They also mostly aim to quantify, observe and measure conflict (for instance; Atkins 2012; Uzzell *et al.*, 2002; Sustrans, 2013b; Queensland Transport, 2006; Steer Davies Gleave, 2014). This is an important aspect of shared-use path conflict research, however additional research into the complexities of the social, sensory, experiential, and sources of conflict are also necessary.

For instance, from a UK urban transport policy research perspective, the shared-use path design guidance (DfT, 2012) takes the consensus that conflict is rare between cyclists and pedestrians. This consensus was informed by two reports with differing definitions of conflict; Atkins (2012) was commissioned by the DfT to specifically focus on conflict and Uzzell *et al.* (2002) carried out research for the Countryside Agency. The Uzzell *et al.* (2002) report has a focus on conflict but also has a variety of other outcomes including the distinction between levels of actual and perceived conflict. However, like much of the UK policy research into conflict on shared-use paths both Uzzell *et al.* (2002) and Atkins (2012) take the approach of measuring conflict through a mostly quantitative methodology; video observations and on-site surveys. Uzzell *et al.* (2002) also carried out off-site surveys and focus groups and they do show an acknowledgment of conflict as a complex concept. They refer to Owens (1985) theory of conflict and acknowledge that it is also about the subtle interactions and less visible and quantifiable interactions that occur. For instance, their focus group respondents reported that even though they were aware that few collisions occur on shared-use paths they still felt uncomfortable sharing with 'macho cyclists' (Uzzell *et al.*, 2002, p.9). Unfortunately, this aspect of the Uzzell *et al.* (2002) research has not been taken into account in the shared-use path design guidance (DfT, 2012).

Uzzell *et al.* (2002) measured conflict based on observations. For every interaction, measurements were calculated (using a superimposed calibration net) in order to test whether the users entered each other's collision zone. If this was the case then it was classed as a conflict, regardless of the user's response or the outcome, thus overlooking the additional complexities of the determinants of conflict as suggested by Jacob and Schreyer (1980). Atkins (2012) on the other hand, categorised interactions based on a scale of 1 (minor interaction) to 4 (collision). They define 'marginal conflict' as an unplanned interaction and 'conflict' as arising from an unexpected interaction where the user has to take emergency action to avoid contact. Based on this scale and definitions the report concludes that no collisions and no conflict of any significance took place. Thus even when cyclists tended to 'weave around pedestrians, making frequent adjustments to their speed and direction as they went' this was not classed as significant because it was not hazardous (Atkins, 2012, p.10). However, when Jacob and Schreyer's (1980) unfocused-focused continuum is taken into account, these hindrances to movement are in fact significant and seen as conflict determinants.

As outlined above, by examining the recreational literature on conflict, the theoretical groundings of the meaning of conflict have been uncovered. Conflict between trail/shared-

path users is a complex concept and in order to gain a detailed insight into the causes of conflict the chosen methods need to be carefully considered. A wider range of methodological approaches are needed than what is currently accepted in conflict literature; both in transport policy research and in recreational and leisure research.

### **3.6 Chapter Summary and Research Questions**

This chapter has identified a number of key points which will be taken into consideration throughout this thesis, particularly in Chapter's 4.0 and 6.0. By drawing on the mobilities and social psychology literature, this chapter has highlighted that mobile journey experiences are complex as they are made up of and influenced by a variety of processes which are inter-linked, often these are non-visible processes. For instance the mobilities perspective highlights the sensory and embodied processes such as rhythm and flow; and the impact of both the material and non-material on these. Additionally there are social interaction processes that can influence mobile journeys such as identity, conflict, and negotiation and communication tactics. This chapter has outlined the complexity and variety of these processes in relation to mobile journeys; however the following chapters will consider the impact of these specifically on shared-use path experiences, examining both walking and cycling journeys. By drawing on this literature and bringing together aspects of the mobilities and social psychology literature, this sets out the theoretical framework for this research (image of theoretical framework presented later in Chapter 7.0).

#### **3.6.1 Research Questions**

Following the above points, the specific research questions for this thesis have been developed and are presented in Table 6 below. Question 1 seeks to initially establish the types of interactions that actually occur on shared-use paths. The social psychology issues outlined above such as negotiations, self-presentation, and also the social aspects of identity processes and conflict will be considered to identify the processes related to shared-use path interactions and the impact of these on journey experiences. Question 2 has been developed in order to address the mobilities processes identified in this chapter as being important in gaining insights into walking and cycling experiences and attitudes to sharing space. The embodied experiences will be considered and differences in walking and cycling experiences questioned. Question 3 relates specifically to the path and aims to establish the respondents' attitudes towards the path itself. This question seeks to uncover

whether or not the actual mobile space has an impact on path user relations and experiences. Path users will be directly questioned about their suggestions of how the space can be improved to enhance the shared experience.

Question 4 relates specifically to the key points identified in the policy review (Chapter 2.0). This question seeks to consider how the current policy and regulatory context of shared-use paths can be improved in relation to the experiences and interaction processes uncovered in Questions 1-3. Finally, Question 5 relates specifically to the methods implemented for Phase II of the data collection (discussed in Chapter 4.0). This question seeks to establish some recommendations and reflections specifically related to mobile video methods. Taking these research questions and the overall aims of the research (Section 1.0) into consideration, the methodological approach for this project was developed and is presented and discussed in the following chapter. The findings to these research questions are presented and discussed in Chapter's 5.0 and 6.0.

**Table 6 - Research Questions**

Research Questions
<p>1. What are the different kinds of interactions that occur on shared-use paths?</p> <ul style="list-style-type: none"> <li>- Why do they occur?</li> <li>- How and why do they impact journey experiences?</li> </ul>
<p>2. How do path users experience and share the path?</p> <ul style="list-style-type: none"> <li>- What are the differences between the mobile sensory experiences of walking and cycling?</li> <li>- Do path users have positive/negative attributions towards sharing space?</li> </ul>
<p>3. What are the respondents' expectations and attitudes towards the path?</p> <ul style="list-style-type: none"> <li>- How and why do these affect interactions and journey experiences?</li> <li>- What are the suggested path improvements from the respondents?</li> </ul>
<p>4. What are the practice and policy options in relation to enhancing the shared-path users' experiences?</p>
<p>5. Are video recordings a useful aid to in-depth interviews for accessing the subtle processes and experiences of mobile journeys?</p>

## **- CHAPTER IV -**

### **4.0 Methodology**

#### **4.1 *Introduction***

This chapter presents a discussion of the methodological approach for this research. The data collection for this research was carried out in two phases; the first involved a quantitative method of on-site intercept surveys with shared path users, the second entailed qualitative interviews using video recordings of the participants' shared path journeys as a discussion tool. Section 4.2.1 outlines the overarching theoretical perspective, with a discussion surrounding the ontological and epistemological considerations taken for this research. The methodological strategy is then presented in Section 4.2.2; exploring the mixed-method approach, with a discussion of the ordering of the quantitative and qualitative data collection stages. A discussion of the case study approach and details of the case study site are then presented in Section 4.2.3. The following Sections 4.4 and 4.5 outline the details of each of the phases of data collection; discussing the overall rationale for each of the methods, followed by a discussion of the challenges surrounding aspects such as data collection, recruitment analysis and design of each of the methods. A reflection is also provided on the implementation of each of the methods (in Section 4.4.6 and 4.5.5), discussing the challenges, benefits and considerations for future research.

#### **4.2 *Research Strategy***

This section sets out a discussion of the research strategy implemented for this research. First the theoretical perspective is discussed, followed by a presentation of the methodological strategy, discussing the mixed method approach of this research. There is also a discussion on the case study approach and case study site chosen for this research.

##### **4.2.1 *Theoretical Perspective***

This thesis takes a critical realist approach (Bhaskar, 2008); this is a middle ground between positivism and constructivism (Robson, 2002). Braun and Clark (2006, p.5) state that in order

to aid the rigour and validity of any research it is crucial that the 'researcher makes their (epistemological and other) assumptions explicit'. They warn that 'any theoretical framework carries with it a number of assumptions about the nature of the data, what they represent in terms of the 'the world', 'reality', and so forth' and it is important to make this 'transparent' (Braun and Clark, 2006, p.9). With this, a number of theoretical approaches are outlined below in order to contextualise and explicitly present the ontological and epistemological approach of this thesis.

'Positivism is associated with natural sciences and holds that positive knowledge is based upon natural phenomena, their properties and relations as verified by science' (Savin-Baden and Howell Major, 2013, p.18). Central to the positivist approach are objectivity, rationality and neutrality (Savin-Baden and Howell Major, 2013). In positivist research the aim is to reduce the impact of the researcher and their beliefs, values and influences, on the research. As Robson (2002, p.23) states, the positivist approach 'attempts to neutralise the researchers, or to reduce or eliminate as far as possible their influence on the researched'. It was in the form of the positivist movement 'in which scientific method entered the study of the social world'(Sayer, 2000); now however, very few social scientists would claim to take a positivist approach (Hammersley, 2000).

The aspect of the positivist approach that does 'live on' within social scientific research is in the form of survey research (Sayer, 2000). The positivist tradition of survey research enables useful examinations of relationships and causes between particular factors; to a certain extent this aspect of the positivist approach has been followed in this research, when implementing the survey method and associated analysis strategy (outlined in Section 4.4.5). However, the knowledge generated through the survey method for this research has been interpreted with the acceptance that this knowledge cannot represent one singular truth about particular phenomena, due to the multiple and varying influencing social and cultural factors. For instance, shared-path users may have differing attitudes and perceptions about what they see as 'normal' path use, or may interpret the space and its users differently according to how they physically experience their journeys.

The constructivist approach on the other hand sees that knowledge is socially constructed; there is an acceptance that an objective reality cannot be known. This approach states that 'reality' and knowledge about the world are completely based on individuals constructing their own interpretations through experiencing and reflecting on their experiences; 'reality is an internal construction where individuals assign meaning to experiences and ideas'

(Savin-Baden and Howell Major, 2013, p.63). The critical realist approach also accepts that knowledge is impacted upon and influenced by the individual's interpretation of it. However, unlike constructivism, the critical realist approach does also accept that 'reality' and knowledge exist independent of human thought (Robson, 2002). Additionally, the critical realist approach accepts that this reality is interpreted and experienced in many different ways by complex individuals with differing values, ideas and interpretations and thus a subjective meaning of reality is developed, unlike the positivist approach where objectivity is central (Robson, 2002).

This thesis takes the approach that states that the subjective perceptions and interpretations of the researcher and research participants must be considered when interpreting the knowledge developed through research. It is important to highlight here that it is accepted that the researcher will have a certain amount of influence on the knowledge produced; even when attempts are made to limit the impact of the researcher's opinions and interpretations, this is still not completely avoidable. As Braun and Clark (2006) state, the researcher can never simply 'give voice to their participants,' a good attempt can be made by implementing particular strategies, however the researcher will always have a certain amount of control and influence on the knowledge that is produced. Thus it is important to explicitly state the context of the researcher; a female cycle commuter who has experience of both walking and cycling on the path under study at a variety of times of day.

Within critical realism there are two broad beliefs; the world exists independently of human thought, yet there cannot be one objective truth about the world (Maxwell, 2012). Thus in relation to this thesis, it is accepted that the physical infrastructure of shared-use paths and mobile walking and cycling environments exist independently of human experiences and perceptions of these spaces. Sayer (2000, p.2) justifies this aspect of critical realism by suggesting that individuals often get things wrong and this shows that the world exists independently of how individuals interpret it; 'it is the evident fallibility of our knowledge – the experience of getting things wrong, of having our expectations confounded, and of crashing into things – that justifies us in believing that the world exists regardless of what we happen to think about it'. Critical realism also accepts that research cannot guarantee the production of a singular true objective knowledge. Critical realists recognise that the 'mind-independent' (Sayer, 2000) world can only be understood through humans' subjective interpretations of it; the knowledge produced for this thesis is based on this approach and thus there is 'the possibility of alternative valid accounts' (Maxwell, 2012, p.5).



In conclusion, and to take Braun and Clarks' (2006) advice about the importance of 'transparency' in research; this thesis retains an ontological realism that the world exists regardless of human interpretations and thought, in turn, it holds a critical realist epistemological approach accepting that there are multiple understandings and realities of the world due to varying human interpretations and knowledge. In order to access these interpretations and realities 'researchers have to concern themselves with the inner world of their subjects' (Robson, 2002, p.25). This theoretical perspective has been consciously taken into consideration when designing and deciding upon the analysis and methodological strategies for this research, outlined in the following sections.

#### **4.2.2 Methodological Strategy**

This thesis has implemented a two phased mixed-method strategy; this was developed based on the theoretical perspective and research questions outlined in the previous sections. According to Fakis *et al.* (2013, p.139) a mixed method approach involves a 'study that mixes or combines quantitative and qualitative methods, techniques, concepts, or language into a single study' the aim of mixing methods is to effectively address the research questions and 'to answer one or more questions from different perspectives'.

Tashakkori and Teddlie (2010, p.274) outline that when considering appropriate methods to address the research questions, the mixed method approach allows the researcher to consider a broad range of methods and engage in 'methodological eclecticism'; taking into consideration 'the most diverse array of methodological tools available'. With this, the researcher can select the methods which are most appropriate without being restricted by quantitative or qualitative categories. The 'either-or' approach can be broadened and 'replaced by continua of options that stretch across both methodological and philosophical dimensions' (Tashakkori and Teddlie, 2010, p.274). This encourages an appropriate set of methods to be chosen in order to best address the research questions. Similarly Creswell (2009, p.201) highlights how the mixed method approach utilises the strengths of both quantitative and qualitative approaches; 'their combined use provides an expanded understanding of research problems'. The mixed method approach for this thesis included both quantitative surveys and qualitative interviews.

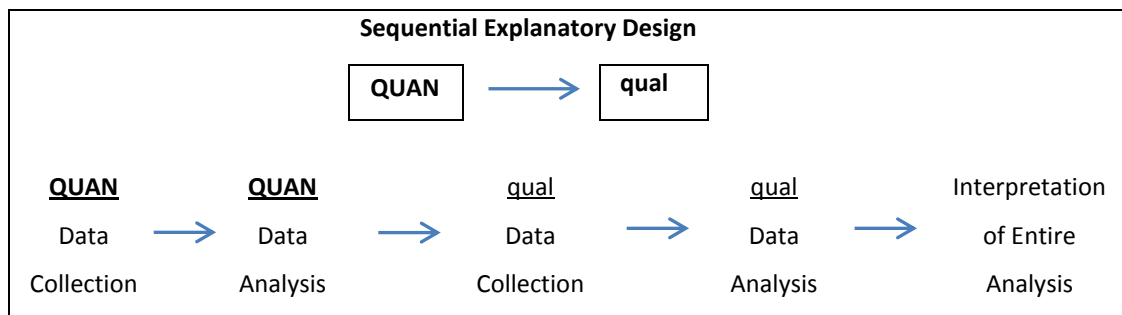
A two phased approach was implemented for this research (see Figure 8 below). Phase I involved on-site intercept surveys with path users along a non-segregated shared-use path (a secondary survey site was also chosen along a segregated path with a smaller sample of

path users, to allow for comparisons in path types, further discussion in Section 4.4.3). Phase II of this research involved in-depth interviews with path users of the non-segregated path, using video recordings of their journeys as a discussion tool (further discussion in Section 4.5). The quantitative surveys were seen as the most appropriate method for the first phase of data collection in order to gather initial findings about the shared-use path and its users; to gain a general insight into the current experiences and encounters that were taking place on the path, from a broad range and a large number of respondents. The intention of the second phase, involving the qualitative method, was to further explore the initial quantitative findings by interviewing a selection of the survey respondents. This allowed a more detailed insight into the personal experiences of path users at an individual level.

This thesis took Creswell's (2009) advice that the specific data collection and analysis strategy of the mixed methods approach must be carefully considered in the research design stage, in particular by considering when exactly the 'mixing' of the methods would occur. The overall methodological strategy of this thesis sits within the category of the 'sequential explanatory strategy' (see Figure 6); the aim of this mixed method strategy was to keep the two sets of findings (quantitative and qualitative) 'separate but connected' (Creswell, 2009). As discussed in the previous paragraph, a two phased approach was implemented beginning with the quantitative phase; the results of the quantitative phase were then used to identify participants and to identify particular themes and discussion points for the following qualitative phase.

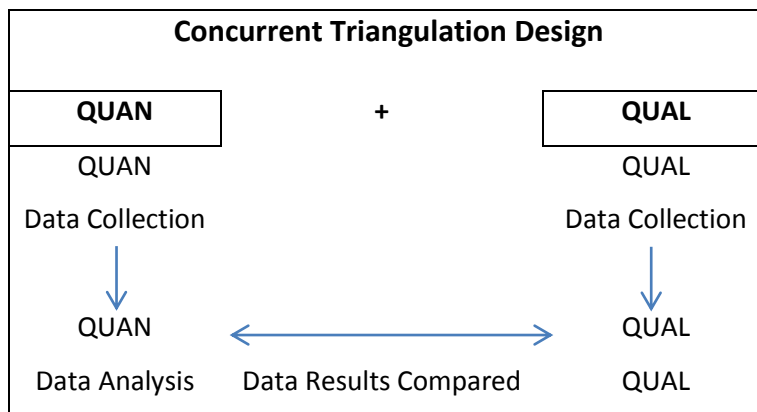
The quantitative and qualitative data were connected between the phases of research; the mixing of the quantitative and qualitative methods occurred 'between data analysis of the first phase of research and the data collection of the second phase of research' (Creswell, 2009, p.208). The mixing also took place during the overall interpretation and analysis of the findings. Both the qualitative and the quantitative findings were initially analysed independently but were then compared and an overall discussion and narrative was developed by combining, comparing and contrasting both sets of findings. Thus the analysis stage of the methodological strategy of this thesis has similarities to the 'concurrent triangulation approach' (Figure 7) where both data sets are compared, 'to determine if there is convergence, differences, or some combination' (Creswell, 2009, p.213). However, the mixing of the quantitative and qualitative methods was required to occur earlier in the research process thus the approach taken by this research can be categorised as the 'sequential explanatory strategy' (Figure 6).

**Figure 6 - Mixed methods strategy - sequential explanatory design (Creswell, 2009)**



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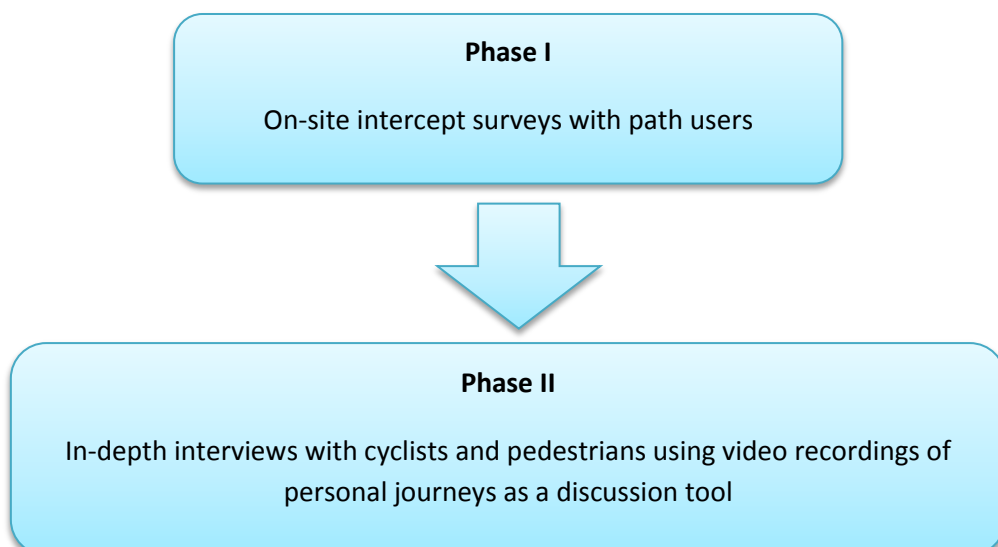
**Figure 7 - Mixed methods strategy - concurrent triangulation design (Creswell, 2009)**



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In summary, a two phased mixed-method strategy has been adopted for this thesis (see Figure 8). Phase I includes a quantitative intercept survey with path users as they travel along the shared-path under study. In Phase II path users were asked to video record their journey along the shared-path, this video footage was then used as a discussion tool in a follow up in-depth interview.

**Figure 8 - Methodological approach**



### 4.2.3 Case Study Site

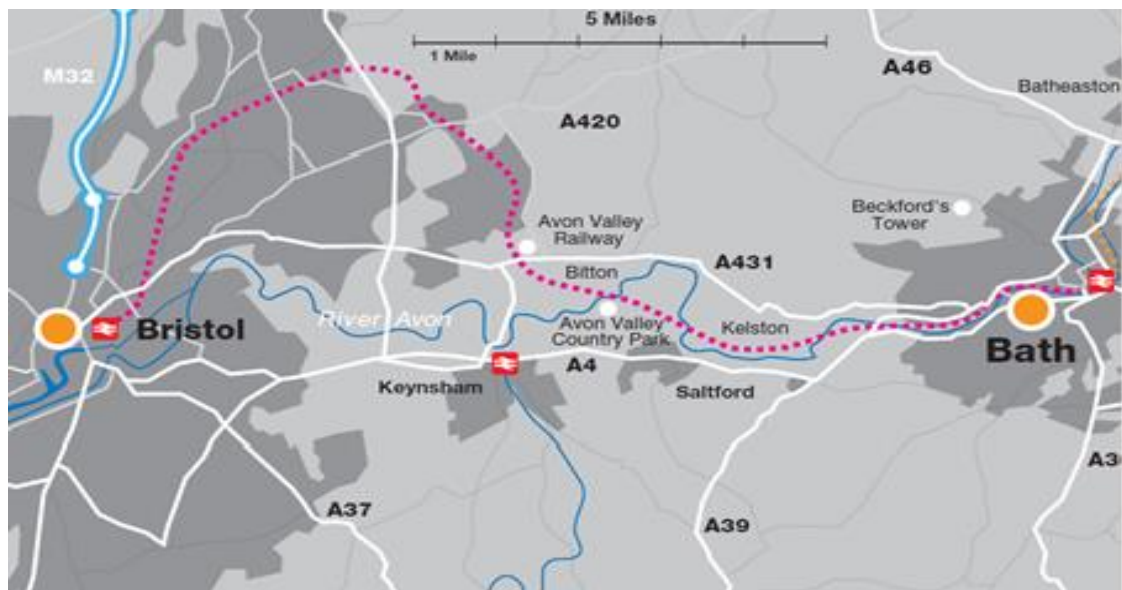
The research strategy outlined above has been set within a case study approach. According to Yin (2009, p.2 ); ‘case studies are the preferred method when: (a) how or why questions are being posed, (b) the investigator has little control over events, and (c) the focus is on a contemporary phenomenon within a real-life context’. A case study approach is most appropriate for a research project that seeks to understand, in detail, a real-life phenomenon; and where the specific context of this phenomenon is relevant to the research aims. This research is concerned with walking and cycling interactions in the specific context of shared-use paths; thus a case study approach was decided upon. However, Yin (2009) also warns that case studies do not provide a suitable basis for scientific generalisation. It is acknowledged that it will be difficult to assign the results for this thesis to the wider population of all shared-use paths. Nevertheless, the aim of this research is to capture the experiences of mobile interactions in a busy shared-path environment, which can then be used to inform the design for future shared-use paths, along with local information specific to that path. A case study approach also enables the implementation of in-depth data collection which is appropriate for this thesis, focusing on the details and complexities of shared-path experiences and user-relations. The case study site selected for this thesis is the Bristol and Bath Railway Path in Bristol, UK. The rationale behind this choice is outlined below.

Nationally, the DfT aims to promote active travel and make walking and cycling ‘more attractive’ (DfT, 2011b). There have been attempts to increase cycling levels and encourage local cycling targets through initiatives such as the ‘Cycling Demonstration Towns’ and the ‘Cycling City and Towns’ (Goodman *et al.*, 2013) and through active travel funding such as the Local Sustainable Transport Fund and the Cycle City Ambition Grants (DfT, 2013). At the time of writing this, Manchester was aiming to double the number of cycling journeys in five years, the target for Birmingham was that cycling would make up 5% of all journeys within 10 years, and in West Yorkshire the aim was for cycling to account for 12% of all journeys (DfT, 2013). Successful implementation of these projects would create infrastructural pressures and increase the frequency of cyclist and pedestrian encounters. This would also change the character of use of walking and cycling infrastructure from light use for leisure purposes, to heavier use for utility and leisure purposes; requiring users to alter their mobile rhythms and re-learn how to use walking and cycling spaces (as discussed in Section 3.2.1). Thus the aim of this research is to provide an insight into walking and cycling interactions in a case study area that has already experienced a growth in active travel.

From 2008-2011 Bristol was granted funding as the first 'Cycling City' (Cycling City, 2011); from 2001-2011 levels of cycling to work in Bristol increased from 4.6% to 7.5% (ONS, 2014) – this is above the national average of 3% (DfT, 2011a). Similarly, levels of walking in Bristol are above average with 18% of people walking for at least 30 minutes (for utility purposes) three times a week; compared to the national average of 11% (DfT, 2012c). Bristol is an example of a city that received specific and targeted funding and where walking and cycling levels are above the national average. This thesis proposes that Bristol's growth in cycling and walking reflects a future picture of what is to come in other cities if current active travel targets are met. Therefore this research is situated in Bristol city, taking the Bristol and Bath shared-use path as its case study site.

The Bristol and Bath railway path is a 20km off road path; it provides an off-road route linking Bristol and Bath (see Figure 8 below). It is a shared-use path for walking and cycling. The path was built along the Midland Railway; the passenger service was withdrawn along this line in 1966, with coal traffic continuing until 1971. After this time the railway was no longer in use and the line tracks were removed in 1972 (Avon Valley Railway, 2015). Initially the railway path was developed into a two meter dust track by the local campaign group 'Cyclebag', who later became the walking and cycling charity 'Sustrans'; during 1979-1986 Sustrans developed the path into a three meter wide tarmac track (Bristol and Bath Railway Path, 2015). The path is part of Route 4 of Sustrans' National Cycle Network (Sustrans, 2015a). It has developed into a popular cyclist and pedestrian shared-use path. According to the Sustrans route user survey 59% of respondents (pedestrians and cyclists) use the path for functional purposes and 40% for leisure purposes (Sustrans, unpublished). The path is nearby to schools, residential, shopping and recreational areas thus it has a wide variety of uses and users. The Bristol and Bath path is well known amongst the walking and cycling community in Bristol and it is a popular part of the walking and cycling infrastructure of Bristol city, both as a transport corridor and as a green space. An example of the importance of the path to its users, community, and local residents was the response to proposals to convert the path to a Bus Rapid Transit in 2008. Path users organised protest marches and 10,000 people signed a petition against the development of the Bus Rapid Transit along a section of the path (Path Campaigners, 2008).

**Figure 9 - Map of Bristol and Bath Railway Path**



(Used with permission of Bath by Cycle, 2014)

#### **4.3 Research questions and associated methods**

Now that the overall theoretical and methodological strategies of this thesis have been outlined, each of the specific methods will be dealt with; discussing the method rationale and processes including sampling strategies, data collection, method design and data analysis. Each section will conclude with reflections on the research process. Due to Phase II of this research involving a relatively new data collection approach in the field of social science, a more detailed discussion will be provided around the rationale, design and reflection for this method. The particular methods which address each of the research questions are presented below for clarity.

**Table 7 - Research questions and associated methods**

Research Questions	Phase I	Phase II
	Survey	Interview + video
1. What are the different kinds of interactions that occur on shared-use paths?  - Why do they occur? - How and why do they impact the journey experience?	✓	✓ ✓
2. How do path users experience and share the path?  - What are the differences between the mobile sensory experiences of walking and cycling? - Do path users have positive/negative attributions towards sharing space?	✓  ✓	✓ ✓ ✓
3. What are the respondents' expectations and attitudes towards the path?  - How and why do these affect interactions and journey experiences? - What are the suggested path improvements from the respondents?	✓  ✓	✓ ✓
4. What are the practice and policy options in relation to enhancing the shared-path users' experiences?	✓	✓
5. Are video recordings a useful aid to in-depth interviews for accessing the subtle processes and experiences of mobile journeys?		✓

#### **4.4 Intercept Survey Method**

Phase I of data collection for this thesis will now be discussed. The rationale behind choosing on-site intercept surveys will be presented, the survey sampling strategy will then be examined. The practicalities and challenges of survey data collection will then be explored, followed by a discussion of the survey design and data analysis. This section will conclude with a reflection on Phase I of the data collection process.

##### **4.4.1 Rationale**

Surveys and video observations of shared-path users were both considered as appropriate methods for Phase I. Video observation was one of the main data collection methods for previous research on shared-use path interactions (Atkins, 2012; Sustrans, 2013b; Uzzell *et*

*al.*, 2002); they took the approach of 'structured observation' which is a quantitative approach where 'observers take a detached stance...structured observation is a way of quantifying behaviour' (Robson, 2002, p.325). Thus this structured observation would allow particular behaviours and patterns of interaction to be quantified. The advantage of observation in the field is that it 'permits a lack of artificiality which is all too rare with other techniques' (Robson, 2002, p.311). It is a useful method to 'seek to find out what is going on in a situation as a precursor to subsequent testing', for instance Atkins (2012) and Uzzell *et al.* (2002) implemented the observational method for this purpose.

However, this thesis is concerned with gathering information directly from path users about their experiences on the shared-use path. According to the literature surrounding quantitative research methods (Robson, 2002; Fowler, 2002; O'Leary, 2010), survey questionnaires are an effective research tool in order to gather data about attitudes and experiences from a large sample size in a short period of time. This fits with the aim of this phase of data collection for this research; to gather a large amount of information on user experiences and interactions on the Bristol and Bath shared-use path. Munn and Drever (2004) also highlight the general advantages associated with survey questionnaires; they are an efficient use of time (if they are designed properly), they allow ease of anonymity of data, there is a greater possibility of a high return rate, a good survey will contain questions which are standardised so that there is no variance for each respondent. They also allow for comparisons during data analysis, this is particularly important for this research exploring both walking and cycling journeys.

However, one main disadvantage of surveys which is widely highlighted in the literature is that they 'tend to describe rather than explain' (Munn and Drever, 2004, p.5). Much of the data gathered through surveys provides information that describes what people do, rather than giving detail on why or how. However, Phase II of this research involves a qualitative interview method where specific themes, issues and attitudes can be further explored. In fact, in order for the survey to be most effective the question design focused mainly on quantitative data gathering. The development of the method for this phase of research took Munn and Drever's (2004) advice in that the temptation to ask for further details or try and gain the *why?* answers should be avoided. Thus the aim of the survey method for this research was to gather high quality and valid quantitative data in order to develop specific themes and points of interest that were further explored in detail in the in-depth interviews.



The survey chosen for this phase of research was an on-site intercept survey; encouraging participants to readily focus their responses specifically on the space they were being surveyed in (Schaller, 2005). 'Intercept surveys are those surveys which take place at a site...where people are intercepted in the course of carrying out an activity of some type' (Richardson *et al.*, 1995, p.55). In this case, path users were intercepted along the Bristol and Bath path. The survey questions concentrated only on that specific path; surveying participants within this space allowed them to focus their answers and thus improve the accuracy of their responses. All survey questions related specifically to the Bristol and Bath path. As Schaller (2005, p.7) highlights, on-site intercept surveys are effective due to their 'ability to survey during the immediate experience'. Schaller (2005) also states that this immediacy improves the accuracy of responses. Respondents are not relying on their memory to recall experiences and feelings that occurred in the past, which they are often required to do when given a take home survey or a telephone survey.

Similarly, Uzzell *et al.*'s (2002) research highlights this recall issue. They carried out on-site surveys about conflict on shared-use routes; respondents were also asked to complete a survey at home. Uzzell *et al.* (2002) found that respondent perceptions of conflict increased when the surveys were completed off site, at home. Thus by carrying out on-site surveys, the aim was to encourage a higher proportion of responses informed by actual experiences of interaction rather than perceived and recalled experiences. However, as this research takes a critical realist approach, it is acknowledged that even though the surveys took place on-site, it can never really be known whether or not participants successfully separated their current journey experience from past journey experiences in order to answer the survey questions. Additionally, as discussed in Section 3.2.1, path users can impact on each other's mental mobile spaces and thus it would be difficult for respondents to assign the effect of this to a specific journey. Nonetheless, by implementing on-site surveys this allowed immediate access to the targeted population (all path users); the sample population was already isolated and thus all individuals that were asked to take part in the survey were automatically part of the desired sample population. As Richardson *et al.*, (1995, p.55) point out the intercept survey is a 'more efficient method to limit the population' to include only the section of the population that the research is interested in, in this case, Bristol and Bath path users.

Taking into consideration the aims of this thesis, and the context of this phase of research within the overall data collection strategy, on-site intercept surveys were chosen as the most appropriate method. However, as Robson (2002, p.230) highlights, there are many

details and considerations which must be taken into account when carrying out this method, it involves a 'complex set of technological concerns about sampling, question-wording, answer coding etc.' Thus these complexities and details will be addressed in the following sections.

#### **4.4.2 Sampling strategy**

The sample frame for this survey included all adult users of the Bristol and Bath shared-use path; a quota sampling strategy was implemented; 'the strategy is to obtain representatives of the various elements of a population', with a focus on the particular aspects which are important to the research (Robson, 2002, p.264). Thus, there were three main determining factors to this sampling strategy: mode, time of day using the path and gender. Mode was chosen in order to compare walking and cycling experiences. The time of day was chosen as the most appropriate way of recruiting respondents with differing journey purposes, for example commuters were more likely to be recruited during the evening rush hour (a discussion on the survey timings is provided in the following paragraph). According to the mobilities literature, differences in journey purpose can cause individuals to have contrasting rhythms and flows (Middleton, 2009); these are important themes for this research. Gender was also chosen as a determining factor in order to gain a variety of responses. There are more male cyclists than female cyclists in the UK, thus there may be differences in identity and confidence levels amongst males and females and thus differences in their attitudes to using and sharing the space. Along with their relevance to the research aims, these factors were also chosen as they enabled a collection of responses from a variety of path users without the necessity of asking preliminary questions to each respondent.

A target number of male and female cyclists and pedestrians were recruited to take part in the survey. A 'time sampling' strategy (Robson, 2002) was also implemented in order to gather a range of commuter and leisure respondents. This research thesis is interested in user interactions thus it was important for the surveys to take place when user flow was highest. Based on the survey piloting and the literature surrounding shared-use path research (Atkins, 2012; Uzzell *et al.*, 2002; DfT, 2012) it was decided that the most appropriate survey timings were; weekdays from 2pm-6pm and weekend days from 11am-4pm. According to the DfT (2012) user flow is highest on shared-use paths during these times. The pilot surveys were carried out at a variety of times and showed that the DfT's recommendations are accurate. The surveys were carried out at these times over the course

of a three week period during October 2013. Thus it is important to note here that the findings for this research will relate to participants' experiences on the path during peak-times of use when frequencies of interactions between path users are highest.

Details of the survey sample characteristics are provided as part of the list of descriptive statistics in Appendix 1, a summary of the sample characteristics is also presented below in Table 8. Due to the implementation of a quota sampling strategy it was envisaged that the sample characteristics for the survey could be compared to random sample characteristics from a secondary data sample from a Sustrans route user survey. Unfortunately this survey was not carried out specifically on the Bristol and Bath Railway path and the sample size is insufficient (96) to allow any substantial comparisons.

**Table 8 - Summary of survey sample characteristics**

- Most respondents were travelling alone (78.8%), 14.2% were with another adult, 4.5% with a child and 2.5% with a dog.
- 25% male cyclists, 25% female cyclists, 25% male pedestrians, 25% female pedestrians (please note that this is based on a quota sampling method)
- Out of the respondents that were walking, 55.3% also cycle.
- 42.8% were commuting or in course of work, 29.0% for leisure, 16.2% shopping, 2.0% escorting to/from school, 4.5% for education and 5.5% other.
- 58.1% of respondents regularly use the path as a cyclist, 18.5% less often and 23.4% never.
- 51.0% of respondents regularly use the path as a pedestrian, 28.1% less often and 20.9% never.
- 60.4% of respondents classed themselves as experienced cyclists, 18.9% as inexperienced and 20.7% do not cycle.

#### **4.4.3 Data collection**

##### **Site selection**

The first important aspect which was considered when designing the data collection for this phase was identifying the appropriate survey site along the Bristol and Bath Railway path. An initial survey of the path was carried out to identify potential appropriate sites; these sites were then piloted, while piloting the survey itself. Particular areas of conflict (for instance blind spots or pinch points) were avoided as survey sites. The aim of the survey was to gather information from respondents that would represent a section of the path that was not obviously compromised in its design and could be said to stand for current best practice. Thus sections of the path with potential conflict or tension were avoided as survey sites. Practical issues such as space were also considered; adequate space for the respondents to safely stop and complete the survey on the path was important. Also, the visibility of oncoming path users was considered; to allow them enough warning time to stop for the survey, cyclists in particular. Taking these aspects into consideration, and after piloting a variety of sites, the survey site in Image 1 below was chosen as the primary survey location. As mentioned earlier (Section 4.2.2), a secondary survey site (Image 4) along a segregated path was also chosen, to allow for comparisons in path type. A discussion of each of the sites is provided below.

The primary survey site (Image 3) is part of the Bristol-Bath Railway path, it is located about 1.5 miles from the beginning of the railway path in St Philips, Bristol. As the map (Figure 10) shows, the path stretches out in a long straight approaching the survey site from the west, the path at the other side of the survey site develops into a slight bend, thus there is more visibility of the survey site coming from one direction than the other. Thus, signs were erected along the path approaching the survey site so that path users were aware that it was oncoming even if it was not in sight for all users. At this site the path widens substantially at one side of the path where it becomes a bridge crossing over Rose Green Road, thus allowing adequate space for path users to stop and complete the survey. This survey site has characteristics common to that of the majority of the Bristol-Bath Railway path; converted railway path, non-segregated shared-use surface, three metres wide, laterally constrained. This survey site along the Bristol-Bath railway path is the primary focus of this research as the path is recognised as an example of quality infrastructure which is a non-segregated shared-use path, 400 surveys were collected at this site.

However, a secondary segregated survey site was also required in order to allow for comparisons between journey experiences and interactions on segregated and non-segregated shared-use paths, one of several factors of interest for this research. For example, comparisons can be made between the differences in: user relations, journey experiences and participants' suggestions for path improvements. This secondary survey site is not located along the Bristol and Bath Railway path; this is due to the fact that a longer stretch and higher quality, of a specifically segregated path, was required than is present on the Bristol and Bath path. Thus the secondary survey site for this research is located along a segregated path at Castle Park in central Bristol (see Image 4 and Figure 11 below). It has characteristics that are not common to the case study path: purpose built, pedestrian and cyclist segregation, wide pedestrian area and wide cyclist area (about six metres in total), wide open space to the side of the path. Cyclists and pedestrians are segregated by 'partial separation' (TfL, 2014) and a change in surface (details on the specifics of segregation were provided in Section 2.3). A smaller sample of 200 path users was surveyed here; this is a sufficient number in order to be able to make statistical comparisons and analysis between survey responses from this site and the primary non-segregated site.

Image 3 - Primary survey site – non-segregated (photo)



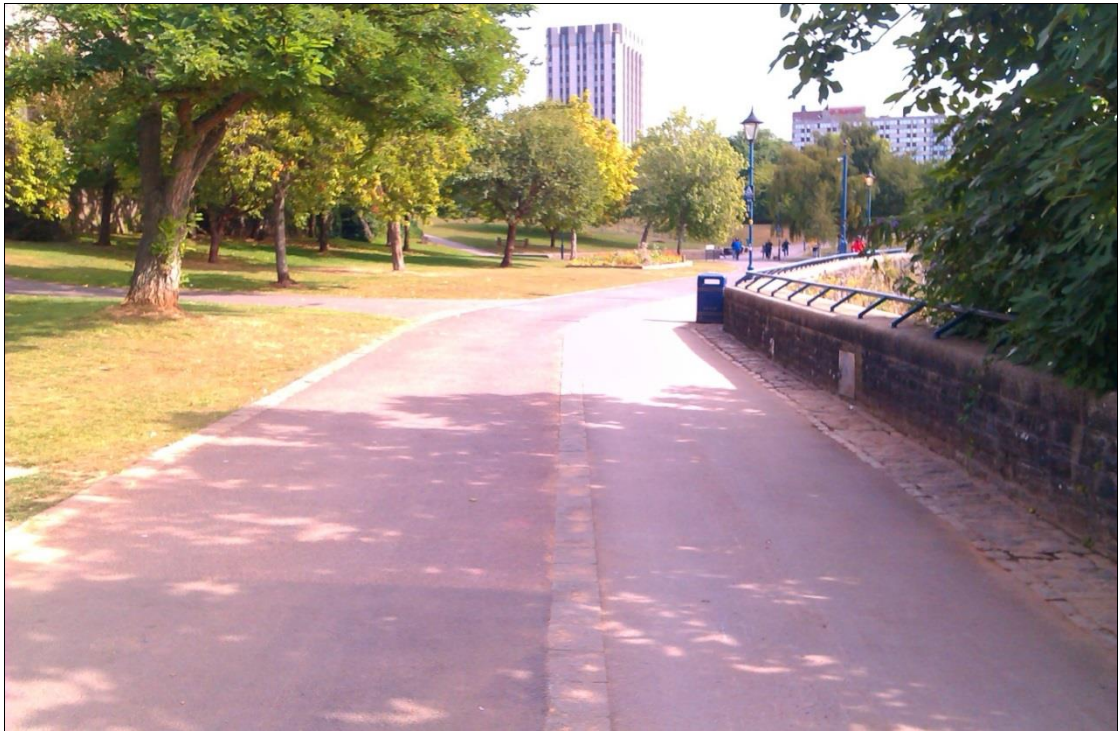
Figure 10 - Primary survey site – non-segregated (map)



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**Image 4 - Secondary survey site – segregated (photo)**



**Figure 11 - Secondary survey site – segregated (map)**



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## **Recruitment**

The next factor of importance which was considered, when designing this phase of research, was the administration aspect; the specifics about how path users would be stopped/recruited, response rate considerations and how ethical procedures would be implemented. As the surveys were taking place on-site, these aspects required careful planning. A strategy was developed in order to safely and effectively stop path users while they were in motion on the path, with particular attention to faster moving cyclists. Following Sustrans' (2013c) guidance, signs were erected so that path users were made aware of the survey well in advance of approaching the survey site. Two sets of signs (on either side of the path) were erected in the approach to the survey site (see Image 5).

**Image 5 - Signage at approach to survey site**



However, as Troped *et al.* (2009, p.779) highlighted in their research with trail path users, it was more challenging to stop cyclists and recruit them to take part in a survey compared to walkers; they were more 'reluctant to interrupt their activity'. This relates to the mobilities literature (discussed in Section 3.2) surrounding the importance that cyclists (and sometimes pedestrians) attach to the maintenance of a continuous flow and forward motion during their journey. For instance, Spinney's (2011) research on commuter cyclists concluded that one of the main aims of the cycling journey was to ensure that it was 'full of flow'. Therefore, in order to overcome this possible difficulty of stopping cyclists, in addition



to the stationary signs, the researcher also held out a hand held sign as the cyclists were approaching. As pointed out above, the path on one side of the survey site has a bend and thus cyclists were naturally required to slow down when approaching the survey site from this direction. When approaching from the other direction there is a gentle incline, thus again there was a natural moderation to the speed of cyclists, this also aided the recruitment of cyclists.

The researcher approached all passing path users and asked them to take part in the survey; the researcher shared a uniform set of information about the research to each of the participants. They were given the option to take an information sheet and they were also provided with a consent form to complete at the beginning of the survey (see Appendix 2). Once the researcher had finished dealing with the first respondent the next passing user was then asked to take part. If a group of path users stopped, they were all given the opportunity to take part in the survey, however very few of the participants were travelling as part of a group (14%, see Table 8 above). This process continued within the survey time frame for that day. As advised by Schaller (2005), this recruitment strategy was implemented in order to avoid biases towards friendly or more approachable path users. Schaller (2005) also points out that one of the main factors affecting response rates of intercept surveys is the enthusiasm and approach of the surveyor; the attitude and enthusiasm of the researcher has a huge impact on response rates. These surveys were carried out by the researcher and she was enthusiastic about the research, increasing the chances for high response rates. It should also be noted here that an additional researcher was also present during some of the data collection, to aid in participant recruitment. Thus particular processes were implemented in order to aid an unbiased recruitment as well as encouraging high response rates for this particular phase of research.

#### **4.4.4 Survey design**

Researcher-administered surveys were originally considered most appropriate for this phase of research, as according to the literature (Richardson *et al.*, 1995; Schaller, 2005) these generate a higher response rate and improve the quality of the data collected. However, after piloting both researcher-administered and self-administered survey approaches it was decided that for this particular research a self-administered survey would in fact be more appropriate. The pilot showed that the quality of the data did not appear to be comprised due to the participant completing the survey without the presence of the researcher. This also allowed more than one path user to complete a survey at once; enabling the researcher

to recruit other respondents and be available to answer any questions regarding the survey. However, in order to effectively implement the self-administered survey particular care was needed around survey design. This will now be discussed.

According to survey methodology literature it is evident that careful survey design and planning are crucial in order to develop a successful data collection tool (Munn and Drever, 2004; O'Leary, 2010). Also, Munn and Drever (2004, p.11) point out that a well-designed survey can 'yield unambiguous information and a good response rate'. Factors such as language, layout and question types were carefully considered. First, it was essential that the questions were clear and succinct and thus easy to complete, particularly for a self-administered survey. According to Schaller (2005, p.32) 'simple, carefully worded questions are key to successful...intercept surveys'. The language and wording of the questions took careful consideration. Language perceived as straightforward and non-complex in the transport field may not be understood in that way for all Bristol and Bath path users. For instance, 'mode users' is not regular terminology when discussing shared-path users. Also, key words relating to this research such as 'interactions', 'communication' and 'pedestrians' may be interpreted differently by each individual.

Other key factors that have been considered when designing this survey are question type and answer options. Schaller (2005) splits questions into two main categories – attitudinal and factual. Due to the aims of this research the questions in this survey were mostly attitudinal, asking respondents to reflect on their experiences on the path, in relation to other path users. Many survey questions contained response options of verbal rating scales such as *strongly agree* to *strongly disagree*. However, the survey mostly consisted of closed questions with clear answer options, to ensure that the survey completion process was non-complex and efficient. According to Schaller (2005, p.9) it is also useful to consider how the research aims translate into specific survey questions; by implementing this strategy 'unnecessary or extraneous questions can be dropped and the survey instrument can be streamlined'. Other factors that were carefully considered, in order to avoid the challenges of self-administered surveys were: a sensible question order, appropriate survey length to encourage completion, question topics grouped together to ensure clarity, and an easy to navigate survey structure.

The first section of the survey asked about the respondents' use of the path (mode, frequency, journey purpose etc.) the aim of this section was to provide a context for the participants' responses. The second section asked respondents questions relating to their

attitude to and experience of sharing the path with others (of the same and/or different mode)<sup>1</sup>. The third section relates to personal journey experiences, the aim of this section was to examine any associations between the participants' real experiences and the mobilities theory (Section 3.2) relating to sensorial mobile experiences. The final section of the survey relates to the path itself and the regulations and expectations relating to its use (example of the survey form in Appendix 2).

#### **4.4.5 Analysis**

Once the survey data was collected it was coded and entered into the statistical analysis database SPSS. It was then checked for errors, missing cases and any incorrect coding. The analysis plan (Figure 12) was then applied. The first level of analysis examined the descriptive statistics by 'setting out the results in a summary form so that you can see the overall response to individual questions at a glance' (Gillham, 2007, p.49). This was an effective starting point to pick out any interesting themes or result patterns (particularly in the context of interview discussions for Phase II). This strategy 'only applies to closed questions' (Gillham, 2007, p.49) and thus complements the survey-design for this research. In the second level bivariate analysis stage the 'subject descriptors' or independent variables (from questions such as gender, age, mode, journey type) were tested against the results for each survey question in the format of cross tabulations. For instance mode of path user and whether or not they had ever had a negative interaction with another path user; or gender and how strongly they agreed or disagreed that most pedestrians on the path were considerate of other users. Comparison of results between the segregated and non-segregated survey sites were also dealt with in this second level of analysis. This was then followed by the third level of analysis where the chi square test was implemented to test the statistical significance of relationships between the variables examined in the second level of analysis. Thus, particular associations were drawn out between variables and themes began to emerge. This thesis aims to produce valid and reliable survey results and conclusions by implementing this data analysis plan.

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<sup>1</sup> Please note here that the question relating to opinions of levels of consideration of other path users is adapted from Atkins (2012).

**Figure 12 - Survey data analysis plan**



#### **4.4.6 Post-survey reflections**

##### ***Benefits of signage***

The use of signage to warn participants about the upcoming survey site was a particularly effective addition to the data collection process, it had two main benefits. The first, as outlined in Section 4.4.3 above, was that it allowed the participants adequate time, particularly the cyclists, to safely slow down and take part in the survey. Another unexpected benefit of the signage, which was identified during the piloting of the surveys, was its added use of providing vital initial information to the path users which could impact on their choice to take part. During the piloting many of the participants commented that there are often surveyors on the path, who are there with the purpose of requesting donations from the path users, this was viewed negatively by some participants. Therefore, by putting the appropriate information (such as the University logo) on the signage, this clarified that the research was being carried out by an independent research student on behalf of a University. Thus, encouraging path users to take part that may not have if they had presumed it was research on behalf of an organisation or charity.

##### ***Weather restrictions***

One challenge of implementing on-site intercept surveys was the weather constraints. Fortunately during the survey period (October 2013) for this research the weather conditions did not pose significant problems. However there were two days of surveying that could not be completed due to heavy rain. The survey forms were printed on non-waterproof standard paper, and so the completion of a survey form in heavy rain was not possible. If this method was to be implemented again, particularly during wetter months, a strategy aiding survey completion in the rain would be developed; such as choosing an alternative survey site located under one of the several bridges along the path.

### ***Restrictions of self-administered surveys***

Self-administered surveys were beneficial in that they allowed a greater number of participants to take part in the survey at one time, and thus allowing the researcher to recruit other participants or answer queries in the meantime. However, there were participants who began discussing the topics in the survey as they handed back the completed form, providing useful comments that could have been included in the qualitative comments section of the survey, if it had been researcher administered. Also, as these participants were engaging in conversation as they handed back the survey, it gave them more time to think and they often went back and changed some of their survey responses, particularly relating to questions 8 and 9 which asked about the types of interactions they experienced on the path on the day of the survey. Thus, reflecting upon the data collection process highlighted that there are particular restrictions associated with self-administered surveys.

### ***Defining response rate***

Due to the nature of the recruitment and data collection process of this phase of research, information about the refusal rate for the survey was not collected. This was difficult to record due to the high flow of users passing at peak-times; there was no time to record refusals while also attempting to recruit the next passing user. If this method was to be implemented again a recruitment strategy to aid the recording of refusals would be developed. For instance, stopping every 5<sup>th</sup> path user instead of every next path user may allow more time to record the refusals.

## ***4.5 In-depth interviews and video recordings***

Phase II of the data collection for this thesis took place in September/October 2014; it involved asking participants to video record their journeys along the Bristol and Bath shared-use path, these recordings were then used as a discussion tool during an in-depth interview. The rationale behind choosing this two-part method will now be presented, followed by: a discussion of the sampling and recruitment strategy, the data collection and analysis process and a reflection on the implementation of this method.

#### **4.5.1 Rationale**

The interview and focus group methods were both considered as appropriate options for Phase II. Focus groups with cyclists and pedestrians would have been useful for bringing out discussions and contrasting views of shared-use path relations, they are useful for capturing shared responses (Cloke *et al.*, 2007). On the other hand, due to this point, it is difficult to gather information on detailed personal experiences during focus groups. This thesis is mainly concerned with these personal experiences and it was thought that these would be best drawn out by implementing in-depth interviews. It is suggested here that the interview method can also access the contrasting views of both cyclists and pedestrians by applying a strategic sampling framework (discussed in Section 4.5.2). Thus an in-depth interview method was carried out for Phase II of this research.

In order to gain a richer insight into the *mobile* experiences of walking and cycling, video recordings of the participants' journeys were also gathered. There is a growing suggestion within the mobilities discipline that 'a mobile subject demands a mobile method' (Creswell, 2012, p.647). There has been a growth in the number of works addressing this issue of mobile methods, such as the array of books covering all aspects of mobile methods (Buscher *et al.*, 2010; Fincham *et al.*, 2010; Adey *et al.*, 2013; Bates, 2014). There has been an increased awareness of the importance of developing and extending the understandings and experiences of these mobile methods. There is an existing debate in the mobilities literature surrounding the integration and implementation of 'mobile methods' in mobilities research. For instance, Fincham *et al.* (2010, p.2) pose the question of whether existing methods such as interviews and surveys, which 'slow down and freeze experiences' can 'adequately capture mobile experiences and practices where the context of movement itself may be crucial to understanding the significance of the event to the participant'. This debate is discussed below.

According to Buscher and Urry (2009), personal mobile experiences such as the sensory experiences of rhythms and flows and the social aspects of movement, which are central to this thesis, are difficult to capture with the more traditional static methods such as interviews. Similarly, Law and Urry (2004, p.403) also suggest that existing methods cannot sufficiently address the topics covered by mobilities research, such as the 'fleeting,' 'sensory,' 'emotional,' 'spiritual' and 'that which slips and slides between one place and another'. Buscher and Urry (2009, p.103) advocate, in line with Creswell (2012) above, that in order to better address and explore these aspects of the social sciences it is necessary to

‘develop research methods that are on the move’. In accordance, Sheller and Urry (2006, p.208) add that in order to engage fully with mobilities research, social science is required to ‘change both the objects of its inquiries and the methodologies for research’. The point here is that the aim of implementing mobile methods is to bring the researcher and the research process of data generation and analysis ‘as close to the mobile practice as possible’ (Fincham *et al.*, 2010, p.4).

The advocates of mobile methods highlight that, particularly for highly mobile practices, the meanings, decisions, feelings and emotions of events and practices in motion can be more easily accessed and analysed by researching through ‘being there’ (Brown and Spinney, 2010). Interpretations and understandings of mobilities can be extended and enriched, through mobile methods, as they allow the research to go further than the ‘rationalised and decontextualized understandings of everyday mobility and explore decisions and meanings which arise in the context of movement itself’ (Brown and Spinney, 2011, p.130). In agreement with these propositions there has been an array of research in the social sciences which have implemented mobile methods (such as; Middleton, 2009; Spinney, 2009; Brown, 2012; Cook *et al.*, 2015). However, much of this research warns that these methods which are ‘on the move’, should not completely replace the more static and traditional methods such as interviews or focus groups. Bissell (2010, p.54) adds that the value of the ‘more mature range of methodological techniques’ should not be discounted.

Merriman (2013, p.2) is cautious of the introduction of mobile methods and warns that ‘the push to promote innovative ‘mobile methods’ is in danger of encouraging researchers to abandon methods labelled ‘conventional’ such as interviews or surveys’. Merriman (2013, p.2) cautions that there is often too much focus on the idea that the researcher ‘must move with their research subjects’ and often the wider practices, picked up by conventional methods, can be overlooked. For instance, he points out that video technologies, with a focus on vision and sound often miss out on ‘the many complex (often invisible) social and political practices and relations which co-constitute spaces, events and contexts’ (Merriman, 2013, p.10). There is also concern that mobile research techniques run the risk of privileging ‘action and activity over other perhaps more fragile ways of being mobile’ (Bissell, 2010, p.54). For example Merriman (2013, p.11) outlines that the less active aspects of mobility such as ‘stillness,’ or ‘waiting’ are often overlooked due to the common focus of mobile methods on ‘speed, movement, excitement and exhilaration’. However, it should be noted that there have been a number of ‘mobile research’ papers that do in fact report on the slower aspects of movement, such as Spinney’s (2011) research uncovering cyclists’

practices of track standing and Brown *et al.*'s (2008) attention to the 'macro stop-start temporal patterns' of mountain biking.

Nonetheless, there are aspects of implementing mobile research techniques which must be cautioned, as outlined by Merriman (2013) and Bissell (2010). It has been proposed that a range of mobile and static methods should be combined so that mobile methods do not become 'celebrated as the new orthodoxy with which to interrogate and understand mobilities' (Bissell, 2010, p.54). The method design and data collection strategy for Phase II of this research takes the above debate into account. In order to avoid the risks outlined by Merriman (2013) and Bissell (2010) but also to gain the benefits outlined by authors such as Buscher and Urry (2009) and Sheller and Urry (2006); a mobile method was designed in conjunction with a more traditional interview method. The aim of this was to access the experiential, sensory and social aspects of walking and cycling on shared-use paths; as well as ensuring that the mobile experiences captured on video, and the wider practices and complexities of shared-path use were explained and enriched, by reflection from the participants themselves.

However, there are a variety of mobile methods which can access the experiential aspects of walking and cycling; the combinations and techniques carried out in mobile research to date are varied. The benefits and downfalls of these, in the context of the aims of this thesis, will be discussed below. Specifically relevant to this research is the 'ride along' (Spinney, 2011; Brown *et al.*, 2008) and the 'walk along' (Pink, 2007b). This method can include an interview with the respondent *in situ* as they are experiencing the event; a video recording of the ride/walk along can also been incorporated into this method. The aim of this method is to experience-with the participant, enabling the researcher to get closer to what the participant is feeling and experiencing. Pink (2007b, p.244) explains that researchers employing this method have reported a deeper understanding of 'the identities, moralities, values, beliefs and concerns of the people they do their research with'. Specifically discussing the 'walking with' approach, Pink (2007b) states that by joining the participants in their mobile practice it allows the researcher to better understand peoples' perceptions and experiences of their sensory environments, this is an aspect which is central to this thesis. Vergunst (2011) adds to this by highlighting that the researcher's 'singular position as a static observer distanced from the research object' can be lessened by sharing the experiences of the participant. Murray's (2010) research with children travelling to school emphasises this point; she argues the effectiveness of an '*in situ*' approach; because she was



present during her participants' journeys to school she was able to access their reactions to the event as well as experience it for herself.

However, there are also difficulties associated with the 'walk/ride along,' particularly for specific journey types such as cycling. Difficulties also arise when the aim of the research is to access particular aspects of mobile journeys that require the participant to 'experience' independently. Laurier (2010) outlines the disruptive nature of the 'there-ness' of the researcher. This is particularly important for this thesis as the interactions and shared experiences of the participants with others on the path are a crucial focus of this thesis. The presence of a researcher would interfere with this shared environment, particularly if the researcher and participant were conversing about the present experience. As Brown and Spinney (2010) outline, when researching mobile journeys through taking part in the journey there is difficulty when the participant attempts to share their experiences while also still engaging in the experience under research. Thus, Brown and Spinney (2010) report that many of the 'cycling moments of interest' were missed due to this issue. They add that regularly, particularly with mountain biking, 'the required focus of concentration often precludes the sharing of 'head-space' as well as material space' (Brown and Spinney, 2010, p.135). Thus, particular mobile practices such as cycling do not lend themselves well to the 'there-ness' of the researcher, as this interferes with the actual mobile experience under research. In addition to this, there are practical issues associated with the ride-along, such as the cycling skills of the researcher; these must match those of the participant, which is often difficult (Spinney, 2011).

One focus of this thesis is on the interactions which take place between path users. In order for the participant to experience these interactions in an environment which is as close to 'normal' as possible it was considered more suitable that the researcher was not present. Brown and Bank's (2014) research on the relationships and shared experiences of walkers and their dogs sheds light on this. The researchers equipped dog walkers with head cameras to record their journeys, for some of the journeys the researcher was present and implemented a walk-along interview. Brown and Bank's (2014, p.104) research found that 'an unaccompanied outing allowed the practices of the participant to unfold in a way that was less disrupted by the researcher and more akin to their everyday dog walking socialites'. They also reported that the presence of the researcher negatively impacted on the dynamics between the walker and their dog, this finding can be transferred to the potential impact of the 'there-ness' of the researcher on path-user interactions for this thesis. Therefore, it was decided that the respondents for this research would be unaccompanied

while taking part in their mobile journeys. However, the use of a video method to record these individual journeys was implemented instead.

In the context of video recording mobile journeys, the head camera method has been most widely used, for instance to access cycling journeys (Spinney, 2009, 2011; Brown and Spinney, 2010) walking journeys (Brown *et al.*, 2008) and running journeys (Cook *et al.*, 2015). The benefits of this method include 'being able to 'go with' the subject as they move, to follow the action, and go with the flow of micro and macro movements as they unfold' (Brown and Banks, 2014, p.99). In relation to the issues outlined in the previous paragraph, the main benefit of the head camera is that it allows the researcher to access mobile experiences whilst it 'does not preclude the very happening of those practices' (Brown and Spinney, 2010, p.137). In addition, Brown and Spinney's (2010, p.137) research has shown that the head camera causes less interference with the 'social, spatial and corporeal' aspects of mobile practices, all of which are central to this thesis. However, specifically using the head camera as a video tool does impact on social relations. Brown and Banks (2014) highlight that there were participants who did not feel comfortable wearing head cameras, and thus for them the cameras were located on a chest-mount. This highlights the problem, for pedestrians in particular, that 'the visualities of headcam are...not embedded in particular cultures' (Brown *et al.*, 2008).

Therefore, it is not the norm for pedestrians to wear head cameras and this causes them to feel 'strange' or 'out of place' (Brown *et al.*, 2008). This, along with the interpretation and reaction of other path users, would impact negatively on the 'normal' interactions and path sharing processes which are central to this research. Thus, from these accounts it is evident that the use of head cameras for this thesis would generate awareness, for the participants and for other path users, of being recorded and thus impact on their behaviours. In order to avoid this, discreet mini cameras were decided upon, these were attached to chest mounts on the pedestrians and for the cyclists they were attached to the bike handlebars, in order to ensure the cameras were as unobtrusive as possible (specific details of the cameras are outlined in Section 4.5.3). As mentioned above, most research to date using video mobile methods to record walking journeys has used head cameras; thus this thesis will be trialling the use of cameras located on the person. One of the aims of this research is to assess the participants' reactions to the mobile cameras and provide recommendations based on this, Section 6.6 provides a detailed discussion on this.

With the issues surrounding the types of camera discussed, it is also necessary to highlight the particular considerations which were taken into account when deciding upon and designing the mobile video method for this thesis. The researcher may have access to a recording of an event, however this should not be assumed to be an exact copy of how the participant actually experienced that event in real time (Brown *et al.*, 2008). The authors also state that the video camera 'does not 'view' the world in the same sophisticated way as the human eye and cannot tell us how this interconnects with other sensory experiences, emotions and cognitive processes' (Brown *et al.*, 2008, p.8). Nonetheless, the video method does provide a detailed *insight* into the experience. Haw and Hadfield (2011) usefully point out the distinction between seeing and knowing, it is important to understand that by watching the video clip the researcher still cannot 'know' or fully experience the event.

Carrying out an in-depth interview in conjunction with the video footage was crucial in order to gain an insight into the respondent's experience of the event. It is not about merely generating video data and taking these data as a singular 'reality' but it is about entering into a process and using these video data as a 'medium through which ethnographic knowledge is created' (Pink, 2007a, p.113). With this, the video footage was not treated as a standalone dataset; instead it was used as a prompt to enhance the in-depth interview method. Fincham *et al.* (2010, p.4) warn that by implementing this method and by adding a technical aspect to research this is simply adding another layer which removes the researcher even further from the researched: 'can an appropriate proximity be achieved through the use of technologies or does the researcher have to be present?'. However, this phase of research takes the perspective that when used as a two-part approach (combined with in-depth interviews) the video method can in fact provide a more detailed insight. As Spinney (2011, p.163) states; without the video footage the research becomes distant from the actual experience that is under study and thus 'relying at best on verbalised accounts of practice divorced from the context of doing that is so fundamental to the creation of meaning in mobile practices'.

Another aspect to consider with this method was the issue of self-representation: participants may not behave in a natural way whilst they are being recorded (Bloor and Wood, 2006). Nevertheless, this is also the case with other methods such as surveys or interviews; there is often the risk of the individual developing strategies of self-representation. However, by using video as a data collection tool this produces a record of a live event, which may be more likely to bring out realistic responses and discussion when used in combination with an in-depth interview. Also, Brown *et al.* (2008, p.8) asked walkers

and mountain bikers to record their experiences using a head camera. Many of the respondents noted that the footage looked mundane, however ‘...they often indicated that it did not feel mundane at the time, as they were lost in their thoughts and practices’. This suggests that they may have been unaware of the presence of the camera as they were deeply involved in the actual mobilities of walking or cycling. It was expected that this may also be the case for the participants of this current research; they would be focused on navigating their journey through the often busy Bristol and Bath shared-use path and would thus be distracted from the presence of the camera.

It was also noted that video cannot account for interactions, events or experiences that occur after or previous to the recording (Brown *et al.*, 2008). For instance, if the individual had a previous positive/negative encounter with another mode user, or if they experience/view something which is not picked up by the camera, this may impact on their interactions and rhythms within the recorded event but this cannot be seen and is not captured by the recording. Thus again, the interviewing process was vital for unpacking these important details and gaining further insight into cyclist and pedestrian interactions.

This method is also a useful tool for accessing mobile experiences and feelings which may be difficult to articulate (Spinney, 2011). Many of the aspects of mobility which are examined in this thesis such as flows and rhythms of movement and the interactions with others, are often difficult to articulate. Brown *et al.* (2008, p.5) emphasise that ‘certain aspects of experience, such as emotions, senses and kinaesthesia, which can be difficult to (re)convey in words alone...become more “visible” and can be “seen” in new ways’. Brown and Spinney (2010, p.131) also point out that with a visual aid such as video footage this encourages respondents to provide ‘richer linguistic accounts of their embodied mobile practices that would otherwise be impossible’. In turn, this improves the quality of the research and a greater insight can be gained into the research questions addressed by this method.

Additionally, this two-part method can bring out particular experiences and emotions specific to mobile practices that may not be accessed as effectively by other methods. For instance, interviewing a participant about a journey that has already happened requires the respondent to provide responses based on memory recall. These responses can be enriched by using video footage as a prompt. Indeed, Knoblauch and Tuma (2011) highlight the technological advantages of using video recordings; such as the ability to slow down motion, zoom and repeat actions. This allows the researcher and respondent to examine aspects of the journey in far greater detail, for instance those ‘fleeting moments’ (Spinney, 2011) of

interaction that may impact on the individual's journey. Other methods such as direct observation or interviewing (without video footage) make it difficult to capture the informational content of mobile events with such intensity. The video footage acts as a useful prompt giving the respondents 'a chance to revisit, re-live, and elaborate on these often taken for granted time spaces' (Brown and Spinney, 2010, p.150). For instance, Pink (2007a) explains a situation in which a respondent was interviewed in conjunction with video footage; the video footage encouraged further thought processes and associations and the respondent began to voluntarily discuss a variety of topics that were related to the research but may not necessarily have arisen without the video data.

Therefore, in reflecting on the relevant mobile methods literature and the specific research aims of this thesis, Phase II methods were decided upon: unaccompanied video recordings of walking and cycling journeys (using discreet mini cameras) in conjunction with a follow up interview reflecting on the video and journey experience. Research into cycling journeys (Spinney, 2011, Brown, 2012) and walking journeys (Pink, 2007b; Brown *et al.*, 2008; Brown and Banks, 2014) have been previously carried out using head cameras and follow up interviews, focusing on the journey experience. However, the method implemented for this research will provide a unique contribution to mobile methods research in that it is using discreet cameras and focusing on the personal journeys as well as the shared and interactive journeys.

#### **4.5.2 Sampling Strategy and recruitment**

Similar to the intercept survey method, the sample frame for this phase of research included all adult users of the Bristol and Bath shared-use path. After completing the survey, participants were asked to provide their contact details if they were interested in taking part in a follow-up interview (19% of the survey participants from the non-segregated survey site provided their contact details). Thus, interview participants were recruited from the respondent sample of the non-segregated survey site. Seven cyclists and seven pedestrians were recruited to take part. The interviews took place in September/October 2014 with the aim of capturing participants' experiences of interactions on the path during a time when there is a 'typical' mix of users; this timing avoided school holidays and summer/winter months where the mix of users may not represent the typical experience.

A purposive sampling strategy was implemented, in order to ensure that a variety of respondents were recruited. This strategy allows the specific aims of the research to be

addressed. With this strategy the researcher is required to identify the desired characteristics of the sample and then recruit participants based on this requirement (Robson, 2002). According to Robson (2002, p.265) purposive sampling occurs when 'a sample is built up which enables the researcher to satisfy her specific needs in the project'. The aim of the sampling strategy was to represent differences in opinion based on the research questions and based on the outcome of the survey responses. The sampling determinants impacting on the purposive sampling strategy and recruitment of participants are outlined in Table 9 below. Journey purpose (commuter/non-commuter) was chosen as a factor for the same reasoning as the survey sampling strategy in Section 4.4.2 above. The factors: regularity of path use, experience as a cyclist and pedestrians' experience of cycling were also chosen as sample determinants as these were associated with most variance in survey results for the questions relating to: experience of frustration, preference for separation between path users and the experience of positive/negative interactions. All of these are central research aspects of this thesis and enable a more in-depth insight into walking and cycling interactions. Age and gender were also considered as sample determinants to ensure a range of participants.

The survey respondents who shared their contact details were firstly categorised according to the sampling determinants outlined in Table 9 below. The cyclist and pedestrian respondents were split into batches; the first batch was sent a recruitment email, with a follow up email if there was no response. Emails were then distributed to the second batch of respondents. In total, 20 emails were distributed to pedestrians and 20 to cyclists. 17 agreed to take part in the interview with 3 of these eventually being unable to take part. Thus there was a non-response (not responding to the recruitment email) from 23 out of the 40 requested participants and a response rate of 42%.

**Table 9 - Interview sampling strategy**

<b>Cyclists</b>	Mix of users determined by:
Commuters Non-commuters	<ul style="list-style-type: none"><li>- Regularity of path use</li><li>- Experience as a cyclist</li><li>- Gender</li><li>- Age</li></ul>

<b>Pedestrians</b>	Mix of users determined by:
Commuters Non-commuters	<ul style="list-style-type: none"><li>- Regularity of path use</li><li>- Also/never cycle</li><li>- Gender</li><li>- Age</li></ul>

A range of respondents were recruited (see Table 10 below): 7 cyclists (3 commuters and 4 non-commuters) and 7 pedestrians (3 commuters and 4 non-commuters). Amongst the 7 cyclists there were 3 regular path users (daily/2-5 times a week/weekly) and 4 less regular path users (fortnightly/monthly/less frequently/first time). 4 of the cyclist respondents reported themselves as experienced, two were occasional cyclists and one was new to cycling. There were 4 female and 3 male cyclist respondents with an age range from 20-69. Within the 7 pedestrian respondents three of those never use the path for cycling (and never cycle anywhere) and 4 use the path for both walking and cycling. There were 4 female and 3 male pedestrian respondents also with an age range from 20-69. It should also be noted that the correct ethical procedures were also carried out at this recruitment stage. Participants were provided with an information sheet and the opportunity to ask any questions, they were also provided with a consent form and informed that they had the option to opt out of the research at any stage (see Appendix 3 for consent form).

**Table 10 - Details of interview sample**

	<b>Mode at time research</b>	<b>General mode on path</b>	<b>Journey type</b>	<b>Gender</b>	<b>Age category</b>	<b>Regularity of path use as cyclist</b>	<b>Experience as a cyclist</b>	<b>Also/never cycle</b>
Respondent 1B	Cyclist	Both	Commute	Female	30-39	Daily	Occasional	-
Respondent 2C	Cyclist	Cyclist	Commute	Female	30-39	2-5 times/week	New to it	-
Respondent 3B	Cyclist	Both	Commute	Male	40-49	Daily	Experienced	-
Respondent 4C	Cyclist	Cyclist	Non commute	Female	20-29	Less frequently	Experienced	-
Respondent 5C	Cyclist	Cyclist	Non commute	Male	50-59	Less frequently	Experienced	-
Respondent 6C	Cyclist	Cyclist	Non commute	Male	20-29	Weekly	Experienced	-
Respondent 7B	Cyclist	Both	Non commute	Female	60-69	Fortnightly	Occasional	-
Respondent 8B	Pedestrian	Both	Non commute	Female	40-49	-	-	Also cycle
Respondent 9B	Pedestrian	Both	Non commute	Female	40-49	-	-	Also cycle
Respondent 10P	Pedestrian	Pedestrian	Commute	Male	30-39	-	-	Never cycle
Respondent 11B	Pedestrian	Both	Commute	Male	40-49	-	-	Also cycle
Respondent 12P	Pedestrian	Pedestrian	Commute	Female	20-29	-	-	Never cycle
Respondent 13P	Pedestrian	Pedestrian	Non commute	Female	60-69	-	-	Never cycle
Respondent 14B	Pedestrian	Both	Non commute	Male	60-69	-	-	Also cycle



#### **4.5.3 Data collection, research design and administration**

The participants were asked to choose a journey to record which involved the Bristol-Bath railway path. The minimum required length of the journey (on the path) was 10-15 minutes, to ensure that the participant was travelling on the path long enough to have a substantial experience. The journey times (on the path) ranged from 10minutes to 30minutes. The researcher arranged to meet the participants at the beginning of their journey, this was often their place of work or home. In most cases the participant's entire journey was recorded, to ensure that the wider context of the journey was captured. The researcher then talked the participant through the process that was to follow, while fitting their camera. They organised to meet at the end of the journey where the researcher would stop the recording and collect the camera. In some cases the participant's journey on the path was 10 minutes or shorter and so they recorded a two way journey (where possible). In these instances the participant was equipped with a set of clear and simple instructions on how to use the camera.

As mentioned above, discreet mini cameras were used for this research. To aid the unobtrusive nature of the mini camera they were positioned on the handlebars of the cyclists' bikes. The pedestrians were asked to wear a backpack or bag with a strap sitting across the body, the camera was then attached to the bag strap using the camera clip provided (see Image 6 below). The pedestrian camera used for this research was the Veho 'Muvi Micro Action Camera'. This is a small discreet camera, 55mm high x 20mm wide x 20mm deep. It contains a rechargeable battery which lasts for 3 hours of recording. The camera also includes a mounting clip. The camera used for recording the cyclist journeys was the Chili Technology 'Action Cam' (see Image 7). This camera has a rechargeable battery life of 2.5 hours, it is 9.5cm x 2.8 cm x 8cm in size. The video footage from both cameras was easily uploaded from the camera to a laptop using a USB connecting cable.

Image 6 - Camera used to record walking journeys



Image 7 - Camera used to record cycling journeys





Once the recorded journey was complete a follow up interview time was arranged: where possible the interviews were organised for the same day, the following day, or as soon as possible after the journey in order to ensure that it was still fresh in the participants' minds (all interviews took place no longer than 2 days after the recording). The researcher carried out an initial video analysis prior to the interview. During this initial analysis, the researcher picked out a minimum of four interactions for further discussion in the interview. As outlined in Chapter 1.0 this research is using Sustrans' (2013b) definition of an interaction: two people, or two groups of people, passing each other, 'it could be people passing each other from opposite directions, or going in the same direction'. The researcher selected a minimum of four interactions of differing levels, based on the scale of interactions used by Atkins (2012). A 'minor interaction' 'marginal conflict' and 'conflict' were chosen from the footage, as well as an interaction that would not have registered on the Atkins (2012) scale of interaction. If all types did not occur then multiple interactions of the same level were chosen; the respondent's experiences of these interaction types were discussed.

In implementing this strategy Atkins' (2012) conclusions, that no collisions and no conflict of any significance took place during their observations of shared-path users, were considered. The respondents' personal accounts and experiences of the interactions were compared to the categories they would have been placed in, based on observation of the footage alone. In taking this approach it is acknowledged that the researcher has a certain level of control over the respondent's feedback on their journey. However due to time resources this was decided as the most appropriate approach in order to focus certain parts of the interview. It

is also important to note that for this research project the researcher determined specific factors such as; the type of camera, where the camera was positioned and specifics about the routes that were recorded. Thus to a certain extent the event under study for this research was partly controlled by the researcher. As Pink (2007) states, video data cannot be seen as 'objective reality', there is always potential for influence from the researcher and the researched. Taking this into consideration, the respondents were given time at the beginning of the interview to talk freely about their journey in a less structured and guided manner.

Following Brown and Bank's (2014) technique, the interview was structured in two sections (see Appendix 4). The first section was led by the respondent and the second by the researcher, in order to maintain a balance of control over the video footage, between the researcher and respondent. In the first section of the interview the respondents were encouraged to talk through their experience on the path, using the unedited video footage as a prompt. According to Brown and Spinney (2010, p.133) this approach encourages a balance of control between the researcher and participant, it helps to 'direct attention and rationalisation towards previously neglected aspects of practice that the participant, rather than the researcher, feels is important'. Similarly, Pink (2007a) states that by allowing the respondents to guide certain aspects of the interview the depth and breadth of the data gathered can be enhanced. The second half of the interview was more structured, addressing the main research themes, ensuring that the interview coverage was consistent across participants. It also involved a discussion of the video footage of the interactions chosen by the researcher, as well as questions relating to the participants' survey responses from Phase I. The questions were open-ended to encourage in-depth discussions and to draw out any associated attitudes, emotions and perceptions. Each interview lasted up to an hour and they were audio recorded: this 'provides a permanent record and allows you to concentrate on the interview' (Robson, 2002, p.290).

#### **4.5.4 Analysis**

The analysis strategy for Phase II of this research involved thematic analysis. This approach involves 'identifying, analysing, and reporting patterns (themes) within data' (Braun and Clark, 2006, p.6). In order to maintain a systemic and rigorous approach to this phase of data analysis Braun and Clark's (2006, p.35) detailed '6 Phases of Thematic Analysis' and '15-Point Checklist of Criteria for Good Thematic Analysis' were utilised to guide and inform the process. In order to approach the analysis from a rigorous starting point, it was firstly

important to re-visit the epistemological approach and the research aims of this thesis. According to Braun and Clark (2006, p.9) 'a good thematic analysis will make this transparent'. As outlined in Section 4.2.1, this thesis takes a critical realist approach, and thus a thematic analysis approach reflecting this was undertaken: 'theories such as critical realism ... which acknowledge the ways individuals make meaning of their experience, and, in turn, the ways the broader social context impinges on those meanings, while retaining focus on the material and other limits of 'reality'' (Braun and Clark, 2006, p.9). Thus it was acknowledged that the theoretical underpinning of this research would impact on the analysis process, resulting in the analysis involving a theoretical/deductive approach along with a latent thematic analysis approach. These are discussed below.

Braun and Clark (2006) outline that there are two main approaches to identifying patterns in data when undertaking thematic analysis; these are the 'inductive' and 'deductive' approaches. The inductive approach is data driven and the data is analysed 'without trying to fit it into a pre-existing coding frame' (Braun and Clark, 2006, p.12). The advantage of this approach is that the researcher has a more 'complete view of the information available' and can appreciate both the 'easily evident' and 'intricate' aspects of the data. This allows a broader appreciation of the data and 'previously silenced voices or perspectives inherent in the information can be recognised' (Boyatzis, 1998, p.30). On the other hand, the 'theoretical approach', undertaken for this research, is driven by the research questions and theory. The advantage of this approach is that it allows a more focused analysis strategy, specifically addressing the research aims and implementing a more in-depth analysis of specific aspects of the data. Rather than taking a broader view of the data 'a detailed analysis of some aspect of the data' can be implemented (Braun and Clark, 2006, p.12).

However, there is a risk with the theory driven approach: it is more susceptible to 'projection on the part of the researcher and to the impact of his or her cultural bias' (Boyatzis, 1998, p.35). There is a chance that relevant data could be overlooked if the coding process is too closely linked to the theory. When implementing the theory driven approach for this research, caution was taken in order to not let this restrict the analysis process and the development of additional broader and relevant themes and findings. Thus, the coding process began with broad themes of interest to this research (related to the research aims and theory). For instance, one broad theme was the sensory experiences of walking and cycling, by having a focus on that particular feature when coding the data, this then resulted in the development of a number of themes linked to sensory experiences which expanded on and added to the original theme.

There are also two types of approaches that can be taken when analysing the themes: semantic and latent. With the semantic approach the surface meanings of the data are presented 'the analyst is not looking for anything beyond what a participant has said or what has been written' (Braun and Clark, 2006, p.13). The latent approach however, undertaken for this research, analyses the data while taking the wider theoretical perspective into account, 'broader assumptions, structures and/or meanings are theorised as underpinning what is actually articulated in the data' (Braun and Clark, 2006, p.13). Thus, the results and discussion presented in Chapters 5.0 and 6.0 will reflect this latent approach and the data are set within a theoretical context, in order to enrich and reflect on the findings of this research.

Now that the specifics of the thematic analysis approach have been identified, the stages of analysis which were engaged with in order to produce the findings for this research are discussed. Each of the interview recordings were transcribed by the researcher and analysed in the qualitative analysis package NVivo. This analysis broadly followed Braun and Clarks (2006) '6 Phases of Thematic Analysis'. Firstly, the 'familiarisation' phase was engaged with by transcribing the interviews and making notes and initial comments based on the first hearing of the recorded interviews. According to Braun and Clark (2006, p.17) transcription 'can be an excellent way to start familiarising yourself with the data'. The transcripts were then re-read in order to become fully 'immersed' in the data. The following phases of analysis involved developing codes and grouping the data into meaningful categories. These codes were then drawn together into initial themes (see Appendix 5 for a visual representation of this process). Following this the themes were refined, named and evaluated in the context of the wider research aims. As highlighted by Braun and Clark (2006, p.6) 'analysis is not a linear process,' as perhaps it is presented in the above summary, the data were re-read and codes were re-named and re-coded and themes merged and split, to eventually result in a set of findings. The final stage of this process was to merge the qualitative data with the quantitative data in order to present them together in the Chapters 5.0 and 6.0.

Of course this analysis of the interview transcripts did not take place independently, the video data acted as an additional data source which was regularly referred to throughout the analysis. When the visual aspect was interpreted alongside the interview discussions, this added an extra layer of complexity and depth to the analysis process. As the interviews were transcribed, reference to particular time frames in the corresponding video were also included, allowing the video footage to be easily interpreted and analysed alongside the

written transcripts. For instance, as particular discussion points or common themes within the transcripts were explored, the video footage was also viewed, enabling the slowing down, zooming in and replaying of particular events for analysis. It should be noted however, that the video footage, as outlined above, was never treated as a standalone data set, it was only ever interpreted and analysed in conjunction with the participants' explanations. Thus, still images were abstracted from the video footage and presented alongside the accounts and analysis of the interview discussions, in order to aid communication of results and provide an added visual element to the presented findings.

#### **4.5.5 *Reflection on video-interview method***

This section will now reflect on the methods implemented for Phase II of this research. As this two-stage method is a relatively new approach within the social sciences it is relevant to highlight the key issues which might be taken into account by future research implementing this approach.

For instance, this two stage method is a time and resource intensive approach. The practical aspect of administering the distribution of cameras and meeting with participants to collect the cameras and carry out the interviews was time consuming and involved detailed planning. First, the timings of each of the recordings needed to be carefully planned in order to be flexible enough to suit the participant's time preferences but also to ensure that there were enough cameras available for use at the appropriate times. Also, on one occasion, there were commuter participants who chose to record their journey on the same morning, and this was also the only morning which another participant had free time to take part in the interview, having carried out the video recording the previous day. Thus careful administration and rapport with the participants (through telephone or email initially) was crucial, in order to ensure both the researcher and participants' time requirements were met as well as ensuring the participant was not frustrated by the process. Clear communication and a good rapport with the participants was important for this phase of the research, due to the participants having to commit to two stages of research and in turn offering their free time.

In relation to this, the researcher aimed to organise the interview to take place soon after the recorded journey. Similar to Brown and Bank's (2014) findings, this research found that the time difference between carrying out the interview and the recorded journey had an impact on the quality of the interview discussions. For instance, the longer the time between the interview and the recorded journey, the more difficult the respondents found



it to reflect on and discuss that specific journey. Often the participants would have carried out a similar cycle or walk in the meantime. The administration of this two stage method, including camera distribution/collection and ensuring an effective time frame between the recording and the interview, was challenging but also crucial for this form of data collection.

Another challenging aspect of this data collection phase was actually working with the video technology itself. For one of the cycling journeys the camera stopped recording during the journey, thus the footage was not useful. When referring to head camera research, Brown *et al.* (2008, p.3) advise that 'it is important to intermittently check the status of the head camera to ensure it has not stopped recording'. However, due to the participants' undertaking unaccompanied journeys for this research, there was an added risk. To reduce technical difficulties the researcher set up the camera for each of the participants at the beginning of their journeys. Where this was not possible, clear and simple instructions were given to the participants. Despite this, one of the cyclist's journeys did not record. Fortunately, the respondent was willing to re-take the journey. This again highlights the importance of building a good rapport with the participants.

The camera set-up for the pedestrian respondents was particularly challenging due to the camera being located on the participant's body rather than a bicycle. Each participant varied in height, thus careful attention was required when securing the camera so that it was facing at the appropriate angle. In addition to this, each participant's walking style differed, some walked in a smooth rhythm whereas others bounced or jolted more when they walked, all of this impacted on the quality of the walking-journey recordings. The pedestrian recordings were certainly useable, however they varied in quality. On reflection, it would have been beneficial to invest in or develop a more secure camera mount which would avoid the variability in the participants' walking rhythms and height.

One restriction to this data collection process, particularly specific to the aims of this research, was the issue of 'asymmetry of agency' (Brown and Banks, 2014). The videoing process recorded all path users and the analysis process focused on interactions between path users, yet the researcher only had access to the reflections of one of the path users involved in the situation. Ideally the accounts of all path users would be available. This asymmetry of agency was taken into account when analysing the data, to ensure that the respondent's discussion was interpreted with the awareness that this may not be the interpretation or experience of the other path users involved. Due to the nature of the subject being researched, there is not a suitable data collection method that could access

the accounts of all path users involved in the interactions; however it was important to take this aspect into consideration during analysis.

The final aspect which must be noted here is that of the sample demographics for this phase of data collection. As outlined in Section 4.5.2 above, a purposive sampling strategy was implemented for the recruitment of the interview participants; in order to ensure that the sample included a variety of path users and with the aim of further interpreting the survey results. Thus the main focus, when designing the sampling strategy for this phase of data collection, was on developing a strategy that would best satisfy the research aims, and provide a good basis from which to further interpret the survey results. With this however, there was perhaps not enough focus on gaining wider demographic information from the original survey respondents. This would have allowed factors such as occupation or ethnicity to also be considered during the recruitment for interview stage.

#### **4.6 Chapter Summary**

By taking into consideration and explicitly stating the wider epistemological perspective and methodological strategy of this thesis, this has aided in a more focused implementation of the two phased mixed method approach taken in this research. The implementation of the methodology resulted in two major outcomes; the lessons learned from carrying out the methods and the generation of the actual data. In particular, the mobile video aspect of Phase II provides a unique contribution to the mobile methods field (for instance Pink, 2007b; Brown *et al.*, 2008; Spinney, 2011; Brown and Banks, 2014). Discreet mini cameras were implemented (rather than head cameras) and there was not only a focus on the participants' individual journeys but their shared/interactive journeys were also examined. The use of mini cameras, for the walking journeys in particular, resulted in a useful set of reflection and learning points for future research in this area. The combination of the in-depth interview method with the video footage proved a successful data collection tool (this is further discussed in Chapter 6.0). The actual data that were generated through this two-phased approach are presented in the following chapter (and further discussed in Chapter 6.0).

## - CHAPTER V -

### 5.0 Results

#### 5.1 Introduction

This chapter presents the empirical findings from the two phases of data collection outlined in the previous chapter: quantitative surveys and in-depth qualitative interviews (with video recordings as a discussion tool). The findings are presented in three sections, reflecting the three main research themes, which are related to the research questions outlined in Section 3.6.1, see summary in Table 11 below (please note that Research Questions 4 and 5 are addressed in Chapters 6.0 and 7.0). In Section 5.2 the theme of interactions is presented; examining the interactions experienced by the respondents and interpreting how they occur and how they impact on journey experiences. In Section 5.3 the experiences of walking and cycling journeys on shared-use paths are addressed. Finally, in Section 5.4, results related specifically to the path itself are presented, highlighting the respondents' expectations and attitudes towards the space and how the path itself impacts on how the respondents interact and share the space. The survey data presented here relates to the respondents at the *non-segregated* primary survey site *except* where indicated otherwise (any results presented from the segregated survey site will be explicitly highlighted). The interview data relates to the non-segregated path.

The interview respondents have been anonymised and each given a separate code, these codes are used throughout this chapter to distinguish each of the participant's quotes. The codes include the number of the participant along with the letters C (cyclist), P (pedestrian) or B (both). The respondents took part in the survey and the video recording/interview as a representative of the mode that they were travelling by on the day of the survey. However, some respondents use the path for *both* walking and cycling; the respondents' code letter refers to their general mode of use on the path, rather than the mode specifically undertaken at the time of participating in the research. For instance, Respondent 1B (R1B) was cycling on the path when taking part in the research, however R1B generally uses the path for both walking and cycling, therefore they are given the code B (Table 10 in the sampling section above presents the participant codes and further participant details).

**Table 11 - Chapter structure - research questions**

Research Questions
1. What are the different kinds of <b>interactions</b> that occur on shared-use paths?
2. How do path users <b>experience and share</b> the path?
3. What are the respondents' expectations and attitudes towards <b>the path</b> ?

## **5.2 Interactions**

- |  |
|--|
| 1. What are the different kinds of <b>interactions</b> that occur on shared-use paths? |
|--|

This section discusses the first theme of this chapter: interactions. The different types of interactions reported by the research participants are outlined. The experiences of these interactions and the associated processes and influencing factors are then presented in order to explore how the interactions actually take place and the impact this has on walking and cycling journeys.

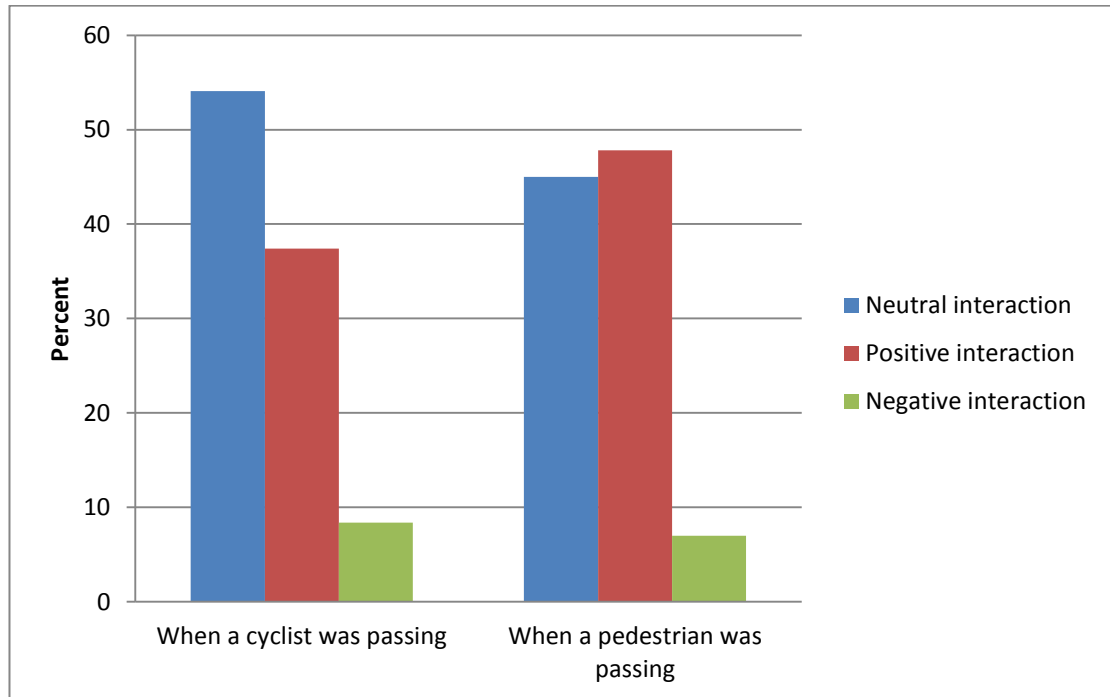
### **5.2.1 Reported Interactions**

The survey respondents were given a list of interaction categories and asked to tick the types of interactions they experienced on the path on the day of the survey when: a cyclist was passing, and when a pedestrian was passing. The survey respondents reported experiencing 863 interactions; there were 508 interactions with a cyclist (n=398) and 355 with a pedestrian (n=397). Eye contact was the most frequent interaction experienced by respondents from both a cyclist (36.0%) and a pedestrian (45.1%). Unfriendly verbal exchange was the least reported interaction with a cyclist (3.0%) and pedestrian (0.8%).

The majority of the reported interactions were neutral (eye contact and bike bell) with a higher percentage of positive interactions (wave/smile and friendly exchange) than negative ones (near collision and unfriendly exchange) (Chart 1). Nonetheless, Tables 12 and 13 show

that near collisions make up a surprisingly high percentage of the types of interactions reported, considering these questions specify 'on this path today'. When a cyclist was passing, 5.5% of the reported interactions were near collisions, similarly when a pedestrian was passing 6.2% of the reported interactions were near collisions.

**Chart 1 - Positive and negative interactions reported**



**Table 12 - Reported interactions with a passing cyclist**

	Freq. (n=398)	%
Wave/Smile	121	23.8
Eye contact	183	36.0
Near collision	28	5.5
Friendly verbal exchange	69	13.6
Unfriendly verbal exchange	15	3.0
Bike bell	92	18.1
Total	508	100

**Table 13 - Reported interactions with a passing pedestrian**

	Freq. (n=397)	%
Wave/Smile	105	29.6
Eye contact	160	45.1
Near collision	22	6.2
Friendly verbal exchange	65	18.3
Unfriendly verbal exchange	3	0.8
Bike bell	-	-
Total	355	100

Based on the quantitative survey responses most of the interactions were neutral and there were a higher number of positive interactions reported compared to negative ones. When these interactions were discussed further, with the aid of the video recordings during the interviews, it became clear that the respondents were also experiencing other types of interactions and particular negotiation situations such as contrasting speeds, participants reported responding to situations by increasing or decreasing their speed. The process of bunching was also discussed as a negotiation experienced by the participants. Additionally, the issue of space ownership and dominance of path space was evident in the participants' discussions, as a factor associated with shared-path negotiations. These negotiations between path users and their impact on shared-use path experiences are outlined below.

One strategy of negotiation which was discussed by the interview respondents was that of changing pace, in order to manage a situation of encounter (speeding up or slowing down). This aspect of pace and negotiation adds to Jensen's (2010) research which categorises mobile negotiation tactics performed by cyclists and pedestrians (see Section 3.3), this theoretical context is further discussed in Section 6.3.3. There were respondents who discussed that their regular reaction to complex situations was to slow down or even completely stop. There were others who talked about speeding up as their standard response in order to negotiate a situation on the path. For example, one respondent explained his 'need for speed' and thus he relies on increasing his speed in order to negotiate encounters with other path users. The instance presented below (Image 6 - sequence 1 and 2) involves speeding up and weaving through and around a group of cyclists. The respondent sees that the family of cyclists are spread out across the path and chooses to weave around each of the cyclists in order to overtake the group. He overtakes the first cyclist on the left hand side (Image 8 – sequence 1). Then he moves in front of this cyclist and overtakes the next cyclist on the right hand side (Image 8 – sequence 2), he then

continues in a straight line to finally overtake the child, also on the right hand side. Respondent 6C does not make any form of communication with the group of cyclists and instead implements a strategy of increasing his pace and weaving around each of the cyclists in order to 'try to get around them as quickly as possible';

*'I've got a need for speed!...my approach always tends to be speed will get me through it quicker and not 'slow down I don't know what's there' (laughs)...they were basically taking up the whole path ... I just hope essentially that they were going to pay some attention and try to get around them as quickly as possible without obviously causing an accident...it just means I have to be really reactive'*  
(R6C)

### Image 8 (Sequence 1) - Speeding up to negotiate a group of cyclists

(Red arrow indicates the route taken by the research participant)

1. Approaching group of cyclists



2. Behind first cyclist in group



3. Overtaking first cyclist on the left hand side





**Image 8 (Sequence 2) - Speeding up to negotiate a group of cyclists**

(Red arrow indicates the route taken by the research participant)

**4. Moving in front of the first cyclist**



**5. Overtaking second cyclist on the right hand side**



**6. Overtaking child cyclist on the right hand side**



Respondent 1B also explains that in certain situations she will increase her speed and make 'very quick manoeuvres' in order to manage an interaction: *'sometimes you have to step on it to just get passed and things like that and it's kind of like a burst of energy that you need to sometimes make very quick manoeuvres'*. On the other hand there were respondents who emphasised that when they are encountering another path user they will always slow down, this reaction is interpreted as a cautious approach by R2C: *'I'm very cautious so I come around quite slowly because I'm anticipating that there's going to be people coming in the other direction'*.

Another situation discussed by the respondents was the idea of 'bunching'; this occurs when a cyclist wants to overtake another path user (a pedestrian or slower cyclist) and slows down to wait until the path is clear on the opposite side. At the same time more cyclists come up behind this cyclist and do not slow down; resulting in a bunching up of cyclists who then attempt to overtake when the path is not yet clear on the opposite side. This experience was highlighted by the respondents as a manoeuvre that has a negative impact and makes their journey feel less safe. For instance, R12P describes a situation where she was overtaken by a group of 'bunching' cyclists; *'you see this quite often when the cyclist is like I want to get past and I want to do it now, with two of them (cyclists) it's alright but often you get clusters of about three or four it's just like, I'm going to step to one side now'*. Respondent 2C describes a similar situation but from the point of view of the path user moving in the opposite direction to the oncoming bunching cyclists (Image 9, sequence 1-3 below). She perceives the bunching cyclists coming towards her 'like a bulldozer effect' and she explains that they do not allow enough space and she is forced onto the grass verge;

*'I mean that is ridiculous, that is so typical on that path... they're all so desperate to get passed those people walking, they don't pay attention to other people, to me really, coming in the other direction, they're all bunched up, they can't see what they're doing...'*

*And how did that make you feel? [Interviewer]*

*'...angry, angry (laughs), nobody ever says sorry, I mean they were literally in front of me and push me to the side, they didn't move, didn't adjust to where they were going at all, just carried on like a bulldozer effect' (R2C)*

## Image 9 - Bunching Cyclists

1. Bunching cyclists overtaking two pedestrians and coming towards research participant



2. Bunching cyclists beginning to pass research participant in opposite direction





3. Participant now cycling closer to the grass verge, still being passed by bunching cyclists



The most common manoeuvre that was discussed by the pedestrian respondents involved ensuring to walk in a straight line and keep out of the way of cyclists by walking on the grass verge at the side of the path; *'I walk on the verge quite a lot and stay out of the way'* (R10P). The pedestrians described moving out of line as something dangerous, they expressed their concern for 'stepping out' and 'going out there'. This adds to Goffman's concept of territory (1972, presented in Section 3.3) which explores perceptions of 'personal' and 'use' space; this is further discussed in Section 6.3.3.

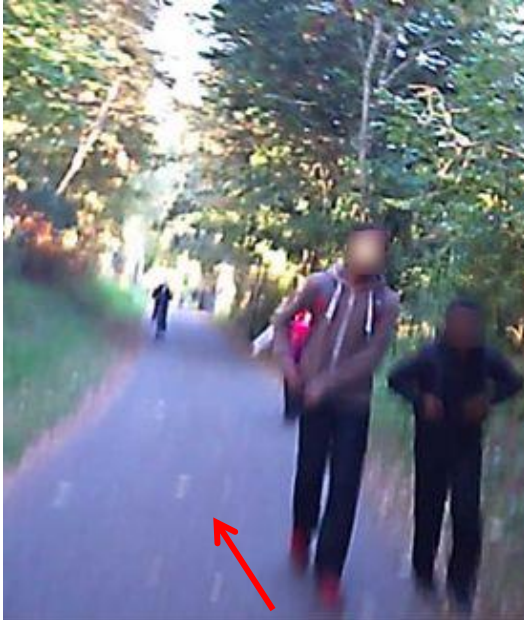
Anywhere outside the pedestrians' line was perceived as the cyclists' space, so much so that a common form of overtaking reported by the pedestrians included moving off the path onto the side verge instead of overtaking on the path. For instance, when discussing the manoeuvre in Image 10 (sequence 1-4) below, Respondent 10P talks cautiously about 'going out there' to the middle of the path to pass a pedestrian coming in the opposite direction. He explains that this manoeuvre (in Image 10) would not have occurred if there was a cyclist coming behind him:

*'I look behind me to check for cyclists before going out there, and if there had been a cyclist coming behind me I probably would have stepped on to the verge and walked around the pedestrians that way instead of walking out into the path...yes I'm very wary of just changing my course without looking behind me or what have you'* (R10P).

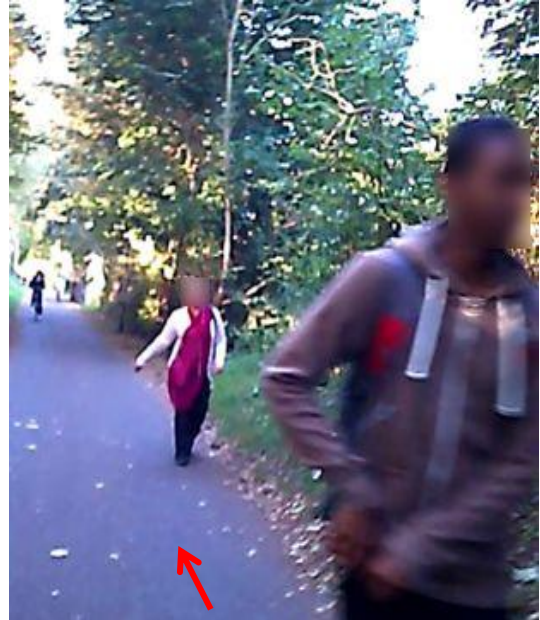
### Image 10 - Pedestrian passing oncoming pedestrians

(Red arrow indicates the route taken by the research participant)

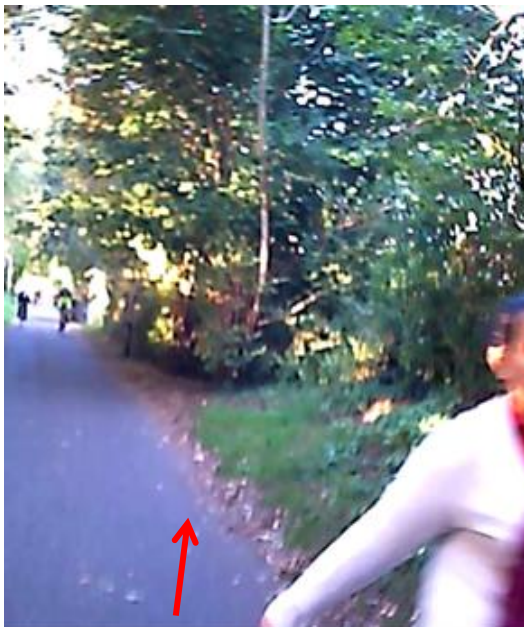
1. Moving towards middle of path



2. Passing oncoming pedestrians



3. Passing oncoming pedestrians



4. Moving back to right hand side of path



When Respondent 11B (below) is discussing overtaking he explains that it makes him feel nervous if he has to overtake on the path. He alters his movements based on this nervousness by squeezing past the person he is overtaking, he voices his concern that this may negatively impact on their journey by encroaching on their personal space. Nevertheless, he does this to ensure he stays out of the way of potential cyclists. Thus his uneasiness about moving into the cyclists' space impacts on how he interacts with other pedestrians, creating a potentially uncomfortable situation for the path user which he is overtaking;

*'If there isn't a bit of grass to step out on you have to go around the outside [towards the middle of the path] and that always makes me slightly nervous because if I think it's safe to squeeze past then I do and squeeze past to leave a channel on the outside and then you think, do they feel like I'm invading their personal space, I could be walking right over there but I'm not I'm squeezing past but I'm afraid that's what I do to stay out of the way of cyclists' (R11B)*

Respondent 12P's description of overtaking on the path echoes this nervous feeling, she describes her panicked state as she attempts to overtake and stay out of the way of cyclist path users; *'as I was walking past them [other pedestrians] here there's a very narrow bit for the cyclists, and I was like going, walk faster walk faster, so that there's more room for them [cyclists]'*. These findings suggest that pedestrians do not have a strong sense of space ownership on the path and there are concerns and nervous feelings about moving out of their perceived space and 'stepping out' into the perceived space of the cyclists. These accounts presented by the pedestrian respondents are in contrast to the finding presented in Section 5.3.5 that there is a common perception among the respondents that pedestrians on the path do not pay attention and often wander across the path. It should be noted here that the issue of pedestrians lacking a sense of space ownership may be related to the timings of the research; this may be predominantly a peak time experience (more discussion on this in Chapter 6.0).

### **5.2.2 Processes associated with interactions**

The interview findings highlight that the ways in which the respondents reported engaging with other path users, during the particular types of interactions outlined above, and generally while sharing the path, are associated with particular processes. There are multiple mobile processes which take place between path users when they are sharing

space. The processes involve complex factors such as; attempting to read and predict other path users based on varying levels of trust and judgement; perceptions of particular types of path users; preferences of levels of engagement with others; path users' awareness of how they present themselves and the impact this can have on journey experiences. Walking/cycling equipment and the use of bike bells were also reported as having an impact on how path users interact. These factors are linked to the theory relating to strategies of mobile negotiations (outlined in Section 3.3); for instance the work of Goffman (1972) and Simmel (1971), and more recently Kellerman (2006) and Jensen (2010). This theory is further discussed in Chapter 6.0. The processes involved in how the participants reported experiencing and negotiating interactions on the path are presented below.

The necessity to trust and judge other path users was a common theme voluntarily raised by the interview respondents. This relates to Goffman's (1972) work which explains that trust is a major factor of how individuals share public spaces (see Section 3.3). For instance Respondent 7B says; *'So you have to sort of judge whether somebody is going to...where they're going to be at in relation to the other people and what they're going to do in front of you... it's a big judgement call'*. It was expressed that in order to attempt to safely and efficiently use the path the respondents were required to judge and trust the movements and abilities of other path users and thus take a risk by determining their actions on these judgements; the respondents showed a variety of levels of trusting in other path users. These 'judgement calls' occur between all path users, cyclists and pedestrians. Visible behaviour and cycling equipment were two common influencing factors on the respondents' judgements of other path users. For instance, Respondent 11B reports that he reacts to pedestrians based on his reading of their movement; *'a pedestrian won't just veer across...a pedestrian will just gently float across so you can anticipate what they're doing from some way off'* (R11B).

Similarly, Respondent 6C's judgement and following actions in the situation below, are based on his interpretation of the visible behaviour of an unsteady cyclist and on the perceived skill of an oncoming cyclist due to their cycling equipment;

*'Yeah, she was doing her thing and wobbling around a bit, I see this guy coming and he's got a half decent bike he's got panniers, he looks like he knows what he's doing...I'm kind of just thinking, you know we're all ok here , like everyone knows what they're doing'* (R6C)



Respondent 6C is approaching a pair of cyclists, cycling in single file. When viewing the video it is evident that the cyclist in front of R6C is not cycling in a straight line and is unsteady (Image 11 below), respondent 6C perceives this cyclist as 'wobbling' suggesting he is unsure about overtaking. However, due to R6C's reading and perception of the oncoming cyclist (circled in Image 12) he overtakes the 'wobbling' cyclist. Respondent 6C trusts in the oncoming cyclist with 'a half decent bike and panniers' to have the ability to manoeuvre the encounter safely and R6C's decision on how to negotiate the situation is based on this. This account highlights that the path users' behaviours and negotiation decisions can be influenced by their perceptions of the abilities of other path users; in this case these perceptions are linked with R6C's association between cycling equipment and cycling ability.

**Image 11 - Approaching 'wobbling' cyclist**



**Image 12 - Overtaking and judging oncoming cyclist**





Whereas Respondent 10P explains a situation (Image 13 below) where he would have expected the passing cyclist (visible in image) to have made a more sensible 'judgement call'; in this situation Respondent 10P explains that the cyclist had 'greater clarity of what was going on' and thus the respondent's expectation is that he should be able to trust in the cyclist to take responsibility for the situation.

*'I mean he caught me by surprise actually that time, yeah most cyclists would hang back at that point not knowing if I was turning right or straight on...he's coming up behind me and obviously had greater clarity of what was going on than me being aware of him behind me' (R10P)*

**Image 13 - Overtaken by a cyclist and being 'caught by surprise'**

(Red arrow indicates the route taken by the cyclist in image)



Another common discussion topic was the importance of trusting other path users to provide signals of communication. For instance, after ringing his bell at a pedestrian, one cyclist highlights the importance of receiving a signal in response so that he can make a decision about his movements;

*'I'm waiting for some reaction from them to show that they've heard it...if I don't see any kind of reaction like a move aside or sometimes a glance over the shoulder then I will definitely slow down' (R5C).*

Trusting oneself was also highlighted as a factor which influences how path users negotiate the space. Respondent 6C takes responsibility for his encounters with other path users and

trusts that his own cycling abilities will ensure that the interaction is a safe one; *'yeah basically I stupidly fully trust my own abilities and I therefore assume whatever the situation... I'd be confident that I'd be able to just slam on my brakes and jump onto the grass or whatever, I don't feel like I'm putting anybody in danger'* (R6C). Thus, the respondents are required to make judgements about other path users in order to negotiate the space; they must put trust in themselves and other path users to behave sensibly in a situation where they may not be in the best position to read the situation. One explanation for this requirement of shared-path users to make judgements of others, in order to determine their actions, can be related to the ambiguous regulatory and policy setting of shared-use paths (set out in Chapter 2.0) this point is discussed further in Chapter 6.0.

The respondents also highlighted differences in the way they react and interact with certain types of path users. The findings presented below further add to the social identity perspective (Tajfel and Turner, 1979; 1986 and Turner *et al.*, 1987) and the concept of social categorisation; involving cognitive processes whereby individuals place themselves and others into 'in' and 'out' groupings. This literature is presented in Section 3.4.2 and discussed in more detail in Section 6.3.1. The respondents discussed particular determinants for interacting with others, these included: mode, speed and perceived friendliness. For instance, Respondent 7B's explanation of passing the cyclist visible in Image 14 below suggests that she engages more with other cyclists than pedestrians on the path.

*'I smiled yeah...quite often I will because I think, oh well they're doing the same thing and it gives you that something in common...I'm more likely to look at the cyclists a bit more than the pedestrians I think'* (R7B)

**Image 14 - Passing and engaging with fellow cyclist**



Respondent 9B also experiences this collegiality with path users of the same mode; she describes it as being part of a 'cycling family' and explains that when she is cycling on the path she will interact differently with cyclists;

*'It can be really nice [saying good morning] you don't get it as much with pedestrians it's usually cyclists that say hi, it's almost like you're part of the cycling group, a cycling family, so that's quite nice' (R9B)*

Respondent 6C takes this further by specifying that he gives more acknowledgement and has more interaction with certain types of cyclists who he specifically identifies with. His identification with other cyclists is determined by his categorisation of them based on their clothing and cycling equipment. The respondent asserts that he identifies with and interacts more with those that are 'Lycra-d up' rather than those who are cycle commuting or riding mountain bikes;

*'Yeah, like if you see a guy or a woman fully Lycra-d up and you're fully Lycra-d up there's generally like a kind of 'hey, we're part of the same gang' or whatever, community, but not so much so with a mountain bike and me in my cycling gear, or a commuter, just mostly between people who have a smart bike and the gear, there seems to be that little bit of acknowledgement ...like I'll say hello or nod or wave or whatever' (R6C)*

Respondent 1B also distinguishes between particular types of cyclists and path users when discussing her interactions. She explains that pedestrians and 'normal speed' cyclists are more likely to interact than 'race speed' cyclists. She notices differences in interactions between path users based on the perceived speed category they fit into;

*'I would say that pedestrians would be more inclined to look up and speak...although cyclists that are cycling at what I would say normal speed, you know, not at race speed...there's usually a difference between the gear and the non-gear' (R1B)*

Alternatively, Respondent 8B and Respondent 13P suggest that they engage differently with path users based on how friendly or welcoming they look rather than on their mode. In the context of interacting with people on the path Respondent 8B explains that she 'can pick up on attitudes from people' and 'can tell if somebody is a bit more welcoming and friendly than somebody else'. Respondent 13P also explains that her engagement with other path users is determined by how friendly the other path user is, she says that she would be 'ready to

*...speak if they go to speak but I wouldn't seek it out or anything, I'd take the lead from them I think'. Thus respondents identified with other path users based on factors such as mode, speed and perceived level of friendliness, due to this identification they reacted to them in a particular way. These processes of social interaction can be interpreted through Social Identity Theory, this is outlined in Section 3.4 and discussed further in Chapter 6.0.*

Another aspect which impacts on how the respondents interact on the path is their preferences of levels of engagement. When asked about the importance of interacting with and making eye contact with other path users the respondents generally fell into two groups. The first are those that feel there are not enough interactions between path users; they think it is important and makes the path more enjoyable to use. For instance, Respondent 4C associates eye contact with 'warmth' and 'acknowledgement' and interprets other path users as 'strange' when they do not engage in that way. She gives an account of a pedestrian who does not make eye contact when passing (Image 15). This has a negative effect on her experience and she describes the other path user adversely as a 'zombie defiant character':

*'It really annoys me when people walk towards me and it's like dawn of the dead or something, these zombie defiant characters...you don't get eye contact from them, they've obviously seen that you're coming but there's no warmth or acknowledgement there which I think is strange. It leaves that kind of cold, like people talk about that actively avoiding someone's gaze on the tube, it leaves a little taste of that' (R4C)*

**Image 15 - Pedestrian not making eye contact**



Similarly, Respondent 1B expresses the importance of eye contact, she says that she 'hates' when people avoid making eye contact. The respondent's point is that it is important to engage with people in order to maintain a sense of community, according to R1B:

*'It's something we're losing in society...I think it's really important for your community and actually for getting to know people and keeping things friendly, I think it's really important, you know it doesn't have to be held eye contact, a glance and a smile or a 'morning' goes a long long way actually, it does for me anyway'*  
(R1B)

Alternatively, there were also respondents who revealed that they prefer not to interact with other path users; they do not see it as part of the social norm to make eye contact with or engage with other path users. Respondent 11B highlights his interpretation of making eye contact or having a verbal exchange with another path user when he says;

*'I suppose I could sort of catch someone's eye and give them a grin 'good morning' [laughs] but you just get the feeling that they'd go [scrunches up face] who are you?'*  
(R11B)

This is not perceived as normal behaviour by the participant and he expects others to respond in this negative way. Respondent 8B also shows that this kind of interaction is not perceived by her as normal; she emphasises that she does not 'stare' at others on the path. She presents this kind of behaviour as abnormal;

*'I tend not to [make eye contact] because I am quite a shy person and I don't stare at strangers' (R8B)*

Respondents also spoke of times in the past when they had an interaction on the path, but this is spoken of as a memorable event and not something that is part of their normal journey. They described the situation as out of the ordinary, leaving them unsure of how to react. The account given by R9B below highlights this; she shows concern when describing her initial reaction. She describes the encounter as one would describe a shocking encounter.

*'Well somebody was obviously out for a charity collection, there were three girls walking from Bristol to Bath and I didn't know what they were doing...and they stopped me, and you think for a minute oh what's happening here...always that kind of initial reaction 'oh what's going on' [concerned] and then when you find out*

*somebody's not trying to sell you something you're ok' (R9B)*

Similarly, R8B recalls another path user smiling at her; she talks about this as if it is a rarity. She expects that there must be a reason for this; 'because of the camera or because I know him', rather than expecting that another path user may want to be friendly and create a sense of community, as discussed by R1B above; *'One guy on his bike smiled and I'm not sure if I knew him, I wasn't sure if he was smiling because of the camera or because I know him, I don't know [laughs]' (R8B)*. The point here is that for some respondents, engaging with other path users is a very rare occurrence, so much so that a smile or a verbal exchange is viewed as a notable occurrence.

The impact of walking and cycling equipment was also a theme which emerged throughout the interview discussions. Respondents discussed the impact of equipment and technologies, such as mobile phones and music/headphones, on their interactions. It was highlighted as an inhibitor (both intentionally and unintentionally) of social interaction, it was also pointed out that cyclists were often 'over-equipped' and thus making them more difficult to share the space with. For instance, the account given by Respondent 2C below suggests that she perceives some aspects of cycling equipment as having a negative impact on interactions. She suggests that there are often cyclists that do not give way or make any interactions and this is because their clip-in shoes make it difficult to do so. Respondent 2C perceives cyclists with this type of equipment (clip in shoes) as 'completely in the bike'. This is similar to descriptions often ascribed to motorists in their 'metal boxes'. By describing cyclists in this way the respondent is portraying them as distant from other path users and closer to their bikes.

*'But of course if you've got clip in shoes it's actually really difficult to stop suddenly, and they create such a momentum and they're completely in the bike so if you try and take your foot out...people can't slow down because they're over equipped for maybe a cycle path like that because to me clip in shoes are not really appropriate for commuting, especially if you need to stop and start' (R2C)*

Other respondents stated that they use particular strategies to intentionally avoid interaction with other path users. One respondent wears headphones and listens to music when she is walking so that she then has an excuse to avoid 'attention that's unwanted';

*'I'm a bit of a shy person so I tend not to make eye contact. And particularly when I'm a pedestrian because you don't necessarily want to encourage attention that's unwanted. That's one of the reasons why I like to listen to music because if somebody does approach you you've got an excuse for not having heard what they've said' (R8B)*

Respondent 7B's reaction below to a pedestrian listening to music and using their mobile phone echoes the response by many respondents to the use of earphones and other technologies which limit your senses and thus ability to communicate;

*'He is just looking down at the screen...a screen and earphones [laughs], that's eyes and ears out isn't it? So you have to have a scent going ahead of you to say I'm coming!' (R7B)*

The use of bike bells to communicate to other path users was also a common discussion point amongst the respondents. Generally, the attitude towards bike bells was positive throughout the interviews;

*'I think it's brilliant, I think oh ok cool, someone is coming up behind me and they want to go past, I'm going to tuck in to the left and let them go' (R6C)*

*'It does help because people know you're coming and they move, they're expecting something' (R5C)*

However, the respondents also highlighted two contrasting interpretations of using bike bells: 'letting people know you're coming' and ringing the bell 'expecting you to get out of the way' (R1B). Respondent 10P explains that initially when he hears a bike bell he reacts negatively. However, on reflection, he accepts it as a sign to make him aware of the oncoming path user;

*'My instant reaction when I hear one is why are you ringing that I'm not in your way and then you think no actually they are important, it's not about saying get out of my way it's about making people aware, but my gut instinct is to be angry about it' (R10P)*

As outlined above, the general attitude when discussing the use of bike bells was positive, however there were respondents who highlighted their initial negative reaction when they

hear a bell; there are contrasting interpretations of what ringing a bike bell is actually communicating.

The final process which emerged as an influencing factor on how the participants interact with others on the path was their consciousness of how they would be perceived by others. There were respondents who highlighted an awareness of themselves in relation to how their actions impact on other path users. This was linked with wanting to present oneself in a positive light to path users of a differing mode, due to an alertness of perceived/real tensions between cyclists and pedestrians. This relates to Goffman's (1959) dramaturgical framework and theory on the 'presentation of self', this is outlined in Section 3.3 and further discussed in the next chapter.

*'Yeah at this bit I'll give way for them [cyclists] if they want to turn right and yeah you know you get appreciation for that as well, if I let them go I'll get a thank you, you know it spreads the love and it's a good thing to do' (R11B)*

*'To me it's really important for there to be no conflict between cyclists and pedestrians and that's even stronger now because I know how people get really irate about it...when they hear somebody moaning about inconsiderate cyclists they'll say 'oh well I was on the cycle path the other day and this guy rang his bell and he said thank you' and so I'm feeding stories and anecdotes about considerate cyclists' (R5C)*

*'I'm anxious to always make sure that everybody is happy and nobody is at a disadvantage ...I find when I'm cycling, I'm so aware of all the letters that I've read criticising cyclists that I just want to try and be polite and treat people as I'd like to be treated myself as a pedestrian' (R8B)*

However, mode was not always the motivating factor, for instance R1B shares her worry about negatively impacting on another cyclist's journey;

*'...the last thing you want to do is bother someone...so this guy overtook me and then kind of slowed down and we were riding at the same pace ... it was like oww we're really close together ...in the end I overtook him and he was right on my wheel the whole way ... then I was thinking, ok is he doing that because I've annoyed him or is it because we're going at the same pace' (R1B)*



### **5.2.3 Key findings**

- The majority of interactions experienced by the survey respondents were neutral or positive. However the interview discussions highlight that the types of interactions are more complex than can be addressed in a quantitative survey.
- Common types of interactions uncovered in the interview discussions include:
  - Changing pace to negotiate a situation and causing potential unease for other path users.
  - Bunching up of cyclists causing evident anger and unease to the interview respondents.
  - Pedestrians stepping into the verge of the path and the identification of issues surrounding space ownership.
- The findings highlight that the respondents are required to rely on their trust and judgement of other path users in order to attempt to read and communicate their manoeuvres and thus try to navigate the shared space effectively. Respondents showed varying levels of trust and often their readings of others were not necessarily accurate.
- The respondents' reactions to mobile encounters are influenced by their perceptions and interpretations of particular types of path users based on mode, speed and perceived level of friendliness.
- There are contrasting preferences and perceived norms about the appropriate/desired level of engagement with other path users; walking and cycling equipment acts as both an intentional and unintentional restriction to engagement.
- There were respondents who highlighted that they are alert to how they present themselves in the shared space and the impact it can have on other path users.

### **5.3 Experiences of sharing the path**

Q2. How do path users experience and share the path?

The findings for this research question show that the majority of respondents agreed to being alert to their inner and outer mobile sensory experiences, however there are some differences between cyclist and pedestrian experiences. The physical sensory experience is more dominant for cyclists whereas the visual senses are more dominant for pedestrians. In relation to attitudes to sharing the path, the survey findings revealed that a high percentage of all participants responded positively to statements about sharing the path with others. However, over half of all survey respondents also agreed to being frustrated by the actions of another path user. The interview discussions revealed further that there is a deeper layer of shared path relations taking place than is uncovered by the survey questions; respondents highlighted that there are particular expectations, frustrations and negative perceptions developing between path users which are impacting on how they share the space. The respondents' differing mobile sensory experiences and their attributions to sharing these experiences with others on the path are presented below.

#### **5.3.1 Mobile sensory experiences of walking and cycling**

In order to examine how cyclists and pedestrians interact and impact on each other's journeys it is firstly important to understand how each mode experiences their journey and whether or not there are any differences/similarities. The findings presented in this section relate to the mobilities literature (outlined in Section 3.2) which focuses on the embodied, sensory and corporeal aspects of mobile journeys.

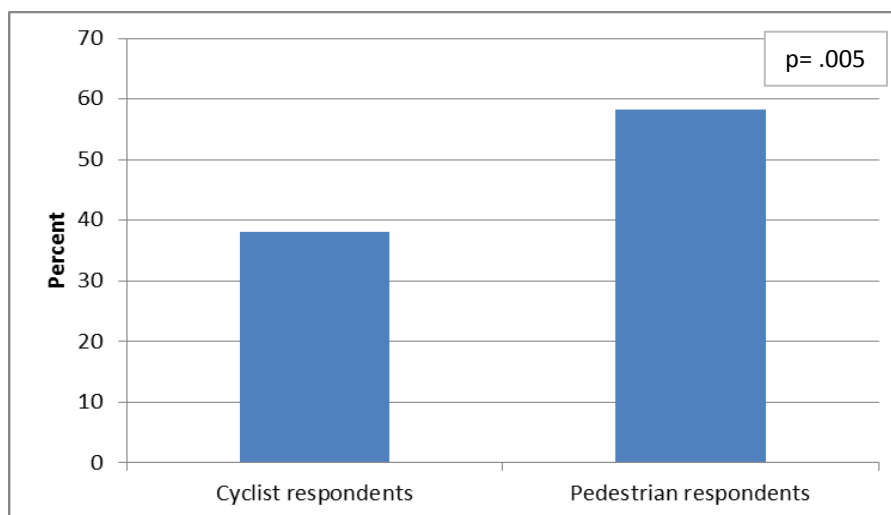
#### **Survey findings**

Respondents were given a scale of options and asked how strongly they agree/disagree to certain statements about their journey experiences. The findings show that 99.0% of respondents agree that they are aware of their physical surroundings while travelling on the path, 98.7% reported being aware of other path users and 91.9% said they were aware how their body was moving. Thus a high percentage of all path users agreed to being alert to their outer and inner mobile experiences. However, fewer respondents (55.6%) agreed that

they get lost in their thoughts and that they get frustrated if their journey doesn't flow as freely as they would like (43.5%).

Similar levels of awareness were reported by the respondents from the segregated survey site, however the main difference between the segregated and non-segregated datasets was related to 'getting lost in thoughts' and 'mode'. At the non-segregated survey site a higher percentage of pedestrian respondents (58.9%) reported getting lost in their thoughts than cyclists (52.3%), however the relationship between mode and getting lost in thoughts is not significant. However, the results from the segregated survey site do show a significant relationship ( $p=.005$ ); pedestrian respondents at the segregated survey site are more likely to get lost in their thoughts than cyclists (see Appendix 6 for further details of statistical test). A higher percentage of pedestrians (58.2%) reported getting lost in their thoughts than cyclists (38.0%) at the segregated survey site (see Chart 2 below).

**Chart 2 - 'I get lost in my thoughts' (segregated survey site)**



**Table 14 - Chi-square test, mode and getting lost in thoughts**

Chi-Square Test	Chi-Square Statistic	df	P value
Pearson Chi-Square	8.062	1	.005

### ***Interview findings***

In support of the quantitative findings above, when asked about getting lost in their thoughts all seven of the pedestrian interview respondents agreed that it occurs while using the path, they talk about 'having a bit of a dream' and the fact that 'you can turn off'. For instance Respondent 9B explains: *'oh yeah definitely, I just lose complete sections of the*

*path*’ and R13P similarly explains *‘oh it happens all the time, frequently I’ll just think about things I’m involved with and the family and I get completely involved in my thoughts’*. R14B explains that during one section of his journey he was daydreaming about what the path was like when it was a railway line *‘imagining what it was like years ago’*.

The cyclist respondents on the other hand had a variety of differing reactions to this question. For instance R2C states: *‘no way... I find that I’m concentrating so much on not getting knocked over and not knocking anyone else over that that’s definitely for me the focus’*. R3B states that factors such as the weather will determine his level of alertness; *‘when it’s wet I’d pay more attention to things like the corners and things, when it’s dry absolutely you could get home and think I don’t remember half that journey’*. There were cyclist respondents who discussed getting lost in their thoughts in certain situations: *‘when you can see into the distance you’ve got a lot more weight off your mind and you’re kind of...you let your mind drift a little bit more’* (R4C) and: *‘more so probably on the way home because I don’t have to focus as much on other people because it’s a quieter time of day’* (R1B). Thus a common response from the pedestrians was that they do get lost in their thoughts while walking on the path, whereas the cyclists explained that it happens less frequently and only in certain situations.

*‘I’m far more physically aware when I’m cycling, you have to be’* (R11B). When asked about their awareness of their physical movements during their journeys on the path the cyclist respondents gave more in-depth responses and related to this topic more than the pedestrian respondents. When describing their mobile journeys the cyclists discussed common themes such as momentum, flow and balance; *‘Ideally if I’ve got a good pace on I want to maintain it’* (R6C). A theme of discussion throughout the cyclists’ journey accounts was the issue of momentum and the aim to avoid ‘breaking pace’. For some respondents this had an evident impact on their interactions with and reactions to other path users. For instance, Respondent 1B explains a situation where she cycles close behind another path user, waiting for an opportunity to overtake (Image 16, sequence 1-3). She reports that she cycles closer behind them than she would usually feel comfortable with, in order to avoid losing her momentum, until it was finally safe to overtake:

*‘So here yeah I don’t normally like to get this close to people, so because you’re going uphill I didn’t want to break my pace too much here because it’s really hard to get going’* (R1B)

## Image 16 - Avoiding breaking momentum

1. Participant cycling close behind another cyclist to avoid breaking pace



2. Waiting for an opportunity to overtake



3. Overtaking



The way in which R6C (Image 17 below) interacts with another path user is also influenced by his goal to avoid slowing down and to maintain momentum. When he approaches another cyclist from behind he tells them to 'get out of the way' so that he can avoid breaking his momentum:

### Image 17 - Avoiding breaking momentum

#### 1. Participant approaching cyclists



*'I'm thinking look, I'm working pretty hard here and I'm going quite fast, I don't want to have to lose my momentum, you two are cycling two abreast and I don't want to have to slow down for you...' (R6C)*

#### 2. Participant asking cyclist to move out of his way



*'...so I got up behind him and told him to get out of the way... it's hard work to build up speed and so like if you're constantly having to stop you lose that, the momentum...ideally if I've got a good pace on I want to maintain it' (R6C)*

Cyclists also talked about the importance of maintaining their cadence/rhythm and in turn maintaining the 'flowing feeling' by focusing on one aspect of their movement; *'so that kind of like flowing like carving around feeling'* (R4C). The focus here is on the movement of their legs and ensuring an efficient rhythm. Respondent 3B describes this aspect of cycling as:

*'...being a more meditative thing... turning the pedals around and focusing on the miles you have ahead of you, just trying to focus on one element of it...trying to focus more on keeping the cadence the same and that sort of thing...trying to keep a constant speed of your pedals going around by using the gears'* (R3B)

Similarly Respondent 6C talks about the importance of maintaining this rhythmic flow by focusing on the cadence;

*'I love just like looking down at my legs and just seeing them pumping like pistons in a car or an engine...here I'm thinking am I in the right gear, are my legs going around fast enough, could they be going around just as fast but in a harder gear, or should I be in a lower gear'* (R6C)

Respondent 5C (below) also explains that in order to get through the harder sections of his ride he focuses only on the movement of his legs, his descriptions again are similar to the meditative aspect referred to by R3B above.

*'I make sure I use my legs and not my breath, that's when I realised I could be a lot more efficient, by focusing my mind on the movement of my legs rather than thinking about breathing so I try to maintain an even level of breathing and make sure that my body's energy is going more into my legs than it is into the breathing'* (R5C)

Thus cycling is presented here as a meditative action, and the respondents talk about focusing in on one aspect of their movement. However, R2C provides an alternative view on this ideal state of rhythmic and meditative cycling. When describing a section of her journey there is a tone of panic:

*'oh brake...must speed up, oh get out of the way, into the side , someone's going to hit me, you know it's not the idea of a flowing journey being nice and smooth that's not how it is really'* (R2C)



On the other hand, one aspect of the mobile journey which was more prominent in the pedestrian accounts compared to the cyclist accounts was the awareness and appreciation of the visual senses:

*'Every time they cut down a tree we notice and then we moan about it going...you do notice how things change, like they've recently cut down some trees and they put the notice up and you're like, oh why' (R12P)*

*'Now, ah, there was a reason I stopped there for a few seconds. There's a patch of clovers there and in the past I've found four leaf clovers ...I definitely keep a look out, all along the path but that has been a very productive area...it does enhance it [the journey] definitely' (R13P)*

Also, even though the pedestrian respondents talked less about the details of the physicality of their walking journeys, they did refer to being 'in the zone' and developing a rhythm, similar to that of the cyclists above. A common account of this rhythm was that an interruption of it was seen as negatively affecting their journey. R9B refers to the importance of being 'in the zone' and points out her dissatisfaction with being interrupted from this; *'I don't know, I just don't like being interrupted...when I'm on my own I like to get in the zone and walk'*. When she is in this zone she often begins to jog, however this is not something that she is consciously aware of, she is involved in the rhythm of her walking and; *'now and again I work into a little jog'*. Respondent 12P also indirectly refers to being 'in the zone' when she talks about a section where her rhythm was interrupted due to switching sides with her partner and then being less able to deal with an oncoming cyclist as she had not settled back into her walking rhythm; *'as we swapped he kind of came along [oncoming cyclist] and we hadn't really fallen back into the rhythm of where we were on the path and I was like oooh you're very close'*.

One factor which was prominent throughout both the cyclist and pedestrian interviews, when discussing the mobile sensory experience, was that the respondents evaluate their mobile experience and performance in the context of others on the path. A variety of contrasting responses to interactions and thus self- evaluations were evident. For instance, there were respondents who highlighted how other path users brought particular aspects of their journey into focus. Respondent 13P explains that she was not particularly aware of the physicality of her walking journey, however by sharing the space with others and being aware of their actions, this brought into focus a more physical aspect of her journey;



*'some people do power walking, speed walking, where they move their arms, now I don't generally do that but if I saw somebody do it I might think oh shall I try that for a bit' (R13P)*

Also, a common point of the cyclists' explanations was how other path users helped to give them perspective on their behaviour and performance; respondents reacted differently to this depending on how they interpreted the other path users' actions. For instance, Respondent 4C explains positively that it gives you a perspective on *'how fast you're going and how slow you're going, and how capable you are, how much better at cycling you could be'*. Respondent 6C however, is threatened by the actions of another path user travelling at a different speed to him on the path, he reacts to this by speeding up and overtaking another path user in order to catch the faster cyclist, even though he is aware that the manoeuvre space is tight;

*'Well I see a man or woman in Lycra and in my mind it's like race, got to get to them, got to catch them, got to go past them, people don't overtake me I overtake people and so I know that there's not a lot of space, I know that this girl is coming on and it's her right of way... but it's like, again I've got my momentum going, I'm catching this guy' (R6C)*

R11B's perception of himself and another path user sets him in a similar situation to R6C; however he reacts differently and does not speed up;

*'I don't get overtaken on my bike very often but when it does happen I gasp, this guy just glided past me, he wasn't even crawling by he just left me in the dust [laughs], it makes me feel bad, inadequate, have to train harder... but you must never react because that makes it look as if you care, inwardly you're burning but you know... 'oh of course I'm not, I've got a fixed training pace, I'm not even going to get involved with you' [laughs]' (R11B)*

Another finding here is the distinction between cyclists and pedestrians; during the interviews the pedestrian respondents did not show any signs of this competitiveness or comparing themselves and other path users based on speed and ability such as the examples above (R6C and R11B). One pedestrian respondent did however explain a situation where she compares the actions of other path users in order to gain reassurance that her actions on the path (walking two abreast) are acceptable. This is in comparison to

R6C's and R11B's accounts above, where their reactions and behaviours are influenced by other path users rather than their behaviours being reassured by other path users.

*'I mean sometimes when I see people and they walk next to each other ... it's fine if they're not taking up too much space, so it's nice to see that they're greedy of the path as well!'* (R12P)

There are differences in the prominence of certain mobile sensory experiences had by the cyclist and pedestrian respondents. Pedestrians are more likely to get lost in their thoughts and discussed the visual mobile experience most when asked about their sensory experience, whereas the cyclist respondents had more to say about the physical aspects of movement. There were similarities in their experiences however, in terms of self-evaluation. Thus these findings address the personal mobile experiences; presented next is a further insight into how these experiences are affected by interactions with others on the path.

### 5.3.2 *Attributions to sharing space*

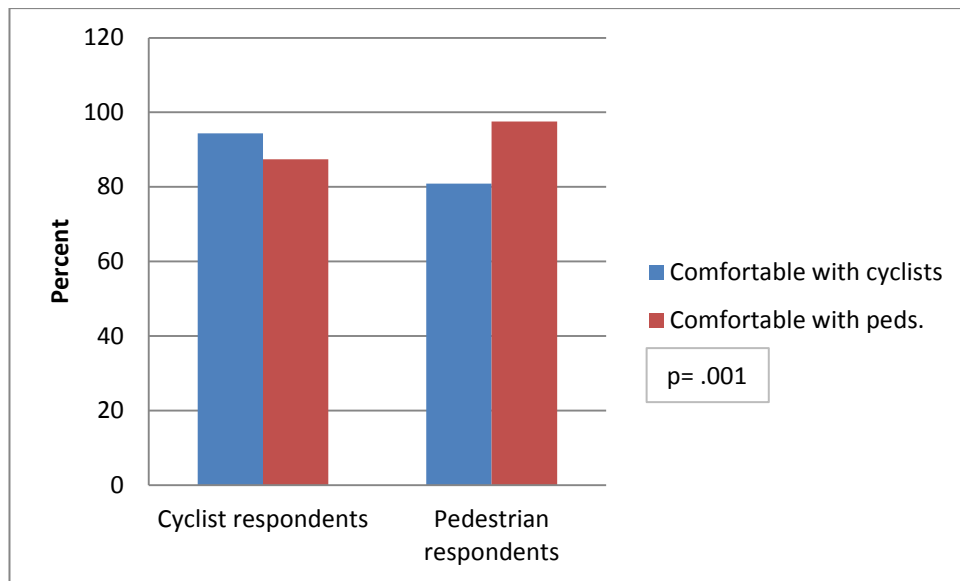
Respondents were asked how strongly they agree/disagree with a selection of statements about sharing the path with other users; these results show that a high percentage of respondents (over 80% for almost all parts, see Table 15) agreed that they feel comfortable sharing the path with others, find other users considerate and agree that cyclists and pedestrians get on well. However, in another survey question over half (52.3%) of respondents reported being frustrated by the actions of another path user see Section 5.3.3 below). Over 80% may agree to positive relations on the path yet there are still underlying tensions if 52.3% reported being frustrated. Also the interview results highlight that respondents have developed particular negative perceptions about other path users which are impacting on their journey experiences.

**Table 15 - How strongly do you agree/disagree with the following statements?**

	Agree		Disagree		n
	Freq.	%	Freq.	%	
A. I feel comfortable sharing this path with cyclists	345	87.6	49	12.4	394
B. I feel comfortable sharing this path with pedestrians	365	92.4	30	7.6	395
C. Cyclists and pedestrians generally get on well on this path	319	80.8	76	19.2	395
D. Most cyclists on path are considerate of other users	315	79.9	79	20.1	394
E. Most pedestrians on path are considerate of other users	329	83.7	64	16.3	393
F. More enjoyable if cyclists and pedestrians were separated	148	37.9	242	62.1	390

There is a significant relationship between mode and feeling comfortable sharing with cyclists ( $p=.001$ ). Similarly, there is a significant relationship between mode and feeling comfortable sharing with pedestrians ( $p=.001$ ). A higher percentage of the cyclist respondents reported feeling comfortable sharing the path with cyclists and a higher percentage of pedestrian respondents reported feeling comfortable sharing with pedestrians (see Chart 3 below and Appendix 6 for further details of statistical test).

**Chart 3 - Comfortable sharing with cyclists/pedestrians split by mode**



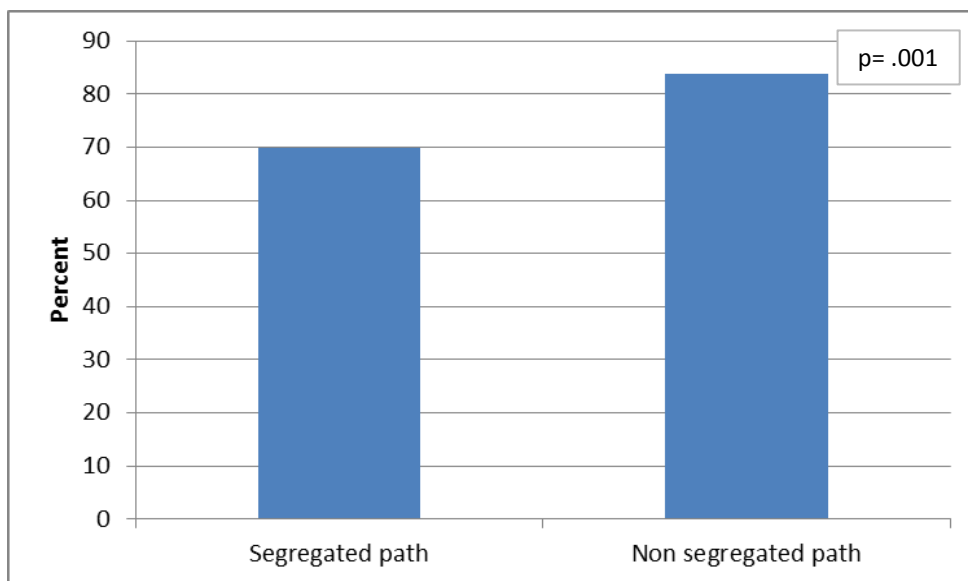
**Table 16 - Chi-square test, comfortable sharing with cyclists/pedestrians split by mode**

	Comfortable with cyclists		
Chi-Square Test	Chi-Square Statistic	df	P value
Pearson Chi-Square	16.372	1	.001

Comfortable with pedestrians		
Chi-Square Statistic	df	P value
14.320	1	.001

Also, when path type is considered and both the datasets from the segregated and non-segregated survey sites are combined a significant relationship is uncovered between how strongly respondents agree/disagree that most pedestrians are considerate and path type ( $p=.001$ ). At the non-segregated survey site 83.7% of respondents agreed that pedestrians are considerate whereas a lesser 69.9% of respondents on the segregated survey site agreed that pedestrians are considerate (see Appendix 6 for further details of statistical test). There is no significant relationship between path type and responses to the ‘consideration of cyclists’ question. Thus, path type has a significant impact on the respondents’ attitudes towards sharing the path with pedestrians.

**Chart 4 - Agree that pedestrians are considerate**



**Table 17 - Chi-square test, path type and consideration of peds.**

Chi-Square Test	Chi-Square Statistic	df	P value
Pearson Chi-Square	14.881	1	.001

### 5.3.3 Frustrations – survey findings

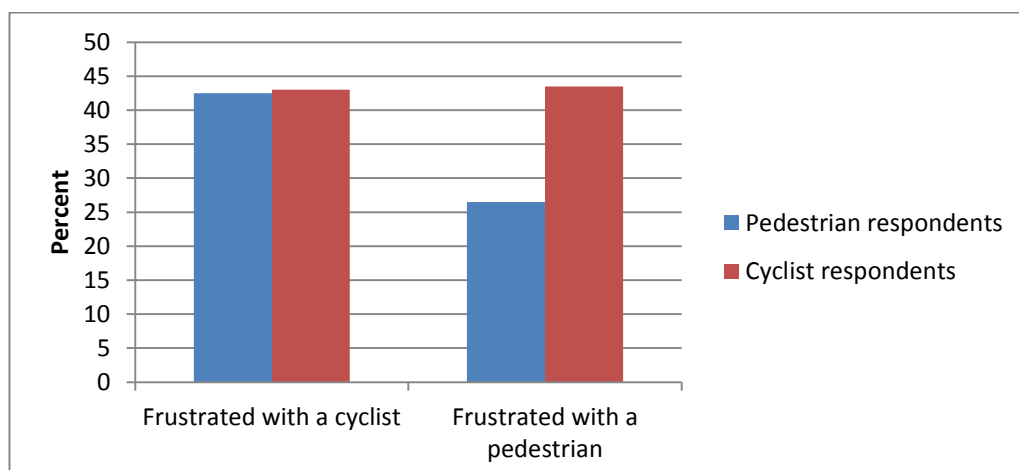
According to the question in Table 15 above, the majority of respondents agreed that they experienced positive relations on the path, however over half of all respondents also reported being frustrated on the day of the survey. 52.3% of the survey respondents reported that they had been frustrated by the actions of another path user on the day of the survey (Table 18); when these results are examined we can begin to further understand what factors are associated with respondents' positive/negative attributions towards sharing space. There are differences in the types of respondents who reported being frustrated; these differences are associated with the mode of the respondent and the frequency of path use as a cyclist.

**Table 18 - Reported frustration**

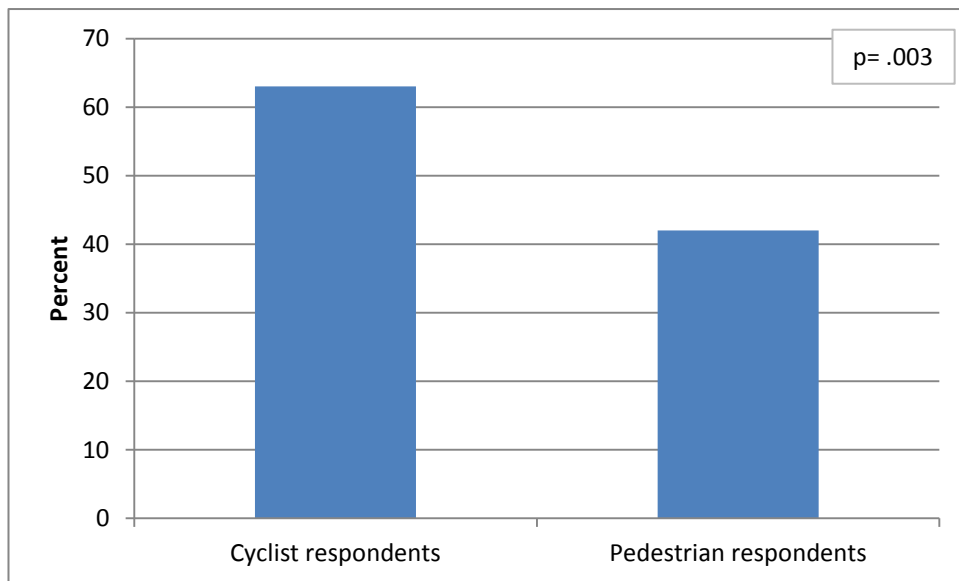
(n=398)	Freq.	%
Frustrated by another path user	208	52.3
Not frustrated by another path user	190	47.7

More cyclists reported being frustrated (56.0%) than pedestrians (48.0%). Similar levels of cyclists (43.0%) and pedestrians (42.5%) get frustrated with cyclists but a higher percentage of cyclists (43.5%) get frustrated with pedestrians than pedestrians do (26.5%) (see Chart 5 below). This was also the case for the segregated survey site. However, the difference is that there is a significant relationship between mode and reported experience of frustration ( $p=.003$ ) on the segregated survey site and there is not on the non-segregated survey (see Chart 6). Thus, based on statistical testing; on the segregated path, cyclists are more likely to be frustrated by the actions of another path user than pedestrians (see Appendix 6 for further details of statistical test).

**Chart 5 - Experience of frustration split by mode**



**Chart 6 - Frustrated with another path user at segregated survey site**

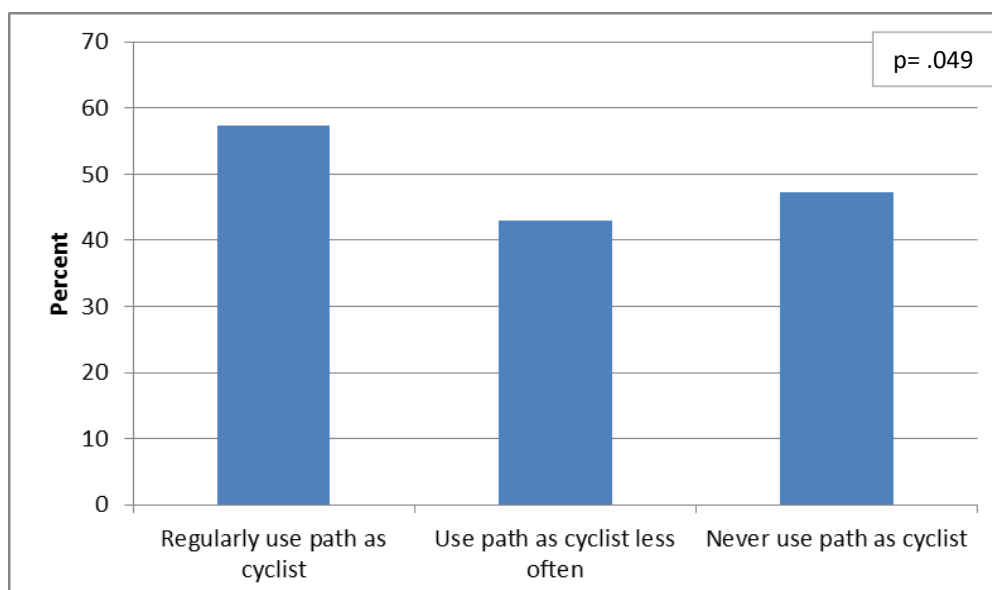


**Table 19 - Chi-square test, mode and experience of frustration (segregated survey site)**

Chi-Square Test	Chi-Square Statistic	df	P value
Pearson Chi-Square	8.842	1	.003

Frequency of path use as a cyclist also has a significant association ( $p=.049$ ) with experience of frustration with another path user (Chart 7). A higher percentage of cyclists who use the path regularly (57.3%) get frustrated with other path users than those that cycle on the path less often (42.9%) and those that never use the path as a cyclist (47.2%) (see Appendix 6 for further details).

**Chart 7 - Frequency of path use as a cyclist and experience of frustration**



**Table 20 - Chi-square test – frequency of path use and experience of frustration**

Chi-Square Test	Chi-Square Statistic	df	P value
Pearson Chi-Square	6.033	2	.049

#### **5.3.4 Frustrations – interview findings**

The interview respondents were asked how they understood the term frustration in relation to the survey questions. It was reported that frustration occurs due to a lack of awareness and consideration by other path users. The survey findings highlight that out of the respondents who agreed that they had been frustrated only 23.4% showed their frustration. The interview respondents also commented that they would not react to this frustration in a visible way, suggesting that even if path users are frustrated with one another it is not always observable;

*‘Well yeah like I say one fella came very close and he sort of brushed past me, I didn’t react or shout or cause a scene [laughs] I’m British!’ (R14B)*

In support of the above results (in Section 5.3.3) the interview findings highlight the reasons why respondents get frustrated with one another. In the account below Respondent 2C finds cyclists more frustrating than pedestrians. She describes their aggressive behaviour and then goes on to explain that she gets more frustrated by their behaviour due to her expectation that fellow cyclists should be more respectful and considerate.

*‘...with pedestrians I’m a lot more patient...I just tend to get more frustrated with other cyclists than I do with pedestrians because I find that a lot of them cycle really aggressively and far too fast. You’d think that a community of cyclists using the same path would create...something where they’d be respectful, but it feels like they’re pitted against each other’ (R2C)*

Similarly, Respondent 5C has different expectations for each mode and thus this has an impact on his reaction and level of frustration. He expects pedestrians to be ‘unpredictable’ whereas if a cyclist is inconsiderate or ‘daft’ then this causes him to be frustrated:

*‘I never get annoyed with pedestrians but I do get annoyed with cyclists who do daft things, particularly coming past me at high speed without letting me know they’re behind me...so no I never feel aggrieved by what a pedestrian does because I always*

*anticipate, expect a pedestrian to be unpredictable' (R5C)*

Other accounts suggest that respondents find cyclists frustrating due to the speed that they are interacting at. For instance, compared to a cyclist-cyclist interaction, when pedestrians interact with/pass a pedestrian or cyclist, they have more time to react. Pedestrians move slower and thus have more time to predict the interaction and alter their behaviour to react to other path users in order to rectify the potentially frustrating or irritating encounter. One respondent's account gives an example of this, the pedestrian the respondent is interacting with has time to react to her bell and change their behaviour to reduce the frustration.

*'Yeah pedestrians don't tend to wind me up that much you know, if I see a person and let them know I'm coming with my bell, if they're choosing not to move out of my way and I've asked them then that's a slightly different issue' (R1B)*

The finding here is that the interview discussions have highlighted two main reasons why path users become frustrated with cyclists on the path; the respondents have differing standards and expectations for cyclists and pedestrians and thus are more lenient on pedestrians due to this. Also, due to their speed, pedestrians have longer to react and adjust their movements in order to avoid causing another path user to be frustrated.

### **5.3.5 Perceptions of path users**

The qualitative responses also uncover the finding that there appears to be negative perceptions and stereotypes developing towards certain groups of cyclists and pedestrians. The findings below show a practical example of the theoretical concepts of stereotyping (Lippmann, 1922) and social categorisation (Tajfel and Turner, 1979) which are outlined in Section 3.4.2 and further discussed in Chapter 6.0. Perceptions about pedestrians include that they take up too much space on the path and do not pay attention. Attitudes towards cyclists were related to cycling attire, speed and the opinion that cyclists often ride too close to other path users.

One prominent type of cyclist was discussed and referred to regularly by both cyclists and pedestrians;

*'The Lycra types that go too fast' (R14B)*



This type of cyclist was referred to as male and similar to car drivers. For instance, one respondent (R5C) relates them to 'macho' male drivers: *'they are a certain type of macho man...some male cyclists have that same mentality of the bad car drivers it's my space get out of my way'*. Another respondent similarly comments that *'it's an aggressive style of bike riding that I think is a bit like boy racers behind the wheel in cars'* (R2C). Respondent 14B also compares them to car drivers when he says; *'I mean for them it's probably a bit like driving really, hence the Lycra, being aerodynamically correct!'*. He goes on to explain and discuss another concern about this type of cyclist; this point was a common theme throughout the interviews:

*'Some of them just go too fast you know, so they don't treat it as a pleasure in itself, it's as a means to something else, race against time. They come here to practice because they are racers at the weekend or whatever but I don't think it should be used as a race track at all'* (R14B)

This sentiment is reflected in Respondent 6C's description of his journey: *'I broke my world record for cycling to Bath in this [recorded journey], I did it in 42 minutes which was quite quick'*. He also says that the most important part of his journey on the path is *'getting to the end...I want to be going fast'*. One respondent (R1B) offers an explanation for the category of cyclist discussed above, she suggests that *'there's a kind of superiority generally around some cyclists, we're doing the right thing because we're not on the road we're not using a car'*. Another respondent (R2C) also suggests that the aggressive and fast style of cycling discussed above *'is more socially acceptable [than that style of driving] because you are on a bike'*. Thus the finding here is that people are developing particular negative stereotypes of cyclists as too fast and aggressive; this is associated with cycling gear such as Lycra. There are particular non-visible and non-quantifiable relations taking place.

Pedestrians were perceived as being unaware and walking in the middle of the path;

*'As a cyclist you look at people and you think, you know, are you still asleep are you going to do something stupid, are you going to walk in front of me'* (R11B)

*'From a cyclist's point of view pedestrians are probably the worst ones for being oblivious to what's going on and they probably do cause more problems'* (R8B)

Also, pedestrians with dogs or children were specifically discussed. The main discussion point around this was about predictability. Dog walkers and people walking with children were viewed as hazardous; there were respondents who spoke about the risks associated with sharing the path with dog walkers and children due to their unpredictability. This relates back to the finding in Section 5.2 above that respondents are required to make judgement calls about others; children and dogs are even more difficult to read and make judgement calls about and thus the perceived risk associated with the encounter increases. However, there were differences in how this was interpreted, there were respondents who accepted this unpredictability as something to be aware of and others viewed this unpredictability as something that the dog walkers and parents should take responsibility for. For instance, Respondent 7B gives an account of a situation when passing children, and accepts that *'that's how it is'*. Similarly, Respondent 11B acknowledges that he is required to be more aware of the risks associated with sharing the path with dogs:

*'...it depends if dogs and children aren't on leads [laughs] because you can't judge how they are going to behave... there, this mum with 3 children on scooters and bikes ...the one furthest away from her carried on nicely to one side and then just as I approached her she decided to go to the right hand side and didn't look back... I had to break and go to the other side...it just goes to show you that you haven't got a hope in guessing what they're going to do... I think that's how children are and that's how it is' (R7B)*

*'If you see them [dogs] you just slow down you keep an eye on them and just hope for the best that the dog isn't, you know, going to just run in front of you or change direction' (R11B)*

On the other hand Respondent 8B and 9B are of the opinion that the responsibility of the unpredictability of dogs and children lies with the parents or dog walkers:

*'I think when I'm cycling I get more wound up by pedestrians doing things that aren't very wise like having a dog running around not on a lead and I have had to break sharply or stop with dogs running out and similarly with children, parents should be more aware when they have children on the path' (R8B)*

*'More often than not people let their children run onto the track first, and then you could be cycling or walking along and they just run in front of you and you're like*

*where the hell did they come from you know, and then the parent will come onto the track and give you a dirty look as if you're in their way. You think well really you should keep a hold of your children' (R9B)*

#### **5.3.6 Key findings**

- According to the survey results pedestrians were more likely to get lost in their thoughts, all of the pedestrian interview respondents also agreed that they do get lost in their thoughts while walking on the path. Whereas the cyclists explained that it occurs less frequently and only in particular circumstances.
- Cyclists had a lot more to say when asked about the physical sensory experience and common themes were; momentum and flow. Pedestrians could relate more to the visual sensory experience.
- A high percentage of survey participants reported positively to statements about sharing the path, however over half of all survey respondents also agreed to being frustrated by another path user on the day of the survey.
- The interview results highlight that respondents have developed differing expectations and particular negative perceptions about other path users which are impacting on their attitudes to sharing the space.
- Cyclists are more likely to be frustrated by the actions of another path user than pedestrians. Cyclists who use the path regularly are more likely to be frustrated with other path users than those that do not.
- Collegiality between path users of the same mode may not be the main driver behind shared path relations; reported frustrations between path users were not distinctly cyclist-pedestrian frustrations.

## 5.4 Expectations of the path

Q3. What are the respondents' expectations and attitudes towards the path?

This section presents the quantitative and qualitative research findings associated with the third research question which examines the respondents' expectations and attitudes towards the path and other path users. First, the results of the respondents' preferences for path improvements are presented; within this there is also a focus on segregation. Along with the suggested path improvements the findings also highlight that there are many contrasting expectations of the path and its use, resulting in tension and impacting on path user interactions. For instance, issues surrounding priority, confusion over which side of the path to use, contrasting interpretations of the paths name and the use of traffic and road terminology to understand and describe the path and fellow path-users. These points will be discussed in the following section.

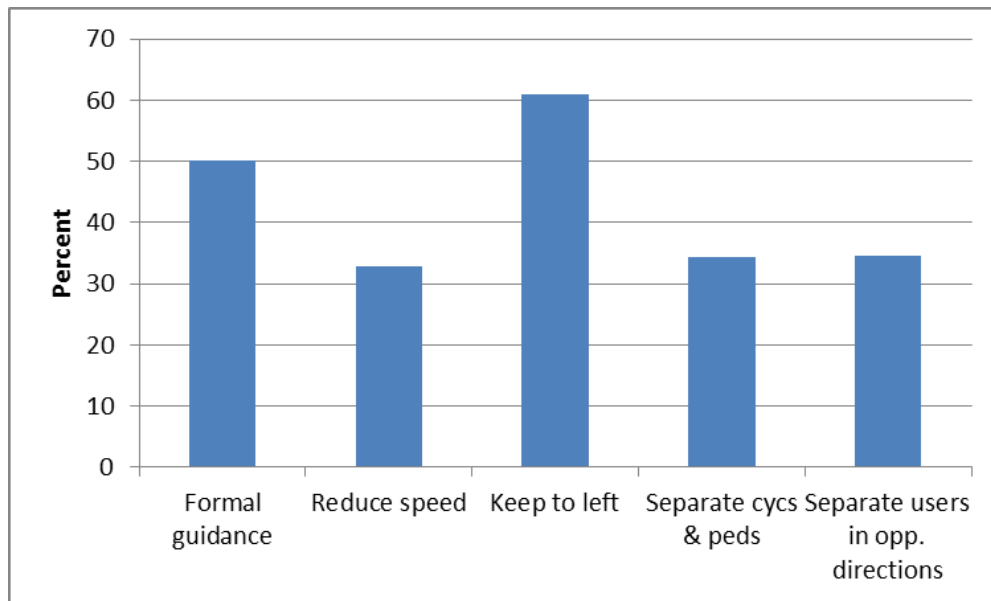
### 5.4.1 Suggested improvements

When the survey respondents were asked what would make sharing the path with cyclists and pedestrians more enjoyable the highest percentage of all respondents chose 'a rule that all users should keep to the left' and 'more formal guidance', a lower percentage chose 'more measures to reduce speed' (see Table 21). Similarly at the segregated survey site a higher percentage of respondents (68.0%) chose more formal guidance than measures to reduce speed (29.5%).

**Table 21 - What would make sharing this path more enjoyable?**

	Freq.	%	n
More formal guidance	200	50.1	399
More measures to reduce speed	131	32.8	399
Keep to the left rule	243	60.9	399
White line separating cyclists and pedestrians	137	34.3	399
White line separating all users in opposite directions	138	34.6	399

**Chart 8 - What would make sharing this path more enjoyable?**



However, the qualitative survey comments give a more detailed understanding of these results; even though a high percentage of users chose ‘more formal guidance’ and ‘a rule that all users should keep to the left’ this does not necessarily mean they agree that more regulations should be put in place. Respondents commented on the importance of encouraging a code of conduct or more guidance/signage on how to use the path. Importantly, others also noted that they would disagree with an increase in formal rules and regulations;

*‘More a code of practice than regulation’*

*‘It would be helpful for both if there was guidance on how to appropriate yourself’*

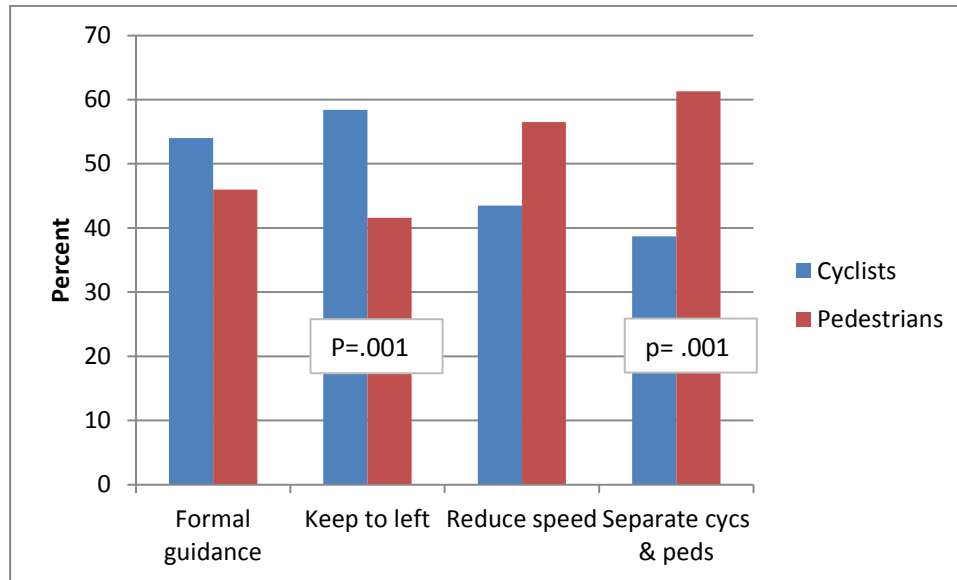
*‘...but I don’t think formal guidance would help matters’*

*‘I prefer having fewer rules - it makes people more conscious of individual encounters’*

The variables mode and age highlighted some differences in the participants’ responses. When asked what would make sharing the path more enjoyable, cyclist respondents would like more information on how to share the path; out of those that chose ‘more formal guidance’ a higher percentage were cyclists (54.0%) and out of those that chose ‘a rule that all users should keep to the left’ a higher percentage were also cyclists (58.4%). Whereas pedestrians want to be separated from and slow down cyclists; out of those that chose ‘measures to reduce speed’ a higher percentage were pedestrian respondents (56.5%) and out of those that chose ‘white line separation’ a higher percentage were also pedestrians

(61.3%). There is a significant relationship between mode and choosing 'a rule to keep left' ( $p=.001$ ) and between mode and choosing 'segregation between cyclist and pedestrians' ( $p=.001$ ) (see Chart 9 and Appendix 6 for further details).

**Chart 9 - What would make sharing this path more enjoyable? (split by mode)**

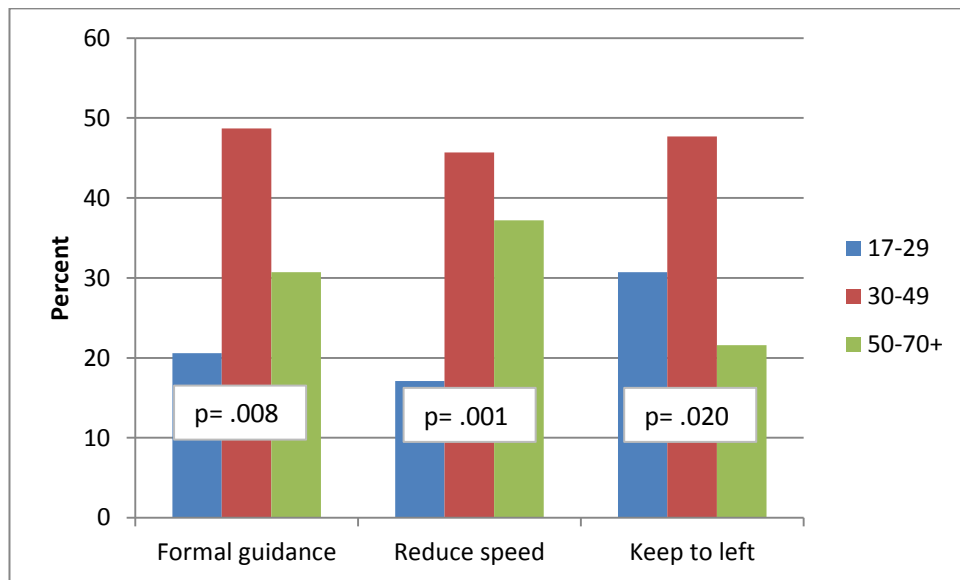


**Table 22 - Chi-square test, what would make sharing path more enjoyable? (by mode)**

Variables	Chi-Square Test	Chi-Square Statistic	df	P value
Formal guidance/mode	Pearson Chi-Square	2.408	1	.121
Keep left/mode	Pearson Chi-Square	17.172	1	.001
Reduce speed/mode	Pearson Chi-Square	3.413	1	.065
Segregation/mode	Pearson Chi-Square	10.921	1	.001

There was also a significant relationship between age and three particular points which respondents agreed would make sharing the path more enjoyable. The age category 30-49 were the most represented out of the respondents who agreed that; formal guidance (48.7%), a reduction of speed (45.7%) and a rule to keep left (47.7%) would make their journey more enjoyable (see Chart 10 and Appendix 6 for statistical tests).

**Chart 10 - What would make sharing this path more enjoyable? (split by age)**



**Table 23 - Chi-square test, what would make sharing path more enjoyable? (by age)**

Variables	Chi-Square Test	Chi-Square Statistic	df	P value
Formal guidance/age	Pearson Chi-Square	9.595	2	.008
Reduce speed/age	Pearson Chi-Square	16.552	2	.001
Keep to the left/age	Pearson Chi-Square	7.784	2	.020

As outlined above, when respondents were asked what would make sharing the path more enjoyable, there was a reported preference for more information on which side of the path users should keep to and more guidance on how to use the path. However, it was also revealed that respondents would prefer guidance rather than strict regulations. The variables mode and age have a significant association with the survey respondents' preferences for the path.

#### 5.4.2 Segregation - survey findings

As presented above (Table 21) 34.3% of the survey respondents reported that their journey would be more enjoyable if cyclists and pedestrians were separated by a white line. Also, as shown in Table 15 (Section 5.3.2 above) 37.9% of the survey respondents agreed that their journey would be more enjoyable if cyclists and pedestrians were separated. It is interesting that for statements A-E (Table 15) such a high proportion of respondents provided positive answers about sharing the path with others (almost all over 80%); yet far fewer respondents (62.1%) gave a positive response for statement F: 'my journey would be more enjoyable if cyclists and pedestrians were separated'. This section will explore these responses in order to further understand why fewer respondents were positive about sharing in statement F compared to statements A-E.

It can be seen from Table 24 below that out of those that agreed that their journey would be more enjoyable if cyclists and pedestrians were separated; 80.1% reported feeling comfortable sharing with cyclists, 84.9% reported feeling comfortable sharing with pedestrians, 67.6% reported that cyclists were considerate, 76.7% reported that pedestrians were considerate and 70.1% reported that cyclists and pedestrians generally get on well on the path. Why then did they agree that their journey would be more enjoyable if cyclists and pedestrians were separated? There is an apparent contradiction here.

**Table 24 - Respondents that agree to cyclist/pedestrian segregation:**

	Agree		Disagree		n
	Freq.	%	Freq.	%	
A. I feel comfortable sharing this path with cyclists	117	80.1	29	19.9	144
B. I feel comfortable sharing this path with pedestrians	124	84.9	22	15.1	146
C. Cyclists and pedestrians generally get on well on this path	103	70.1	44	29.9	147
D. Most cyclists on this path are considerate of other users	98	67.8	47	32.4	145
E. Most pedestrians on this path are considerate of other users	112	76.7	34	23.3	146

One way this apparent contradiction can be explained is through the finding that mode ( $p=.001$ ) and experience of frustration ( $p=.001$ ) both have a significant association with whether or not respondents agree that their journey would be more enjoyable if cyclists and pedestrians were separated. Also, the respondents who agreed that their journey would be more enjoyable if cyclists and pedestrians were separated fit into a certain category of path user: those who favour regulations and guidance. A higher percentage of those that agreed



that their journey would be more enjoyable if cyclists and pedestrians were separated also agreed to the introduction of a form of path regulation (see Table 25).

**Table 25 - Respondents that agree/disagree to segregation:**

What would make sharing this path more enjoyable?	Agree to segregation (n=148)		Disagree to segregation (n=241)	
	Freq.	%	Freq.	%
Formal guidance	91	61.5	105	43.6
Measures to reduce speed	60	40.5	69	28.6
A rule that all users keep left	96	64.9	140	58.1
A white line separating cyclists and pedestrians	79	53.4	56	23.2
A white line separating directions, like on a road	54	36.5	79	32.8

To add to the findings above, the respondents that agreed that their journey would be more enjoyable if cyclists and pedestrians were separated reported experiencing a higher percentage of negative interactions (near collision, unfriendly verbal exchange) and a lower percentage of positive interactions (wave/smile, friendly verbal exchange) than those that disagreed. Thus perhaps the types of interactions experienced by the respondents has an influence on whether or not they would prefer to be segregated.

**Table 26 - Reported interactions with a cyclist (those who agree/disagree to segregation)**

	Agree to segregation		Disagree to segregation	
	Freq.	%	Freq.	%
Wave/Smile	43	23.5	72	23.5
Eye contact	64	35.0	112	36.6
Near collision	18	9.8	9	2.9
Friendly verbal exchange	22	12.0	44	14.4
Unfriendly verbal exchange	5	2.7	9	2.9
Bike bell	31	16.9	60	19.6
Total	183	100	306	100

**Table 27 - Reported interactions with a ped. (those who agree/disagree to segregation)**

	Agree to segregation		Disagree to segregation	
	Freq.	%	Freq.	%
Wave/Smile	31	26.3	72	31.6
Eye contact	51	43.2	103	45.2
Near collision	12	10.2	9	3.9
Friendly verbal exchange	24	20.3	41	18.0
Unfriendly verbal exchange	0	0.0	3	1.3
Total	118	100	228	100

Thus, 37.9% of respondents agree that their journey would be more enjoyable if cyclists and pedestrians were separated, however a high percentage of these respondents also agree that most path users are considerate, get along well, and feel comfortable sharing with others. These factors do not seem to have an impact on their preference for separation; however, mode and experience of frustration with other path users do have a significant association with whether or not respondents agree that their journey would be more enjoyable if cyclists and pedestrians were separated.

#### **5.4.3 Segregation - interview findings**

The interview respondents were asked whether or not they would prefer cyclists and pedestrians to be segregated (given the path was an appropriate width). Those respondents that were against segregation gave a variety of reasons for this. For instance, Respondent 7B explains that *‘what it [segregating path users] says about us as people is rather sad’*. Her expectations from the path users as a group would be that everyone *‘should be able to use it together without upsetting one another’*. She goes on to highlight the positive aspect of having a shared path, from her personal experience:

*‘Well you get different sorts of people, people doing different things, people on it for different reasons, I suppose use a bit of a buzz word you know for diversity’ (R7B)*

Respondent 4C also reflects on the diversity of a shared-use path compared to a segregated one. She admits that segregation might be *‘slightly more efficient, but you wouldn’t get as much enjoyment or variety’*. She goes on to describe...

*'the unpredictability and variety of people that you get there...and it's the kind of secret worldliness of it as well, it's kind of like a story that unfolds of who you're going to come across and what have you' (R4C)*

Other respondents also expressed a preference for the path to remain non-segregated; however they provided alternative reasoning, related to space ownership. Respondent 1B's point represents these opinions:

*'It just doesn't encourage people to think for themselves and it encourages that ownership of the space ...so if you say bikes on the left and pedestrians on the right then if someone deviates from that then it just gives ammunition to people to kind of get angry with each other, you know, and I don't think that's healthy' (R1B)*

This account is reflected in another respondent's reaction to the short segregated section that already exists on the path:

*'You know when you get to that raised bit you're kind of like yay this is mine and you [cyclists] can't have it...I quite like it I'm like haha you can't drive here' (R12P)*

The respondents' reasoning for preferring non-segregation was associated with space ownership and the preference for sharing in order to experience and interact with a variety of users. In contrast to this there were also respondents who would prefer the path to be segregated. However, it should be noted here that the respondents that agreed to segregation did so with a caveat of the presence of suitable conditions, such as width and particular types of segregation:

*'I don't see how with the space available it could be achieved, obviously if it was a bit wider you could see the argument for it but I wouldn't like to see it segregated the way it is at the moment. If it was wide enough I would prefer them to be separated, yeah' (R14B)*

There were those that discussed their preference for segregation due to the differing speed of cyclists and pedestrians;

*'I think it's just that if you have someone going really fast you don't have to worry because they're on the other side, they're not going to impact you in any way' (R9B)*

From another point of view there were those who would prefer segregation in order to be separated from pedestrians:

*‘Cyclists can be problematic, but the big problem is pedestrians, people just think it’s a pavement...and that segregation would keep them on one side where they can behave in that way [not paying attention] if they want’ (R11B).*

#### **5.4.4 Priority**

##### ***Survey findings***

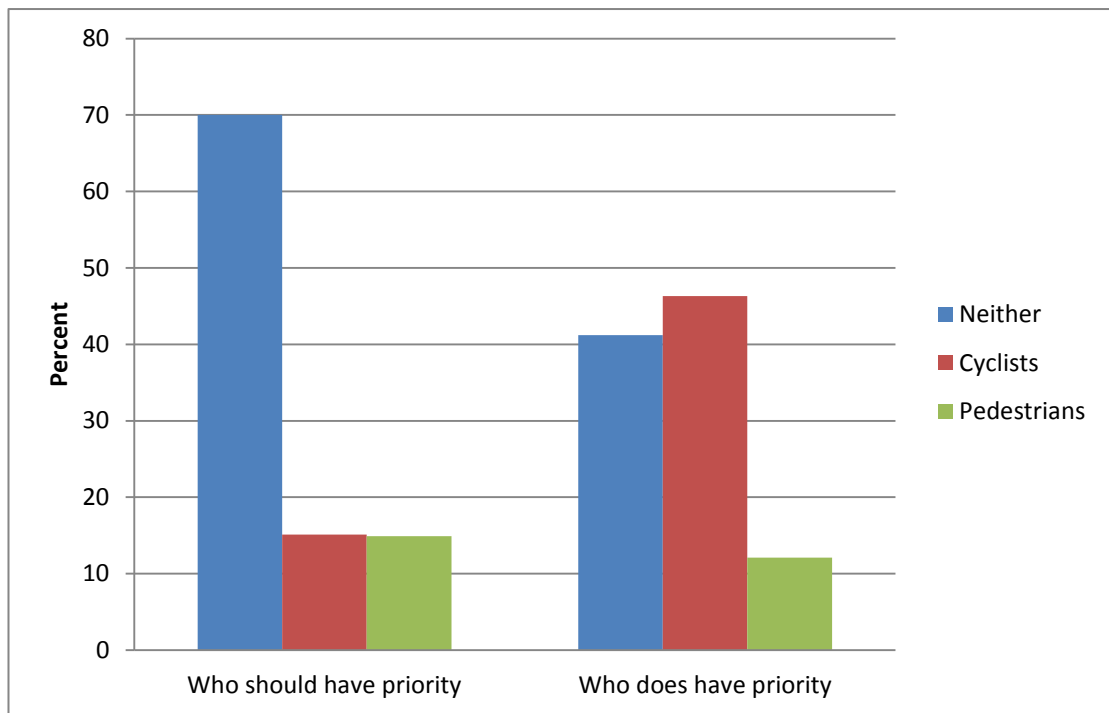
In the quantitative survey the respondents were asked about who they think should and does have priority on the path, their answer options included ‘cyclists’, ‘pedestrians’ or ‘neither’. The majority of respondents reported that ‘neither’ cyclists nor pedestrians *should* have priority on the path, however 46.3% of respondents reported that ‘cyclists’ *do* have priority on the path. A similar distribution of respondents agreed that pedestrians should have priority (14.9%) and do have priority (12.1%). However, far fewer respondents think that cyclists should have priority (15.1%) compared to those that agree that cyclists do have priority (46.3%). The finding here is that the respondents’ ideals about who should have priority do not match the reported perceptions about who does have priority (see Table 28 and Chart 11 below).

**Table 28 - Who should/does have priority?**

Who should have priority	Freq.	%	n
Cyclists	60	15.1	397
Pedestrians	59	14.9	397
Neither	278	70.0	397

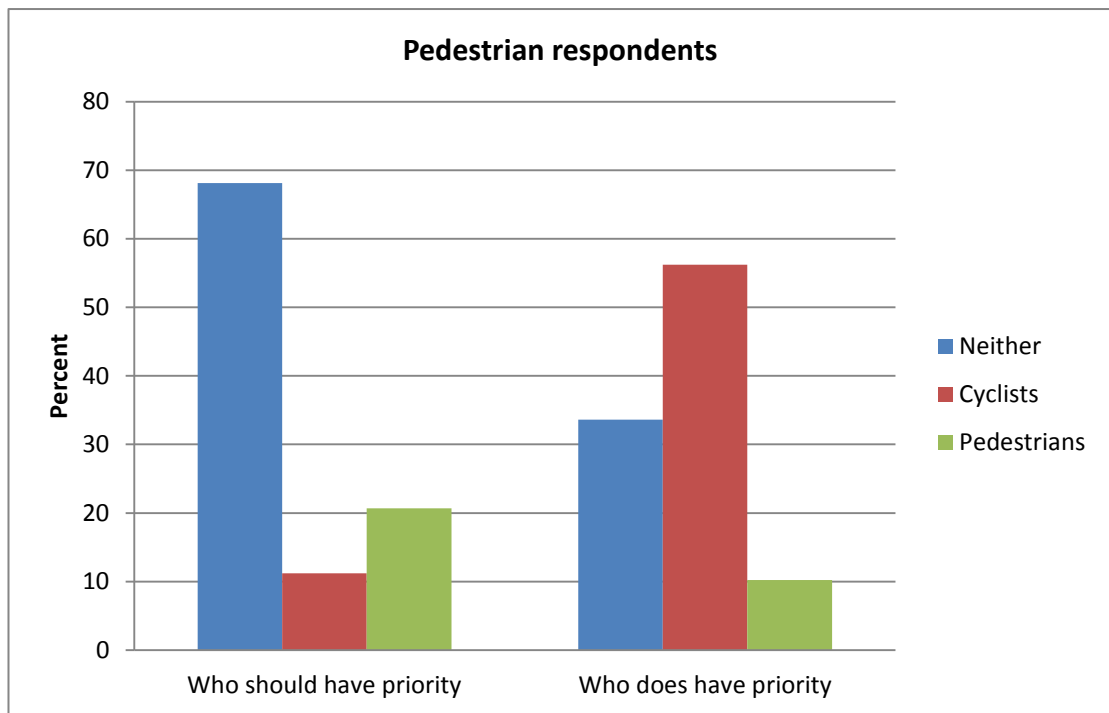
Who does have priority	Freq.	%	n
Cyclists	185	46.3	396
Pedestrians	48	12.5	396
Neither	163	41.2	396

**Chart 11 - Who should/does have priority?**

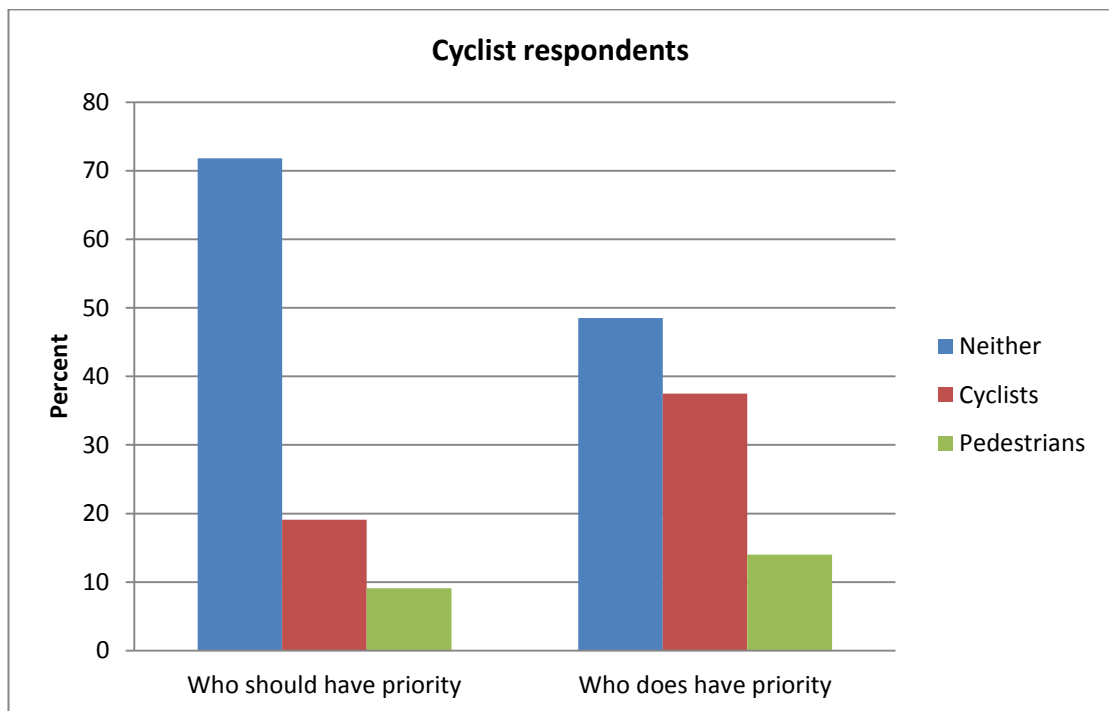


The pedestrian respondents' expectations of path-use are being met less than the cyclists' expectations; only 11.2% of pedestrians think that cyclists should have priority yet 56.2% of pedestrians also said that cyclists do have priority (this is on comparison to 9.1% of cyclists reporting that pedestrians should have priority and a closer 14.0% reporting that they do have priority). See Charts 12 and 13 below.

**Chart 12 - Pedestrians; who should/does have priority?**

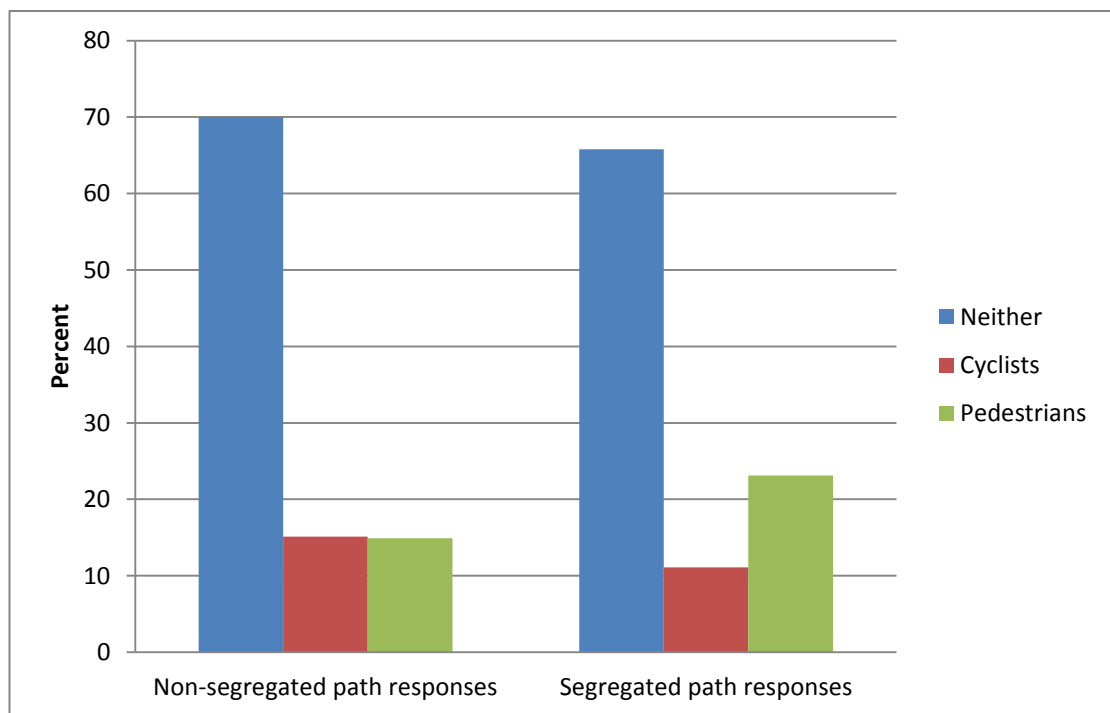


**Chart 13 - Cyclists; who should/does have priority?**

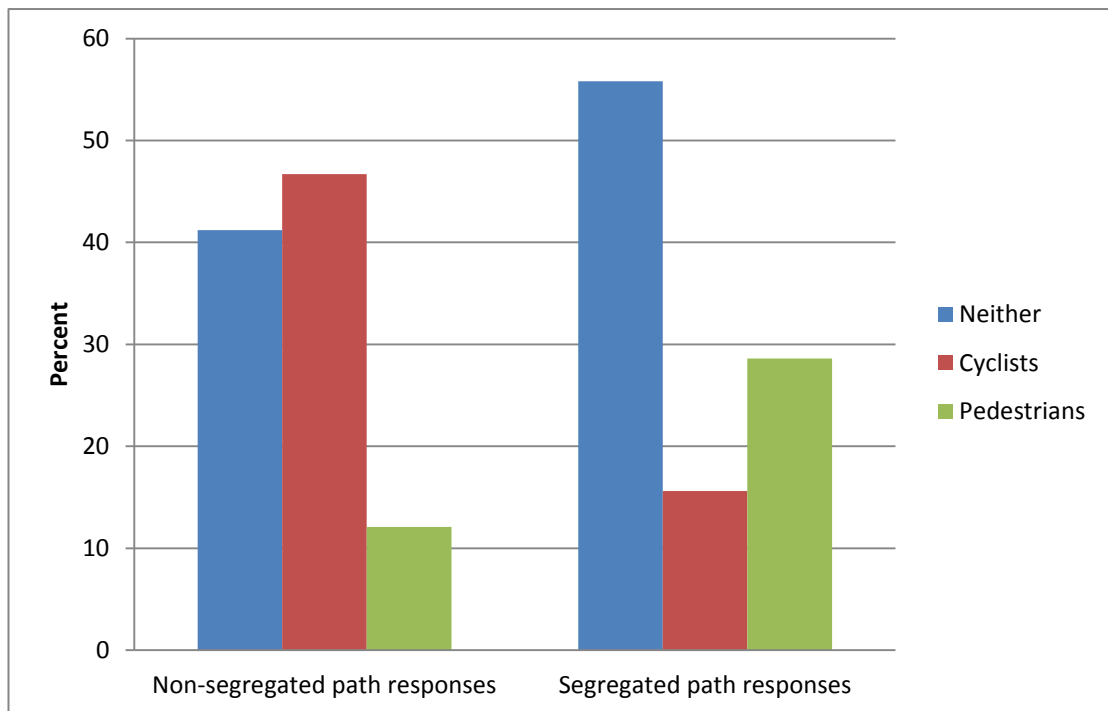


To add to this there were differences in attitudes towards priority on the segregated and non-segregated paths. On the segregated path a greater percentage of respondents agree that pedestrians should have priority (23.1%) compared to the non-segregated path (14.9%). Also, 46.7% of respondents agree that cyclists do have priority on the non-segregated path, whereas only 15.6% do on the segregated path. However, 12.1% of respondents agree that pedestrians do have priority on the non-segregated path, whereas a greater 28.6% do on the segregated path. Thus it can be concluded that the respondents perceive that segregated paths give more priority to pedestrians and non-segregated paths more priority to cyclists. It is important to note however that the interpretation of the term 'priority' is ambiguous; it may differ between segregated and non-segregated path users.

**Chart 14 - Who should have priority? (split by path type)**



**Chart 15 - Who does have priority? (split by path type)**



As outlined above, the majority of path users think that neither cyclists nor pedestrians should have priority on the path yet the greatest percentage of respondents reported that cyclists do have priority on the path. There is an opinion that cyclists take more priority than is perceived they should take; this suggests that the respondents' expectations of cyclists' sharing behaviours are not being met. To add to this, it is the pedestrian respondents' expectations of path-use that are being met less than the cyclists. Also, according to the above results, respondents perceive that segregated paths give more priority to pedestrians and non-segregated paths more priority to cyclists.

This highlights a point, which has been developing throughout this chapter, related to the differences in findings between the segregated and non-segregated survey sites. When the segregated and non-segregated survey findings are compared a point related to pedestrian activity emerges, particularly in relation to the following: sensory experiences (Section 5.3.1), attributions to sharing (Section 5.3.2), frustration (Section 5.3.3) and priority (this section). Pedestrian respondents pay less attention than cyclists on the segregated path, segregated path users are less likely to agree that pedestrians are considerate, and cyclists are more likely to be frustrated by the actions of another path user than pedestrians on the segregated path. When these findings are considered along with the findings related to priority above (respondents perceive that segregated paths give more priority to pedestrians and non-segregated paths more priority to cyclists) it appears that segregation



encourages pedestrians to be less aware and less considerate, resulting in potential cause for frustration among cyclists.

### ***Interview findings***

One explanation as to why more respondents think that cyclists 'do' have priority compared to 'should' have priority is the issue of speed. There were pedestrian respondents who said that due to their speed cyclists often take priority and pedestrians often 'need' to give way. There were also respondents who were of the opinion that pedestrians should have priority, due to the fact that cyclists were faster and thus should give way. A lack of spaces dedicated to cycling compared to walking was another common reason given by respondents for assigning priority to cyclists, these findings are presented below.

There were respondents who said that because they are the fastest mode cyclists have priority on the path:

*'Well I mean the thing is, it's the nature of the mode of transport, cyclists are going faster, they've got a machine, so naturally they would have priority, it's like a car, it just makes sense to give way because they're bigger and heavier so it just makes sense' (R13P)*

This respondent goes on to say that she often 'needs' to give way to cyclists, this suggests that it is not necessarily out of choice but due to the fact that they are moving faster and 'taking a straight line', therefore she will give way;

*'I do feel that I sometimes need to give way, it's usually a cyclist because they're moving so much faster...they're coming on through, they're taking a straight line they know what they're doing so I would give way' (R13P)*

On the other hand there were respondents who think cyclists should give priority due to their speed. Respondent 5C expresses that pedestrians should have full priority on the path, as they are slower and more vulnerable:

*'There's the phrase... with two ships steam gives way to sail. Well steam gives way to sail because it's got a more powerful engine...we're riding something dangerous, something physically dangerous to other people so we always have to give them that priority' (R5C)*

Whereas another respondent puts the responsibility on the pedestrians (in this case parents in particular) to be cautious of the faster moving cyclists;

*'You think well really you should keep a hold of your children on the cycle track. Because bikes do go speeding down there and if they hit a child they'd do serious damage' (R9B)*

Other respondents provided alternative explanations as to why they think cyclists should have priority, this was related to path and space ownership. There was the opinion that cyclists should take priority due to the fact that there are fewer spaces specifically for cyclists compared to pedestrians:

*'... we have got plenty of parks, we have places where pedestrians can wander around and get lost in their heads...but there aren't very many places where you can ride your bike away from traffic...and then when they get suddenly taken over by people who are just dreaming away, I think that's a little bit annoying really' (R11B)*

#### **5.4.5 Which side of the path to use?**

Another factor which is impacting on the respondents expectations of the path and other path users, and thus impacting on their experience of the path, is confusion over which side of the path is considered best to walk/cycle on. There are contrasting ideas about what is accepted as the most appropriate norms of behaviour, some think that all users should keep left, whereas others follow the Highway Code which says pedestrians should stay to the right. For instance, at the time of the video recordings 10 of the interview respondents used the left side of the path (3 pedestrians and 7 (all) cyclists), whereas 4 (pedestrians) travelled on the right hand side. Without any clear guidance on this there is confusion and thus tensions.

According to the respondents' accounts this confusion and lack of clarity is impacting negatively on how path users react to each other and share the space. For instance, one respondent's account highlights her reactions to another path user who was using the path 'incorrectly':

*'There was this guy and I could see him coming up on the right and everyone was going around him, he was not moving out of the way for anybody. So when I got up to him [cycling] I moved closely around him and didn't give him as much room as I*

*could have to kind of prove a point you know, I moved around him as much as I needed to and then pulled right back in' (R9B)*

Surprisingly, similar issues surrounding confusion over who should be on what side of the path was also evident in the survey comments from the segregated survey site. Many of the segregated path-user respondents made a reference to the need for more clarity about what side of the path each mode should use. Even on the segregated path where there is a clear divide between cyclists and pedestrians; there is confusion on how to share the path;

*'The signs dividing people walking and cycling should be better and more obvious'*

*'Clearer instructions on which lane is which'*

*'Indications on how to use it [the path] should be marked on the surface'*

#### **5.4.6 'It's a cycle path, the clue is in the name'**

Another factor which is causing confusion over expectations of the path and its use is the name of the path. This finding initially became evident in the survey comments on the non-segregated path (see text box below). It also became an apparent theme throughout the interview discussions; both by respondents explicitly and implicitly referring to a variety of names for the path.

*'Some cyclists assume this is a cycle path and it's not shared properly'*

*'It is not just a cycle track, it is for both'*

*'Because it's called a cycle path you have to let them [cyclists] have priority. I do feel vulnerable as a pedestrian'*

*'Ultimately this is a cycle path not a pavement'*

The interview discussions revealed that this is related to how the participants use the path, as well as their expectations for how others should use the path. For instance, Respondent 3B reveals his cycling style and speed when using the path. It is apparent that his interpretation of the path's name is related to his style of cycling; *'I would definitely go faster when cycling on this path but that's because it's more of a dedicated cycle path'*. When describing the path at busy commuter times he says that *'at least half the people are going at a relative speed, you know 15mph or something and I think that's right for a cycle*

*path*'. The crucial point here is that the respondent's expectations of his relative speed as a cyclist on the path are related to the fact that he perceives it as a 'cycle path'.

Another participant (R9B) uses the path for cycling and walking yet she interprets it as a 'cycle track'; this leads to her being frustrated by pedestrians who she sees as disregarding the fact that they are using a 'cycle track'. When describing a section of her cycle journey from Bath she says that;

*'By the railway station it's quite a narrow section and you've got people who just take up loads of space and you're like 'come on you know it's a cycle track', I'm ringing my bell and they're not moving and that does frustrate me' (R9B)*

Respondents 9B and 3B both have particular expectations of the path as a 'cycle path', and this impacted on their behaviour. When these expectations were not met by others on the path this resulted in frustration for respondent 9B. (The respondents, who use the path for walking only, refer to it as a 'path' or a 'cycle path' but there were no specific accounts that show that they react differently because of their expectations).

#### **5.4.7 Road/traffic terminology and expectations**

*'There's a tunnel near the end of the path where it actually becomes like a pavement so all of the cyclists stay on the road bit and mostly pedestrians stay on the pavement bit' (R8B)*

The interview respondents often referred to the path as a road and to path users as road users. In particular, cyclists on the path were often automatically associated with cars on the road. When discussing the segregated section of the path above, Respondent 8B automatically assigns cyclists to the 'road' and pedestrians to the 'pavement'; this association was echoed by other respondents. When describing certain situations or events the respondents often referred to the path as a 'road' and described the path users as 'traffic,' in turn impacting on their expectations and perceptions of others using the path. For instance, Respondent 6C perceived a pair of other cyclists as irresponsible because they were moving towards the middle of the path. His expectations for their behaviour are based on the road rules and his dissatisfaction with their actions is guided by his association of path use with 'road use':

*'Yeah I'm just thinking, you're in the middle and you shouldn't be, if you're going to cycle two abreast you should cycle closer together...it's not responsible road use' (R6C).*

There were also respondents who made direct comparisons between their experience of cycling on the path and their experience of driving on the road. The account below is a good example of this:

*'This [cycling on the path] to me is more like driving a car because you get to the end and you're just a bit eugh, a bit tense...it impacts on my day to the same degree as it would if I was travelling in a car. When you're driving in a car you get fed up of the traffic and people cutting you up and it's a very similar experience to driving. It's not an experience I would have thought I would have from cycling' (R2C)*

Others also made direct comparisons between the path and a motorway:

*'It's a bit like going for a walk on the motorway in some ways' (R3B)*

*'This is almost like a motorway for cyclists' (R13B)*

However, when asked what was the most important aspect of their journey on the path 10 of the interview respondents voluntarily said that being away from the road and car traffic was most important, out of these 6 were pedestrians and 4 were cyclists.

*'...the lack of noise, definitely, the most important thing about this path is the lack of traffic noise, vehicle noise, which I find wearing' (R5C)*

There were also respondents who specifically referred to cyclists on the path as one would to motor traffic on the road. Respondent 14B describes the path as often having 'too much traffic' and then goes on to clarify by saying 'too many bikes' and thus specifically referring to cyclists as traffic. Even more specifically, the respondents discussed 'people' (pedestrians) and 'bikes' (cyclists) rather than pedestrians and cyclists, or people walking and people cycling. Such as this account; *'As I look around me yeah I know if there are other bikes and other people and so on' (R11B)*. This type of terminology was used both by cyclists and pedestrians. For instance, when Respondent 2C is discussing priority she talks about *'bikes dominating the path'* and *'people who are walking'*;

*'There's no doubt that the bikes dominate that path, I mean that's what I feel, I don't know what people who are walking feel, but there are more bikes, they are going faster' (R2C)*

The findings show that there are many different interpretations and expectations of the path and its users. This research has found that issues such as the path name, perceptions of the path as a road space and issues around priority can cause differences in expectations and thus tensions between path users.

#### **5.4.8 Key findings**

##### *Path improvements:*

- A rule that all users should keep left and more formal guidance were the most popular choices when asked what would make sharing the path more enjoyable. However it was emphasised that this would be preferred in the form of guidance/signage rather than regulations.
- Preferences for path improvements differed between cyclist and pedestrian respondents: cyclist would like more information on how to share the path whereas pedestrians would prefer to be separated from and slow down cyclists.

##### *Segregation:*

- Preference for segregation was based on the speed of cyclists, and pedestrians not paying attention. Preference for non-segregation related to issues of space ownership and the enjoyment of sharing the path with a variety of users.

##### *Priority:*

- The majority of the respondents think that 'neither' cyclists nor pedestrians *should* have priority on the path and 46.3% of respondents think that 'cyclists' *do* have priority.
- Respondents' expectations of cyclists' sharing behaviours are not being met, the survey results suggest that there is an opinion that cyclists take more priority than is perceived they should take. It is the pedestrian respondents' expectations of path-use that are being met less than the cyclists.

- The respondents perceive that segregated paths give more priority to pedestrians and non-segregated paths more priority to cyclists.

*Interpretations of the path:*

- There are differing interpretations of the path's name and of which side is appropriate to move on. This is leading to frustrations and tensions between path users.
- People are interpreting the path and its users in terms of road terminology and behaviour; differing expectations are developing of the space and this is causing tension.

## **5.5 Chapter Summary**

This chapter presented the findings in three broad themes, reflecting the research questions: interactions, experiences of sharing and the path itself. The survey respondents reported experiencing mostly neutral or positive interactions; the interview discussions suggest that there are more complex processes taking place than would appear at first glance. The respondents are influenced by a number of different social processes when they share space; the impact of these social processes on shared-use path experiences requires further attention and will be discussed in the following chapter.

The findings also show that the way in which path users experience their walking and cycling journeys is related to their interactions. For instance, cyclists engage more with the physical aspects of mobility whereas pedestrians reported engaging more with the visual senses. The respondents also expressed differing levels of frustration with other path users; this frustration is linked to factors such as expectations of other path users and speed. These findings suggest that the sensorial and corporeal aspects of walking and cycling are important in terms of journey experiences and interactions; this point is further discussed in the context of the mobilities literature in the next chapter.

The participants also highlighted that there is confusion over how the path is interpreted and there are differing expectations of the path, this is often based on the respondents' association with the path and its users to the road and its users. This suggests that the interpretation and following use of shared-paths is strongly linked to path-user relations and experiences; this point will be further discussed in Chapter 6.0.

## **- CHAPTER VI -**

### **6.0 Discussion**

#### **6.1 *Introduction***

This chapter draws together the findings presented in Chapter 5.0 and reflects on these in the context of the mobilities and social interaction literatures. The discussion presented here highlights the usefulness of merging the mobilities literature with the literature surrounding social interactions and social psychology. The sensory and corporeal experiences discussed in the mobilities literature, often from an individual perspective, can be further enriched by examining and interpreting these experiences from a shared and social point of view. The proposition here is that by merging the mobilities, social interaction and social psychology literatures a greater insight into mobile experiences and interactions on shared-use path can be gained.

With this, the theme of walking and cycling sensory experiences is firstly discussed in Section 6.2, along with an exploration of the impact of this on path-user relations. Following on from this, Sections 6.3 and 6.4 cover two major discussion themes, surrounding the concept of identity: the processes of identity formation and preservation and the issue of a shared-path identity. The final Section 6.6 relates to the methods used in Phase II of the data collection process; mobile video method and in-depth interviews. This is a relatively new method within the field of mobilities thus an assessment and reflection of the method is provided here, focusing on: the overall impact of the method on the participants, the practicalities related to the method and the nature of the findings accessed through this method.

#### **6.2 *Sensory experiences***

Through examining shared path interactions and experiences, by focusing on ‘the corporeal body as an affective vehicle through which we sense place and movement’ (Sheller and Urry, 2006, p.216), as specified in Section 3.2, the findings for this research are consistent with and add to the mobilities literature. The findings from the interview discussions, with



path users of the Bristol-Bath Railway path, are in line with the mobilities theory which suggests that the sensory and embodied experiences of walking and cycling are engaged with differently (this literature is outlined in Section 3.2). The literature presents the sensory experience of cycling as kinaesthetic and the tactile sensation often takes prominence, the visual senses are also lessened (for example Spinney, 2011). Whereas walking is understood to often predominantly stimulate the visual senses (Edensor, 2000). The interview findings presented in Section 5.3.1 are consistent with this. For instance, one cyclist respondent discussed being *'far more physically aware when I'm cycling'* (R11B) and the pedestrian respondents had more to say about their surrounding environment and the focus on their visual senses. For instance they talked about the surrounding vegetation; *'every time they cut down a tree we notice'* (R12P) and another respondent (R13P) describes how she keeps 'a look out' for clovers along certain sections of the path.

The findings also support the mobilities literature surrounding the importance walkers and cyclists place on maintaining a flow and a rhythm (discussed in Section 3.2.1), both the cyclist and pedestrian interview respondents talked about this and explained how it impacted on their journeys and interactions with other path users (Section 5.3.1 of results). This was a more prominent theme within the cyclists' discussions. A particular aspect of these discussions adds more detail to the mobilities theory; there was a particular distinction between flow and momentum. Momentum was to do with interruption and not wanting to slow down and undo the hard work they had already done to set their pace. For instance Respondent 6C talked about trying to avoid 'breaking pace' and cycling closer to another path user than she would usually feel comfortable with, in order to maintain this pace. In distinction, there were other cyclist respondents who discussed the flow of cycling, when they talked about 'flow' this was not necessarily in a wider sense of negotiating the path but it was about maintaining the 'flowing feeling', physically in their bodies and specifically their legs. For instance, one respondent described their legs like 'pistons in a car' and another explained how he put all his focus on his moving legs; *'...and make sure that my body's energy is going more into my legs than it is into the breathing'*. These descriptions of the physicality of cycling and maintaining a focus on one aspect of the body are very similar to the process of meditation. As outlined in Section 5.3, Respondent 3B described the process as *'being a more meditative thing'*. Thus there is a distinction here between two sensorial aspects of cycling; momentum and flow.

Both the cyclist and pedestrian respondents did highlight the importance of flow and momentum in their journeys; however this was more prominent throughout the cyclist discussions. The prominence of particular sensory experiences differed between cyclists and pedestrians, with cyclists putting more prominence on the physicality of the mobile experience and pedestrians on the visual senses. According to Jacob and Schreyer's (1980) conflict theory (the 'mode of experience' factor, outlined in Section 3.5) these differences in the embodied experience of walking and cycling can cause conflict between the two modes. They suggest that mobile experiences can be situated on a continuum and the further apart path-users register on the continuum the more likely they are to be in conflict. Based on this the differences between the walking experience (the focused end of the continuum relating to the visual senses) and cycling experience (the unfocused end of the continuum relating to the tactile senses) would set the modes at opposite ends of the continuum and thus potential for conflict would be seen as likely. (Of course the walking and cycling experiences do engage with a variety of senses, not just the ones outlined above, but this case is referring to the senses which are most prominent in the majority of cases.) From this reading of the literature, conflict and frustration were expected specifically between cyclist and pedestrian path users due to their competing and contrasting sensory experiences and requirements. Thus it was expected that due to this, cyclists would be frustrated with pedestrians and vice versa.

However, the findings for this thesis uncover an alternative outcome; it was revealed that in fact frustrations were mostly due to a perceived lack of consideration and lack of awareness by other path users and not explicitly due to contrasting sensory goals between path users of differing modes, as suggested by Jacob and Schreyer's theory (1980). For instance, the survey results show that mode did not have a significant relationship with whether or not respondents agreed to being frustrated if their journey did not flow as freely as they would like. Cyclists may have expressed a stronger importance for the physical and tactile aspects of their journeys; yet this did not result in cyclists being more frustrated than pedestrians in relation to the flow of their journeys. Section 5.3.4 shows that the reasons respondents gave for being frustrated with other path users were around lack of respect, speed and differences in expectations for different types of path users. Path users with the same sensory goals and experiences, for instance those at the focused end of Jacob and Schreyer's (1980) mobile experience continuum (relating to the visual senses), could still cause frustration to each other by showing a lack of consideration.

The findings show that path users of differing modes do have differing sensorial and corporeal experiences and particular senses are more prominent depending on the mode of the path user. Jacob and Schreyer's theory (1980) would suggest that this difference in the mobile sensory experiences would be a cause for conflict between cyclists and pedestrians. However, the findings of this thesis suggest that frustrations are not only about differences in mode and sensory experiences. Respondents reported that a lack of consideration from other path users causes them frustration and this can be with path users of similar and different sensory goals and experiences. The findings here have highlighted that it is this aspect (a perception of a lack of consideration from other path users) of shared path relations that should be addressed as a potential cause of conflict. By examining the sensorial experiences of walking and cycling on shared-use paths this provides a useful basis from which to discuss the impact of social interactions and the sharing of space on these experiences. Thus, in addition to this section, the social processes of sharing path space are discussed in the following section.

### **6.3     *Identity processes***

When the sensory experiences and the subtle processes related to walking and cycling (presented in the previous section and in Chapter 5.0), are reflected upon in the context of social psychology theory, aspects of social categorisation and identity preservation and formation are uncovered as influencing factors on how shared-path users interact and experience the space. This section will contextualise these findings within social psychology and social interaction theory (outlined in Chapter 3.0), in the form of three specific themes relating to identity: transport identity, the presentation of self and the issue of space ownership. It is also important to note here that, as outlined in Section 3.4, identity is defined as 'an ensemble of psychological experiences (thoughts, feelings, motives, etc.) that reflect and contribute to a person's understanding of his or her place in the social world' (Hewstone *et al.*, 2010, p.90). Transport identities are defined (and discussed in Section 3.4.3) as being 'caught up in a circular process in which social and self-identities both influence and are influenced by transport behaviour and experience' (Skinner and Rosen, 2007, p.86).

### 6.3.1 Transport Identities

The interview findings in Chapter 5 show that the Bristol-Bath Railway path users create social categorisations of particular path users and this impacts on how they engage with others. For instance, there were cyclist respondents who reported engaging more with fellow cyclists. This reflects Tajfel and Turner's 1986 Social Identity Theory (outlined in Chapter 3.0), central to this theory is the idea of intergroup relations; it assists in the understanding of why path users interact in particular ways. This theory states that 'categorisation into in-group (a group to which one belongs) and out-group (a group to which one does not belong) provides the germ for the development of a group based social identity' (Hewstone *et al.*, 2010, p.104). Skinner and Rosen (2007) add that, self-identity is influenced by whom individuals think they are like and not like; and thus the development of in-groups and out-groups occurs.

As outlined in the interview findings (Section 5.2), there were cyclist respondents who identified with other cyclists as being part of their in-group, based on mode. For instance, Respondent 7B identified with the 'in-group' of cyclists. Her actions and level of sociality on the path were determined by the group with which she identified; because she had 'something in common' with the other cyclists, she smiled at them and stated that she was *'more likely to look at the cyclists a bit more than the pedestrians'*. Similarly, Respondent 9B identified with other cyclists and felt part of a cycling 'group' and 'family'. Due to this, these respondents reacted by saying good morning or smiling, compared to doing this less with pedestrians who were perceived to be part of the out-group. Respondent 6C's group categorisation and the reasoning behind it takes this further, he categorised cyclists into many groupings. Other 'fully Lycra-d up' cyclists were categorised as part of the in-group (with whom he chose to engage with) and cyclists on a 'mountain bike' or a 'commuter' were identified as the out-group and thus he reacted differently to them on the path. The development of these groupings is based on Respondent 6C's judgement and stereotyping of other cyclists being 'part of the same gang' based on their cycling equipment. The in-group members were identified by their cycling equipment and thus R6C reacted in a positive way by saying 'hello' or with a 'nod' or 'wave'.

This reflects Jacob and Schreyer's (1980) 'activity style' aspect of conflict theory (outlined in Section 3.5). This suggests that individuals develop certain standards and expectations of behaviour associated with how an individual engages with a particular activity. Individuals will have differing interpretations of what they perceive as a high standard of engaging in

the activity, this is often determined by particular factors. For instance, hierarchies of 'activity style' status are developed based on perceptions of equipment. Depending on an individual's interpretation of the equipment they will place themselves or another path user at a particular level in the status hierarchy and respond to them accordingly. Thus R6C above responded positively to cycling equipment such as Lycra. However, this was also interpreted negatively by other path users who specifically disassociated themselves with the type of cyclist which they perceive negatively as the '*Lycra types that go too fast*'. This is an example of how materiality is a crucial aspect in the construction of mobile experiences and encounters (as discussed in Section 3.2.2). The reaction to Lycra and the impact of this on interactions is similar to Michael's (2000) research around walking boots. He proposes that 'mundane technologies' such as walking boots, or in this instance Lycra, have an impact on mobile encounters as they can be interpreted and engaged with in many ways.

Additionally, Christmas *et al.* (2010) and Aldred's (2012) findings (discussed in Section 3.4) show that cyclists often identify negatively with cycling equipment, such as helmets and Lycra. Aldred's (2012) research found that cyclists often have negative attitudes towards particular cycling equipment such as Lycra. The research found that the main reasoning behind this was linked to the respondents not wanting to be perceived as 'too competent' a cyclist. In line with this, Christmas *et al.* (2010) reported engaging with cyclist participants who had negative attitudes to cycling helmets, again this was associated with their concern of being perceived as a 'serious' cyclist. Thus, according to Jacob and Schreyer's (1980) conflict theory, there are conflicting hierarchies of status based on the importance individuals place on cycling equipment. To add to this, according to Tajfel and Turner's (1986) Social Identity Theory this process of developing hierarchies of status (dependent on cycling equipment) is implemented by path users in order to enable them to categorise others into social groupings so that they can develop and maintain identities. These processes impact on path-user relations, as is evident by the way the path users react to one another in the above accounts. Therefore, the development and maintenance of transport identities on the path have an influence on path-user relations.

Additionally, the findings above highlight that the cyclist respondents showed a stronger transport identity than the pedestrian respondents. There were cyclist respondents who identified with other cyclists due to similarities in mode, not all cyclist respondents showed strong transport identities however. There were cyclists who did not identify with others based on mode. This is in line with Skinner and Rosen's (2007) findings (outlined in Section 3.4); they carried out research with commuter cyclists and explored the respondents'

discussions of themselves in relation to colleagues and other road users, to examine the relationship between cycling and identity. From this research Skinner and Rosen (2007, p.87) reported that the 'identity of people who commute by bicycle tends to involve them setting themselves apart more from other cyclists', thus respondents identifying with others based on mode was not common amongst Skinner and Rosen's (2007) participants. Their findings also show that the few respondents that did identify as a 'cyclist' did so cautiously and perceived themselves as different from the negative accounts of cyclists, for instance they categorised themselves as different to other cyclists who are perceived to behave dangerously and irresponsibly. This disassociation with the negatively perceived categories of cyclists was also found in this research (Section 5.3.5). However, unlike Skinner and Rosen's (2007) research this thesis included pedestrian respondents and the findings revealed that there was a difference between cyclist and pedestrian transport identities. There were cyclist respondents who highlighted strong in-group identification and resultant positive engagement with other cyclists on the path, yet none of the pedestrian respondents showed any in-group identification with other groups of pedestrians based on similarities in mode.

As presented in the Chapter 5.0, the respondents did not only show identification and in-out groupings based on mode. There were also respondents who identified with other path users of the same in-group based on speed and perceived level of friendliness, regardless of their mode. Respondent 1B set 'race speed' cyclists in the out-group and everyone else (both cyclists and pedestrians) in the in-group. She stated that those in her in-group are more likely to 'look up' when sharing the space. Additionally, as presented in the findings (Section 5.2.2) Respondent 8B explained that she '*can pick up on attitudes from people*' and '*can tell if somebody is a bit more welcoming and friendly than somebody else*'. This respondent reported identifying with others on the path based on their perceived level of friendliness. Thus by drawing from the social psychology literature, it is apparent that the respondents perceive there to be distinct groups of path users who behave differently to one another. The path users' identity and grouping processes have an impact on the type of interactions and level of sociality that they engage with on the path. This is not only determined by mode, in fact pedestrian respondents did not show any identification with other path users based on mode; speed and perceived friendliness were also determinants of groupings and thus interaction types.

### 6.3.2 Presentation of self

One major aspect of the path users' identities, which also impacts on how they interact with others, is their 'presentation of self'. As Goffman's (1959) 'dramaturgical' framework highlights, social life is like a performance; individuals present themselves as a particular character in social situations based on the way they want to be perceived by others (this literature is outlined in Chapter 3.0). The concept of a performance has also been used by others to explore social interactions in mobile settings (Jacob's, 1961; Seamon, 1979; Symes, 2012) these are also outlined in Chapter 2.0. In line with Goffman's (1959) 'presentation of self' theory the shared-use path can be compared to a stage, where performances are played out. The combination of video and interview methods allowed access to what Goffman (1959) calls the 'front' and 'back' stage performances; front stage is where the performance takes place and backstage is where the performer can relax and rehearse. The video recordings gave an insight into how the participants perform on the 'front stage'; the interviews can be compared to the backstage setting where the participants reflected on their 'performances' on the path.

The interview respondents revealed that they use particular 'expressive equipment' (Kristiansen, 2009) and technologies on the path, similar to props and costumes on a stage; in order to enact their performance and present a particular character with the aim of being interpreted in a particular way by other path users. This provides a clear example of the impact of materiality on shared-use path experiences. As discussed in Section 3.2.2 Sheller and Urry (2006, p.221) highlight that objects and technologies are 'closely inter-woven with the corporeal'. It can be seen from the respondent's account below that path users are aware of this element of their journey and intentionally engage with and incorporate the material into their mobile journeys in order to influence their experiences and encounters.

As outlined in Section 5.2 there were participants who explained that they use headphones and music, which can be described as 'expressive equipment' or 'props', in order to give a signal to other path users that they do not want to engage. Respondent 8B's account below provides an example of this;

*'I'm a bit of a shy person so I tend not to make eye contact. And particularly when I'm a pedestrian because you don't necessarily want to encourage attention that's unwanted. That's one of the reasons why I like to listen to music because if somebody does approach you you've got an excuse for not having heard what they've said' (R8B).*

The interview respondents also revealed that they interpret others based on their 'costumes', for instance the discussion about transport identities in Section 6.3.1 above. Respondents revealed that they identify with other path users based on their cycling attire. Thus, the literature around social interactions sets out the notion of performance in a theoretical context (Goffman, 1959; Jacob's, 1961; Seamon, 1979; Symes, 2012), however, the findings for this thesis provide an everyday example of this theory in practice.

In addition to the respondents using props and costumes to present themselves in a particular way, they also behaved in a particular way and took on specific sharing practices. The respondents discussed attempting to control other path users' perceptions of themselves and their in-group (in this instance the grouping is determined by mode). As highlighted in the results (Section 5.2) the cyclist respondents were conscious of the bad reputation or stereotype which is perceived to exist about members of their in-group (this includes cyclist respondents who identified with cyclists as a broad group of path users and those who identified with more specific cycling in-groups). They gave accounts of instances where, in an attempt to control this stereotype, they consciously presented themselves in a way they believed would be interpreted favourably. For instance, Respondent 5C explained how he used his bike bell to portray a performance of what he sees as a good cycling identity;

*'I rang the bell and she said, she actually stopped and complemented me, she said thank you for ringing your bell...I try to be positive in the way I present myself as a cyclist so that people can talk about and have their own experience of a careful considerate respectful cyclist to counter any experience anybody's got of bad experiences' (R5C)*

The above respondent proudly describes the result of his performance and explains that it is a large part of his awareness when he is using the path. Conscious of these perceived tensions between cyclists and pedestrians the pedestrian respondents also described their performances in order to *'make sure everybody is happy and nobody is at a disadvantage'* (R8B, Section 5.2.2). When respondents' social identities, based on their 'mode' social grouping, are salient, this impacts on how they engage with path users from the out-group. However, it is important to note that the respondents have multiple ways of categorising and identifying with other in-groups of path users, the salience of these social identities vary by individual and across time.



Also, by describing and discussing other path users during the interviews, the respondents revealed their own personal desired identities by presenting themselves and their actions in a particular way. Hewstone *et al.* (2010) explain that this process of 'self-regulation' is necessary in order for individuals to preserve their desired identities. For instance, there were respondents who discussed how pedestrians often walk across the middle of the path; however the respondents explained that as pedestrians they did not identify with that type of path user behaviour. Similarly a cyclist respondent talks about the '*Lycra brigade that always get slagged off*' and ensures to distinguish herself from this group of cyclists even though she admits that she does wear Lycra herself. She justifies this by explaining that it is due to practical reasons and not for reasons that would identify her with those that speed on the path and use it as a 'racetrack'; '*I mean I do have Lycra sometimes in winter because it's warm and it's more comfortable to cycle in but there are some of them that treat it as if they're on a racetrack*' (R8B). This also relates back to the opening discussion of this section about respondents using equipment and 'costumes', such as Lycra, to present themselves in a particular way. As well as the social reasons for these costumes, there are also practical and instrumental reasons, as R8B points out above. Thus there are situations when the social and practical reasoning for engaging in the 'presentation of self' are in conflict.

As well as presenting themselves in a particular way on the path the respondents were also presenting a particular identity during the interviews, in order to preserve and re-enforce their ideal identities and making it clear to distinguish themselves from path users that were identified as sharing the path in an undesirable manner. By uncovering these identity processes we can see how this influences and impacts on how path users share the space and that there are subtle, non-visible processes taking place. As well as processes of self-presentation and identity-preservation, aspects such as territory and space ownership also impact on path user interactions; these are linked with identity processes and are discussed in the following section.

### **6.3.3 Territory/space ownership**

According to Jensen's (2010) research, cyclists make different sized curves when manoeuvring around pedestrians depending on their speed. Faster cyclists make larger curves and slower cyclists make smaller curves, this would suggest that speed impacts on the amount of 'personal' and 'use' space (Goffman, 1972) that cyclists give to pedestrians when sharing space. As discussed in Chapter 3.0 'personal space' is the space surrounding

an individual that makes them feel uncomfortable if encroached upon. 'Use space' is the space surrounding an individual which they claim due to 'apparent instrumental needs' (Goffman, 1972, p.35). Jensen (2010) found that speed had an impact on how cyclists negotiated pedestrians. Speed was not a specific factor of analysis for this thesis, however the interview findings do show that there were other aspects which impacted on the size of the overtaking curves and thus level of infringement on 'personal' and 'use' space taken by cyclists (and pedestrians). These aspects include; space constraints, tension between path users and perceptions of entitled 'use' space. These are discussed below.

When discussing their journeys along the Bristol-Bath Railway path there were cyclist respondents who described weaving in and around other path users; making close curves to the other path users because there was a lack of space for them to overtake. Respondent 3B described fitting through a gap between two pedestrians; *'it wasn't the biggest gap but I'm used to that'* and Respondent 6C also described how he 'snaked through' a group of cyclists. According to the respondents' accounts these manoeuvres were not influenced by speed but by space restrictions. When space allowed there were respondents who described taking a large curve around the path users they were overtaking in order to ensure not to encroach on their personal space. For instance Respondent 1B explains;

*'I'm conscious of giving people as wide a berth as possible so if there's no one else on the path I'll come right over the other side and overtake them so I'm not kind of interfering with them' (R1B).*

As discussed above (Section 6.3.2), there were interview respondents who were conscious of impacting on other path users and wanting to *'make sure that everybody is happy'* (R8B). Part of this was about wanting to avoid infringing on personal space. On the other hand, there was also evidence of respondents intentionally infringing on another path users' personal space due to tension about conflicting interpretations of the path (see Section 5.4.5). Respondent 9B explains; *'I moved closely around him and didn't give him as much room as I could have to kind of prove a point you know'*. Respondent 9B made a small curve around another path user, even though the path was clear, because they were perceived to be cycling on the 'wrong' side of the path. Thus, to add to Jensen's (2010) finding that speed impacts on how cyclists negotiate shared space, the findings here show that factors such as space constraints and path-user tensions also impact on negotiations.

Additionally, the findings of this research show that path users' perceptions, pedestrians in particular, of their entitled 'use' or 'territory' space (Goffman, 1972) can impact on the amount of personal space they give to other path users when overtaking. There were pedestrians who explained overtaking other pedestrians very closely, even when the path was clear, due to the reported fear of oncoming cyclists and the perception that the space is the cyclists' 'use' space rather than their own. The account below of a pedestrian overtaking another pedestrian represents this finding accurately. Respondent 11B's need to keep out of the perceived 'use' space of cyclists, overrode his preference to allow the other pedestrian sufficient personal space;

*'...if I think it's safe to squeeze past then I do, I squeeze past to leave a channel on the outside. Then you think, do they feel like I'm invading their personal space, I could be walking right over there [other side of the path] but I'm not I'm squeezing past, but I'm afraid that's what I do to stay out of the way of cyclists' (R11B).*

This point will now be discussed in detail as it raises an important discussion about space ownership and identity. The types of manoeuvres, interactions and experiences discussed in the pedestrian interviews highlights that there is a perception that the path is more prominently a cycling space and the role of pedestrians is to keep out of the way of cyclists. Thus the findings suggest that the mode of the respondent has an impact on their sense of space ownership; cyclists have a stronger sense of space ownership than pedestrians on the path. Jacob and Schreyer's (1980) theory suggests that the frequency of path use is an influencing factor on space ownership; they state that regular users can develop a stronger 'possessive attitude' of the space. This was not the case for the respondents of this research, there was a mixture of regular and non-regular path users amongst both the survey and interview respondents and the pedestrian interview respondents (both regular and non-regular path users) showed a weaker sense of space ownership than the cyclist respondents. This was revealed in their accounts of how they use the path and their overtaking practices, outlined below.

There were respondents (both cyclists and pedestrians) who explicitly stated that cyclists dominate the path; what is important here however is that this was also an implicit underlying theme throughout the pedestrian interviews, both in the way they visibly manoeuvred on the path and in the way they explained and interpreted their actions. As presented in the results (Section 5.2) a common manoeuvre for pedestrians when overtaking was to move off the path into the side verge, in order to keep the path clear for

cyclists. Pedestrians talked about the ‘need to give way’ to faster moving cyclists, as if this was not out of choice. They described, feeling ‘nervous’ when overtaking on the path, and increasing their pace in order to ‘*walk faster, walk faster*’ and move as quickly as possible out of the space perceived for cyclists. This occurred not only in response to oncoming cyclists but also in response to cyclists coming in the same direction, where one would expect all users coming in the same direction to have equal priority to the space. One respondent describes that when she is overtaking another pedestrian she has to ‘step out into traffic’ (R12P). This description of ‘stepping out’ does not reflect what one would expect from the manoeuvres on a shared-use path, this phrase suggests that even though the respondent is using a shared-use path she still perceives cyclists as traffic on the road and thus she uses the path in that way; she steps out of her space into their space. This also highlights the point that pedestrians claim less territory/use space than cyclists.

The survey results about priority (Section 5.4.4) add to this point. When the survey respondents were asked about priority on the path the majority (70.0%) reported that ‘neither’ cyclists nor pedestrians *should* have priority. However, a lesser 41.2% of respondents said that ‘neither’ actually *does* have priority on the path. The highest percentage of respondents (46.3%) actually chose cyclists when asked who does have priority on the path. The key point here is that a far greater percentage of respondents reported that cyclists do have priority (46.3%) compared to those that reported that cyclists should have priority (15.1%). From the survey results it would appear that cyclists are perceived to take more priority than is expected that they should take.

These survey findings and the interview accounts above would suggest that the pedestrian respondents have a weaker sense of space ownership on the path. However, two points should also be taken into consideration here. First, the interview respondents, both cyclists and pedestrians, commented on the issue of pedestrians being ‘*oblivious to what’s going on*’ and often walking across the path without looking. They also raised the issue of dog walkers and cyclists having to slow down and keep an eye out when they pass dogs that are not on leads (see results Section 5.3.5). This would suggest that pedestrians do not have a weaker sense of space ownership at all times on the path. The second point to note is that this research took place specifically at peak times (in order to gather data on as many interactions as possible). Perhaps levels of space ownership change on the path depending on the time of the day; if the pedestrians are more dominant during off-peak times when there is a reduced flow of users then these instances may not have been picked up on. Thus, due to this, it should be noted that particular types of pedestrian experiences and

behaviours may have been emphasised. The finding that there is an imbalance of space ownership between cyclists and pedestrians is most likely specifically related to particular peak times on the path (further on this in Section 7.4).

Also linked here is the point about space ownership and power relations on the path, in comparison to the road space. As outlined in Section 3.2, cyclists and pedestrians are often required to alter their rhythms and adjust their movements in order to negotiate the many urban spaces that are designed for the car (Hornsey, 2010; Spinney, 2010). However, this point raised some questions for further exploration, such as issues around power relations when the car is not present; do new rhythms of movement emerge or are learned ones transferred from road spaces; which mode, if any, dominates when the car is not present; and how do these aspects impact on path-user relations? Chapter 5.0 and the discussion here begin to answer these questions and it is evident that for the majority of cases cyclists dominate the space, and to some extent replace the role of the car, this is due to issues of priority and 'territory' space (Goffman, 1972).

The findings have highlighted that, during peak-times of path use, there is an underlying perception amongst pedestrian path users that cyclists dominate and have more right to the space. It appears that the bike dominates in a space where the car is not present and mobile rhythms from the road space have been transferred to the path. This is evident in the pedestrians' actions on the path and in their reactions to situations of encounter on the path. They highlighted feelings of unease and nervousness due to this perception, and did not appear to take claim to any 'use' or 'territory' space on the path during peak-times. A promotion of the space as 'shared' is needed in order to encourage pedestrians to take more confidence in using the space safely so that their nervousness and unease can be reduced and a more even sense of space ownership created.

However, a careful balance is required here between encouraging a pleasant environment and also ensuring a certain level of alertness is still maintained. According to Risk Compensation Theory the greater the perceived risk of a situation, the safer the individual will behave (Adams, 1995). For instance, in Hans Monderman's shared space design, the central idea is that by removing road markings and signage this deliberately increases an individual's sense of risk and thus increasing their alertness and attention to others sharing the space (Hamilton-Baillie, 2008). Therefore a balance needs to be attained between encouraging pedestrians to be more at ease but also to ensure that their level of alertness

and a degree of uncertainty is still present; in order for risk compensation to take place and to encourage caution and attention for other path users.

One explanation of the imbalance of space ownership at peak-times on the path can be linked to the lack of transport identity portrayed by pedestrians in Section 6.3.1 above. The findings show that cyclists show a stronger transport identity than pedestrians. There are pedestrians who identify themselves with other path users based on perceived friendliness but not based on mode. Thus due to their lack of identity as a pedestrian this provides less of a basis from which to develop a sense of space ownership. However, as outlined above, due to cyclists' stronger transport identities they discussed instances where they consciously presented themselves in a particular way in order to control how their transport group may be perceived by others, such as pedestrians. This highlights Hewstone *et al.*'s (2010) theory that the salience of social identity as part of a group can influence the types of interactions and reactions that take place between path users. Another explanation of the imbalance of space ownership on the path is related to the finding above that walking and cycling rhythms and manoeuvres have been transferred over from the road rather than new ones learned; the bicycle has replaced the role of the car and thus dominates the space. Therefore, it is suggested that pedestrians, due to a lack of transport identity and space ownership, are the less dominant mode on the Bristol-Bath shared-use path during peak-times. One major aspect which gives further insight on this is the issue of *path* identity, the findings show that the respondents have not developed a strong path identity and this is impacting on their relations and journey experiences on the path. This will be addressed in the following section.

#### **6.4 Path Identity**

The findings (Chapter 5.0) show that the respondents do value the Bristol and Bath Railway path as a shared-use off-road environment. However, a particular set of expectations and ideals does not yet exist for the path. The path has a strong identity within the context of the city of Bristol and it is widely recognised as a popular space for walking and cycling in the city. However, a common identity of the path in the context of its specific use has not yet been developed; the interview findings highlight that the respondents have not developed a set of norms or expectations of use that are distinctly associated with shared-use paths and with the Bristol-Bath path (Section 5.4). Instead, they automatically refer to their expectations of the road/pavement as a reference point when interpreting the shared-use

space and its users. The road and pavement, as spaces of mobility, have well established norms, learned behaviours and expectations; and thus the respondents refer to these spaces for confirmation of behaviour. Also, there were conflicting interpretations of the path's name and of which side of the path the respondents should use; adding to the point that the respondents have not yet developed a specific identity for the path. The results (Section 5.4) highlight that there are contrasting interpretations of the space and this is impacting on how path users share the space and thus creating situations of tension.

For instance, Respondent 6C refers to the road rules in order to develop a reaction to a couple of cyclists on the path; *'if you're going to cycle two abreast you should cycle closer together...it's not responsible road use'* (R6C). This reaction can be explained by Higgins' (1987) self-discrepancy theory (Section 3.4); based on R6C's association between the path and the road he has developed a set of self-guides. However, these are conflicting with the other path users' self-guides and thus preventing R6C from achieving his 'ideal' or 'ought' self. The self-discrepancy theory states that if these self-guides are not met this can cause disappointment, dissatisfaction and agitation (Hewstone *et al.*, 2010). The presence of conflicting self-guides between individuals was a common evident factor behind tensions between path users. Thus, the development of a stronger path identity is required; by creating a stronger identity of the path and developing a set of common expectations and norms then this can encourage individuals to develop self-guides for their behaviour on the path which are similar to other path users' self-guides.

Path users are developing contrasting standards and expectations of the path. According to Jacob and Schreyer's theory of conflict (1980), these contrasts are a major cause of conflict in shared recreational spaces. For instance, the findings show that Respondent 3B interprets the path as a 'cycle path' and adjusts his speed accordingly to 15mph; *'I would definitely go faster on the shared bit but that's because it's more of a dedicated cycle path... you know 15mph or something and I think that's right for a cycle path'*. However there were other path users who reported that *'it's not just a cycle track, it's for both, and some cyclists just go too fast'*. This is an example of the 'activity style' aspect of Jacob and Schreyer's (1980) theory of conflict; when path users have contrasting interpretations of what is seen as 'normal' in relation to the activity style of the space. Respondent 3B interpreted the path as a cycle path with associated standards of speed, this contrasts to other path users who interpret the path as shared-use and thus, as is highlighted in the theory of conflict, tensions arise due to differences in standards of 'activity style' rather than differences in the mode of the path user.

Additionally, the interview respondents highlighted confusion and differing expectations of how the path should be used and which side of the path users should move on (Section 5.3). Respondent 9B's reaction to another path user is an example of this and is explained by the 'resource specificity' aspect of Jacob and Schreyer's conflict theory (1980); negative reactions can occur when individuals sharing space have varying definitions of the space and its use, such as the respondent's account below;

*'There was this guy and I could see him coming up on the right and everyone was going around him, he was not moving out of the way for anybody. So when I got up to him [cycling] I moved closely around him and didn't give him as much room as I could have to kind of prove a point you know, I moved around him as much as I needed to and then pulled right back in' (R9B)*

Without a specific path identity, frustration and tension between path users occurs; the respondent below highlights the effect of contrasting interpretations of the path rules and expected norms;

*'The majority of people that you're flowing along with and you're maybe at different speeds but you feel like you're all playing by the same rules and that's fine...and then every once in a while you come across someone like that who's going by something other and it just brushes you up the wrong way' (R4C).*

Expectations of norms of behaviour and standards of use are differing between the respondents; according to Higgins' (1987) self-discrepancy theory and Jacob and Schreyer's theory of conflict (1980) this is a context which causes conflict and agitation in shared spaces of recreation. One explanation of this contrast in path identities is the complex policy context of shared-use paths. As outlined in the policy review Section 2.0 there is a mismatch between policy guidance and design practice of shared-use paths in the UK. As a component of transport infrastructure, shared-use paths sit within an ambiguous policy/design setting. The hierarchy of provision (DfT, 2012a) advises that the development of shared-use paths should be the last resort for infrastructure design; however organisations such as Sustrans are promoting and continuing to develop their network of shared-use paths. To add to this, shared-use paths are not distinctly addressed in the formal traffic regulations such as the Highway Code (DfT, 2015) and Road Traffic Act (1991). A shared-use path is not a common type of walking and cycling infrastructure and the respondents' accounts highlight that they



find it difficult to see it as a space in itself, without comparing it to a road or a pavement, for example (as discussed below).

As outlined above, path users have conflicting standards for the path due to contrasting interpretations of its use; the road space was also often referenced in order to make sense of how to use the path appropriately, this is causing tension and subtle negative actions between path users. In order to begin to address this issue the aspect of terminology must be considered, the specific terminology used to describe the path and its users is an important factor. The interview findings (Section 5.4) show that the respondents used words such as 'traffic' and 'road' when describing the Bristol-Bath shared-use path. They also referred to path users as 'bikes' and 'walkers' rather than 'people on bikes' and 'people walking'. This was particularly evident in relation to cyclists; cyclists were often described as 'bikes', similar to when car drivers are referred to as 'motorists'; whereas pedestrians were more often described as 'people' walking. Additionally, in order to make sense of cyclists on the path the interview respondents transferred stereotypes of motorists to cyclists. There were respondents who used motorist stereotypes such as 'macho' male drivers and 'boy racers' to make sense of and describe a particular type of cyclist on the path.

The terminology used by the respondents highlights that they are referring to the road and pavement in order to develop standards and expectations of the path, similarly they are referring to motorists in order to interpret cyclist path users. The result of this is frustration and dissatisfaction, as the shared-path is a very different space to the road. In order to ease these negative implications careful attention should be given to the wording and particular language used in relation to the path. For instance, any resources relating to the path and any policy guidance, media or other influencing documents should be considered in order to promote shared-use paths and path users as distinct from the road and its users (further detail on this in Chapter 7.0).

This thesis has uncovered the finding that the Bristol-Bath Railway path users do not appear to share one common identification of the path and its associated norms of behaviour; in order to make sense of the space the respondents compare the path differently to a road, a pavement, a shared path etc. The complex policy setting and the language used to discuss the path (and its users) are contributing factors to this. Therefore, the development and promotion of an identity and framework from which to interpret the path and its use is required; in order to encourage the development of a standard set of path expectations and norms for the Bristol-Bath path and shared-paths in general. Within this the terminology of

the path as a shared space should be promoted and clarification provided on the path's use and name so that path users can share the space working from a common viewpoint and understanding. In order to address the above points, this thesis proposes the development of an updated code of practice for the path; this is outlined in the following section.

### **6.5     *Proposed code of conduct***

The respondents are in need of guidance on how to perceive the path as a space in itself; and thus how to interpret and set expectations for their own and other path users' behaviour. Linked with this is the use of appropriate terminology to clarify the purpose of the path and distinguish it from a road space. The development of an updated code of conduct is proposed here. The current code of conduct for the Bristol-Bath path is located on the path's website and is not located on the path. In fact, not one of the interview respondents was aware that a code currently exists for the path. Also, some aspects of path-use which were highlighted by the respondents as important, are not addressed in the current code.

The details of the existing approaches to codes of conducts are discussed in Section 2.4, concluding that a code of conduct should be just as much about influencing path users' perceptions and attitudes towards the path as it is about providing information on the rules for use. The code can also act as a message in order to set the tone of the use of the path. By using the correct terminology and presentation, it can represent a particular identity of the path and begin the development of a common and shared identity of the path amongst its users. Influenced by the findings of this thesis and the discussion above, a code of practice for the Bristol-Bath path is presented below (Figure 13). Recommendations on the implementation and practicalities surrounding the application of the code are discussed in Chapter 7.0.

The place of shared-use paths within a wider infrastructural context should also be noted here. The proposed code below is specific to non-segregated shared-use paths, however, cyclists and pedestrians use other infrastructure such as segregated paths and paths for walking or cycling only, where there are different codes of practice; both official and non-official. These walking and cycling infrastructures are spatially different and one uniform code for all spaces would be difficult to develop. Thus differing designs of walking and cycling spaces does create a more complex setting for the development of a specific non-

segregated shared-use path code. In order to address this challenge, an awareness amongst path users that there are particular codes of use that are specific to shared-use paths and different from the road or pavement, should be encouraged. This again relates back to the point of the importance of developing an identity for shared-use paths so that users recognise the space as a distinct type of infrastructure with associated behaviour expectations, such as when people identify with roads or pavements. The key aim of the code is to attempt to encourage a similar set of behaviour expectations amongst path users specifically in relation to shared-use paths.

When asked what would make sharing the path more enjoyable the highest percentage of respondents chose 'a rule that all users should keep to the left' (60.9%) and 'more formal guidance' (50.1%), a lower percentage chose 'more measures to reduce speed' (32.8%). When providing comments the survey respondents made the distinction that they would prefer some clear guidelines rather than formal regulations; suggesting that there may have been a higher preference than 50.1% for more formal guidance if the survey option was phrased as a 'code of conduct' or 'general guidance' rather than 'formal guidance'. It was expressed by the interview respondents that some guidance would be useful but it was also pointed out that this should be *'encouraging rather than instructing'* and *'more a code of practice than regulation'*. To add to this, there were only three interview respondents who disagreed that introducing a code of conduct for the path would be a good idea, and this was due to issues about enforcement.

Respondents also mentioned that it should be concise and quick to read. Thus the six points of guidance proposed below (Figure 13) aim to communicate some key messages that can be easily read and interpreted on the path. In order to reduce the conflicting expectations outlined in Section 6.4 above, the key aim of this guidance is to set a particular tone of 'sharing'. Unlike the current codes of conduct, discussed in Section 2.4, which are aimed specifically at cyclists (Sustrans, 2013a; DfT, 2004c) or split into specific guidance points for cyclists and pedestrians (Sustrans, 2014d; Cardiff Council, 2010), each point on this code of practice is aimed at all users. The aim here is to re-enforce the path's status as shared-use and to take the focus away from assigning particular undesired behaviour with particular modes and thus re-enforcing the negative perceptions associated with that mode. Additionally, to clarify the path's identity, the official name of the path and emphasis on its shared-use is stated clearly at the beginning of the guidance. It is envisaged that further details of the overall intent of the guidance and the rationale for specific clauses can be presented on the path's website. Thus in order to encourage a common path identity and to

respond to the research findings about the respondents' preferences, a proposed set of guidance has been developed; it is presented below followed by further detail on each point.

**Figure 13 - Proposed shared-use path guidance**

**Sharing the Bristol-Bath Railway Path**

- 1. All users please keep left**
2. Please only overtake when and where it is safe
3. Please be aware and considerate of more vulnerable path users
4. Always be alert for cyclists and other path users, even at quieter times
5. Please be aware that this path is for sharing not speeding
6. Please keep your dogs under control

For further details please go to: [www.bristolbathrailwaypath.org.uk](http://www.bristolbathrailwaypath.org.uk)

***Detail on each point:***

1. In response to the findings presented in Chapter 5.0, it is apparent that there is confusion over which side of the path to use and this is impacting on path-user relations. When asked what would make sharing the path with cyclists/pedestrians more enjoyable 60.9% of the survey respondents chose 'a rule to keep left'. Guidance to 'keep left' is appropriate as it can be assigned and communicated to all users simply and concisely, in comparison to assigning a different side to different modes.

There is also the possibility that the latter option would create an environment which is more like a road and pavement situation, with 'road traffic' on one side. This would re-enforce the issue of path users interpreting the space as a road/pavement and associating cyclists with motorists. Segregating path users by mode would also encourage social categorisation and further the development of in-groups and out-groups based on mode, causing further reasoning for tension between path users. As outlined in Section 3.4 tension often occurs between in-groups and out-groups.

Additionally, the interview respondents revealed that they are required to make 'judgement calls' about other paths users and put trust in other path users in order to

share the space. The interview discussions showed that there is variable trust between path users and their interpretations of others were not always accurate. Thus, by encouraging all path users to keep left it is proposed that this will give cyclists and pedestrians more guidance and less variability in their trust in others.

2. A point on overtaking was included in order to reduce the occurrence of the stressful situation, discussed by the interview respondents, which often occurs due to path users attempting to overtake when it is not safe to do so in order to avoid 'bunching'. Further clarification of 'safe' could also be included on the website: e.g. only overtake when the path is clear of oncoming users or when there is a safe amount of space for all users.
3. In response to the respondents' reactions to the theme of priority on the path and in order to promote a more even balance of power between path users it is proposed that the guidance should act as a reminder to be considerate of more vulnerable path users. The path website should also clarify what is meant by 'more vulnerable path users': e.g. slower moving path users, young children, older people, people with disabilities.
4. A concern for both cyclist and pedestrian respondents was that pedestrians are unaware of their surroundings while using the path. It is proposed that this issue can be lessened by notifying path users to be more alert at all times, not only when the path is busy. This point is specifically aimed at pedestrians; however it is worded so that all users are addressed, in order to avoid re-enforcing the tension which is associated with pedestrians specifically being unaware of other path users.
5. This point of guidance is provided by Sustrans in their 'Cycling Code of Conduct on Shared-Use Paths' (Sustrans, 2013a). It is appropriate for the Bristol-Bath path as the issue of speeding cyclists was a prominent theme voluntarily discussed by both cyclist and pedestrian interview respondents.
6. Dogs on and off leads was a complaint from the interview respondents, cyclists in particular. They gave accounts of times when they felt unsafe due to dogs not being under control on the path. The website should clarify the legal position with respect to dogs.

One aspect of concern highlighted by the respondents about a code of conduct was the issue of communicating the code. The current code is located on the path's website; this

however is not proving effective as none of the interview respondents were aware of its existence. Thus it is proposed here that the code is located at the access points of the path, due to its compact size this will be unobtrusive and quick and easy to read, setting out a specific tone for the path users as they enter the shared-space (more information on the implementation of the code is provided in Chapter 7.0).

The findings of this thesis highlight that shared-use paths do not have an identity in the respondents minds, specific expectations and behaviours associated with shared-use paths in particular have not been developed by the path users. As a result, the path is used and perceived differently by everyone. In turn, path users are often frustrated and disappointed by the behaviours of others. Therefore, it is suggested that a code of practice can promote a more pleasant sharing culture on the path. However the code must have two aims, it must both inform about path use *and* promote a specific identity and tone of use for the path.

## **6.6     *Effectiveness of the video and interview method***

The mobile video method (and interview) implemented as part of this research is a relatively new method within the field of mobilities. As outlined in Chapter 4.0, a variety of research (Pink, 2007a; Brown *et al.*, 2008; Spinney, 2011; Simpson, 2011; Merriman, 2013) has already begun to inform and reflect on mobile video methods, particularly using head cameras or walk along/ride along recordings. However there is still a lot to learn and explore and this thesis provides a novel contribution in that it implements discrete cameras, recording personal journeys and interactions. Therefore, this section will provide a detailed discussion and reflection on the method itself and on its unique findings; adding a contribution to the field of mobilities and mobile methods research. First, the overall impact of this method on the interview participants will be discussed, then the practicalities of the video method will be reflected upon, finally the nature of the findings accessed through this method will be debated.

### **6.6.1     *Overall impact on respondents***

The respondents expressed a very positive attitude to taking part in the research, in particular the video recording and interview process. They voluntarily pointed out that it has made them more aware of their actions on the path and of the impact this can have on other path users. By watching the recordings and discussing/reflecting on their journeys the

respondents commented that it has heightened their awareness and understanding of other path users and of their own walking/cycling habits on the path. For instance, R6C explains;

*'It's quite interesting analysing my cycling, it's definitely making me feel like I need to be a bit more considerate...it has definitely given me an eye into what it could be like for another cyclist or another pedestrian'*

Respondent 1B also explains that taking part in the research helped her to gain a wider perspective of the path processes, outside of her individual and personal experience; *'it's good because it makes you really aware of where you fit into the whole picture of the cycle...and the path'*. Respondent 13P also points out that taking part in the video recording had an impact on her. She reports that it has actually influenced her approach to interacting and sharing the path with others. R13P is now more aware of the potential of interacting and engaging with others on the path;

*'I mean another thing to say is that it has heightened my consciousness in how I look at people or make eye contact with people. And so, when I remember...I pay attention to the people that are going past me and I'm much more likely to... be there and to be ready [to interact]'*

As outlined above, the participants reported that taking part in this research process has broadened their perspectives about the experiences of other path users and about the potential impact of their own actions on others. From these findings it is suggested that path-user relations can be enhanced and journey experiences enriched by encouraging path users to see the path from another user's point of view.

### **6.6.2 Practicalities**

The practicalities related to the usefulness of this method will now be presented below, focusing on the level of awareness that the respondents had to the camera during their journeys. The interview discussions revealed that there were respondents who were aware of the camera at certain points in their journey for a number of reasons. First, a common point made by the respondents was that of security. There was concern that other path users may recognise the camera and attempt to steal it; Respondent 2C stated that she was *'...slightly weary of having an expensive piece of equipment on the bike. And I suppose it made me think about the journey a bit more'*. Respondent 8B also explained that she was;

*'worried about someone coming along on a bike and grabbing it [the camera] and cycling off with it'. There were also concerns about what impression having a camera might give to other path users. There were respondents who perceived path users who carry cameras as a certain 'type' and were concerned that they would come across as this type. Respondent 4C's account accurately highlights this;*

*'I'd say, slightly self-conscious that I had a camera on my bike...if people were looking at me and...they maybe thought that I was one of those like...liable to sue them kind of characters, like I'm out to get you kind of, you know, those characters that bombs along like a Strava person with a big black swizzy thing on the front of my bike [laughs]' (R4C).*

Another aspect which highlighted the respondents' awareness of the camera was their discussions about wanting to *'get good data'* (R11B) and *'I hope I've got a recording for you'* (R7B). This was more evident from the pedestrian respondents due to the camera being attached to themselves rather than a bike. Due to the nature of the camera being attached to their person this caused them to be more physically aware of their actions. As Respondent 10P pointed out, he altered his usual way of situating his body in order to cater for the camera; *'yeah because I was trying to keep my hands down, I often carry my coat like that so I was aware that I didn't want to block it'*. Pedestrians also mentioned concern about the direction and steadiness of the camera and in turn they were more aware that they were taking part in the research and less aware of their journey experience;

*'I was aware that it was moving around a lot so I thought oh is it getting a good picture but I didn't touch it, I did pull the strap across' (R9B)*

*'I wanted to try and make sure that it stayed on the bit we wanted to film as opposed to shooting off to the sky or something' (R8B)*

However, there were also respondents who expressed that they were not conscious of the camera; *'you could easily have one of those on your bike and not think about it at all'* (R1B). Additionally, for the respondents that did discuss being aware of the camera, their actions often did not conform to this. For instance, Respondent 13P started to hum during her journey and admits; *'well I wouldn't consciously hum if I knew I was being recorded so I must have gone into a reverie at that point'*. Respondent 12P also explained that at parts of the journey she did completely forget about the camera; *'...and I was just like yeah yeah, not*



*paying attention, and then I was thinking oh how is this going to be caught on camera'.* When discussing his interactions on the path Respondent 5C also highlighted that he would have reacted differently if he had been conscious of the camera;

*'Yeah, I forgot the camera was there [laughs]. That's why after I got passed by that guy [cyclist] I was thinking oh yeah I should have said something, I forgot about the camera and the microphone in it, because I would have said something' (R5C)*

Other respondents explained that they were conscious of the camera at the beginning but as the journey went on they became less aware; *'I think initially yeah [I was aware of the camera], but after a while I just kind of thought oh I've got a light on my bike, I just forgot that it was a camera really' (R6C)*. Thus, like Brown *et al.*'s (2008, p.7) research with hill walkers and mountain bikers (discussed Section 4.5) there were some participants who 'found it easier than others to incorporate it (the camera) into their social worlds'. Again, similar to Brown *et al.* (2008) the pedestrian respondents reported being more conscious of the presence of the camera, the authors also reported that the mountain bikers were more at ease using the technology than the hill walkers. Brown *et al.* (2008, p.8) put this down to the fact that 'video is more established in the socio-technological context of mountain biking'. Another reasoning found in this thesis was related to the camera being positioned on the person for the pedestrians compared to on the bike for the cyclists. This thesis also found that a mix of both pedestrians and cyclists highlighted that they were not aware of the camera at certain points of the journey as they admitted that they would have acted differently if they were aware. In order to encourage respondents to be less conscious of the camera particular factors are important (as illuminated through the respondents discussions); the camera must be secure, the camera must be subtle in appearance, respondents should have enough time to get used to the presence of the camera.

### **6.6.3 Accessing personal experiences and the unobservable**

As is evident in the findings presented in the previous chapter, the video recordings proved very useful when respondents were explaining situations and interactions. Due to the presence of the video footage the respondents did not have to concern themselves with giving descriptive details of a particular section of the path or explaining a complex interaction, these details were provided in the video. This allowed the respondents more freedom to focus on providing accounts of their personal feelings, movements, and reactions. As Respondent 12P states;

*'It was helpful [the video] because it's sometimes difficult to describe the narrow sections, you know I'll say to my husband 'those bits that get narrow' and he knows exactly what I'm talking about but it's nice to be able to point to a certain section or that person that passed me'(R12P)*

Other respondents pointed out that it was a useful way to remind them of particular instances, feelings or interactions that took place. For instance, Respondent 2C explained that *'looking at it jogs your memory'*. Similarly, Respondent 14B pointed out that by looking back on the video footage he was reminded of particular feelings and thoughts he had during his journey, for example, due to the fact that he was walking on a former railway line he was reminded of when he used to travel on steam trains; *'it was helpful, it reminded me about my desire to delve into the past and go into reverie as if I'm going along on a puffer train'*. Also, the viewing of a particular section in Respondent 13P's video recording lead to her discussing the importance she places on her visual senses while using the path. She states; *'now, ah, there was a reason I stopped there,'* and goes on to explain the importance of experiencing nature on the path. These findings are in line with Pink's (2007a) discussion of the benefits of the video method in encouraging respondents to discuss a variety of topics that were related to the research but may not necessarily have arisen without the video data.

The images and relating quotes presented in Chapter 5.0 highlight how the video recordings assisted the respondents to give in-depth reflections on their mobile actions and negotiations. This helped in identifying the types of interactions that take place on the path. It enabled the participants to talk through how and why particular instances occurred; resulting in the findings in Section 5.2 (for instance Respondent 6C's 'need for speed' and Respondent 2C's reaction and explanation of 'bunching'). The participants' responses to particular situations in the video footage also uncovered the less obvious processes that take place between path users (Section 5.2) and during individual mobile experiences (Section 5.3). This research shows that there are important aspects of shared journeys that cannot be picked up on by observation alone, in-depth discussions with path users (with the added aid of video footage) are necessary in order to access these. The video and interview method highlighted that the process of solely observing interactions does not provide an accurate interpretation of path users' experiences. There were many interactions which appeared uneventful from the video clips, however when discussed with the respondent during the interview they did in fact have an impact on their journey. There were also

interactions which appeared, from observation, to be eventful; however, when discussed the respondents' reported experience of the events did not match the interpretation from an observer's point of view. These are discussed below.

For instance, Respondent 4C discussed her frustration with another path user who did not make eye contact when passing her. She explained the negative impact of this on her experience; *'it really annoys me.... It leaves that kind of cold, like people talk about that actively avoiding someone's gaze on the tube, it leaves a little taste of that'*. This passing, from an observer's point of view, would have been classed as uneventful; both users passed each other in the opposite direction with adequate space and without altering their direction. This would not have registered on the Atkins (2012) scale of interactions, the lowest on this scale was 'minor interaction'; 'arising when one or more users adjust their speed/position to allow others to pass'. Similarly, this would have scored a zero; 'no response', in the Sustrans (2013b) research. However, when discussed by Respondent 4C this was not in fact the case. As presented in Chapter 5.0, there are path users who place great importance on creating a sense of path community through eye contact and acknowledgment of other path users, when this is absent it causes them frustration and makes it an unpleasant experience; such as Respondent 4C's reaction above. However, this aspect of path relations could not have been picked up on by solely observing path users; their own personal interpretations of the journey are also required. Additionally, out of the survey respondents who reported being frustrated by the actions of another path user, only 23.4% reported that they actually showed their frustration. Thus there were respondents who were frustrated by other path users that did not visibly show this; adding to the point that in-depth discussions provide a more detailed perspective on path-user relations compared to observation alone.

The video recordings uncovered other examples of situations that would have been categorised as a 'minor interaction' by Atkins (2012) and rated a 1 out of 5; 'precautionary or anticipatory slowing down when risk of collision is minimal' by Sustrans (2013b). However, when explained by the respondents there was in fact more taking place and their personal experiences did not match these categorisations. For instance, Respondent 10P showed his fright when he was 'caught by surprise' by a passing cyclist (Section 5.2). This encounter would have been classed as low on the observation scales. However, Respondent 10P's experience of this was that he was actually slightly startled and frustrated by the passing cyclist. A similar situation to this occurred when Respondent 5C was overtaken by

another cyclist who did not ring their bell and R5C did not hear them approaching. The respondent discusses this interaction with a higher intensity and shows his stress and negative experience of this interaction;

*'There, [speaking with higher intensity] that was my bell going there, that was my bell not his because I was entering a dark space, and I was concentrating, I was thinking about what was ahead because I had nothing to indicate that there was anything behind me, ...and when that guy came past me of course I wasn't thinking about what was behind me and I couldn't hear him...' (R5C).*

The video and interview method uncovered many interactions which, from observation, may have appeared uneventful or may have been categorised as low on the scale of conflict/collision. However, the respondents' reactions and discussions highlight that in some cases these interactions were in fact impacting negatively on their journey. It should also be noted here that there were many interactions which appeared uneventful that were also described as uneventful by the respondents. As discussed in the Methodology Chapter 4.0, Fincham *et al.* (2010, p.4) pose the question of whether or not an 'appropriate proximity' can be gained by using technological methods, 'or does the researcher have to be present?'. The findings above show that as long as there is an awareness that the video camera 'does not 'view' the world in the same sophisticated way as the human eye' (Brown *et al.*, 2008, p.8) and by interpreting the video footage alongside the respondents accounts, it can in fact bring the researcher closer to the researched and 'appropriate proximity' can be achieved. In many cases a deeper understanding of the event and experience can be gained by including an appropriate mobile method.

There were also actions and moments of interaction which were not picked up on at all in the video footage. Due to the position of the cameras, head movements and glances in particular were difficult to recognise in the video footage. However, due to the interviewing process alongside the video footage, this allowed the respondents to give more detail on the event, such as a description of the additional actions or manoeuvres they may have taken which were not picked up on by the camera. For instance, when reflecting on taking part in the research, Respondent 12P points out that *'a lot of the time you're not going to pick up what a camera picks up and you're looking in different directions, whereas this is a set view'*. Also, Respondent 5C gives a description of his manoeuvre below as additional information to the video footage;

*'...I'd heard him though because his bike was noisy [laughs] it was grinding away, but I had, you can't see on the camera but I had glanced over my shoulder because I heard him' (R5C)*

Additionally, there were interactions uncovered on the video footage which appeared uneventful through observation, but in fact further discussion during the interview revealed that the particular interactions had a positive significance to the respondents' journey and enhanced their journey in a particular way. For instance, the processes associated with identity formation and preservation. There were respondents who made eye contact or greeted particular path users who were perceived as being part of their in-group, these encounters confirmed the respondents' transport identities and thus enhanced their journey experience, yet the exchange was non-observable and would have been very difficult to detect using the observation or interview method alone.

As discussed in Chapter 4.0 Merriman (2013, p.10) warns that when there is too much focus on mobile methods and the necessity to 'move with' the participants 'the many complex (often invisible) social and political practices and relations which co-constitute spaces, events and contexts' are at risk of being overlooked. However, the findings of this thesis relating to identity and social interactions, and its impact on mobile experiences, shows that Merriman's (2013) point of caution can be addressed when a balance is struck between the mobile method and the more traditional/static method. This allows an interpretation of the technological data from the participants' point of view, engaging with the social and cultural practices which are taking place. Thus, using video footage of personal journeys was found to be an effective discussion prompt during the interviewing process. It was also found to be a practical and in-depth tool which enabled access to specific experiences, reactions, manoeuvres and interactions on the path, which would have been difficult to uncover otherwise.

## **6.7 Chapter summary**

This chapter has set the findings for this thesis within a theoretical context and presented a discussion focused on two broad themes relating to sensory experience and identity (of both the path and its users). A discussion on the mobile video method has also been presented. By drawing together the two strands of theory which are central to this thesis (mobilities and social psychology) it is apparent that there are corporeal and sensory aspects

as well as social aspects related to walking and cycling journeys and interactions on shared-use paths. Additionally, these aspects have an impact on path-user experiences.

This thesis has found that different sensory aspects are prominent for cyclists and pedestrians; this is in keeping with the mobilities theory. Identity processes are also key to shared path relations; path users identify with and perceive there to be distinct groups of users on the path, they react and engage differently with members of these groups depending on whether they are perceived to be part of the in-group or out-group.

The findings also revealed that there are differing interpretations amongst path users of the space and expectations are being transferred from the road and pavement to the path. These findings are considered and further developed in the following chapter in terms of practical implications and recommendations to path managers and practitioners. Additionally, the proposed code of conduct presented in this chapter will be set within a broader recommendation strategy in Chapter 7.0. These discussion points, and the key findings from the Chapter 5.0 will be drawn together and concluding comments provided in the following chapter.

## - CHAPTER VII -

### 7.0 Conclusion

#### 7.1 *Introduction*

The overall aim of this research was to explore the visible and non-visible aspects of walking and cycling journeys on shared-use paths and examine the interactions that take place between path users. If the aspirations to increase walking and cycling levels in the UK are met this will create increased pressure on walking and cycling infrastructure such as shared-use paths; the frequency of interactions between cyclists and pedestrians will also increase, potentially having a negative impact on path-user journey experiences. Thus, this research has focused on exploring walking and cycling interactions and journey experiences in a space where a high frequency of use and competition for space already exists, in order to provide an insight into future potential challenges if walking and cycling levels increase. The importance of understanding and exploring journey experiences has already been acknowledged by policy in relation to rail and road user experiences (Transport Focus, 2015; Highways Agency, 2014).

However, this thesis has highlighted the need to also address walking and cycling journeys, by carrying out in-depth research into the experiential, embodied and social aspects of shared-use path journeys. This can aid in the improvement of journey experiences and link to the DfT's (2009, p.14) goal of addressing the issue of quality of life by improving 'the experience of end-to-end journeys for transport users'. Therefore, central to this research, unlike previous research projects examining this topic, is the focus on gaining an in-depth insight into walking and cycling experiences by exploring the visible and non-visible aspects of shared-use path interactions. With this, the project drew from two broad bodies of literature in order to focus on the corporeal, embodied and personal experiences (mobilities paradigm) as well as the social aspects (social psychology) of walking and cycling. By implementing this theoretical framework and combining mobilities and social psychology theory this research has uncovered a variety of findings which are relevant from both a practical and theoretical point of view. This final chapter provides a concluding discussion of the key findings, contributions and recommendations of the research, finishing with suggestions for future research.

## **7.2     *Key findings and contributions***

The findings of this research have uncovered the importance of addressing the non-visible aspects as well as the visible aspects of user relations and experiences on shared-use paths. This section sets out the key findings and contributions to knowledge of this research. First the general theoretical contribution of this thesis is outlined. Sections 7.2.2-7.2.6 then highlight the key findings, in relation to the aims (see Section 1.3) and research questions of this thesis (see Section 3.6.1). Finally, Section 7.2.7 addresses the impact of this research in practice.

The first aim of this research was to explore journey experiences on shared-use paths and explain how and why interactions with other path users can influence these experiences. This aim has been addressed by answering research questions 1 and 2, relating to interactions and experiences on shared-use paths. The key findings related to this are outlined below in Sections 7.2.2-7.2.4. The second aim; considering how path users' expectations and attitudes towards the path itself impact on journey experiences and interactions with other path users, has been addressed through research question 3 relating to the participants' responses about the path itself. The key findings from research question 3 are outlined in Section 7.2.5. (Research question 4, relating to the policy and practice implications, are dealt with in the recommendations Section 7.3 below). Finally the research aim relating to the methodological contribution and research question 5 is presented in Section 7.2.6.

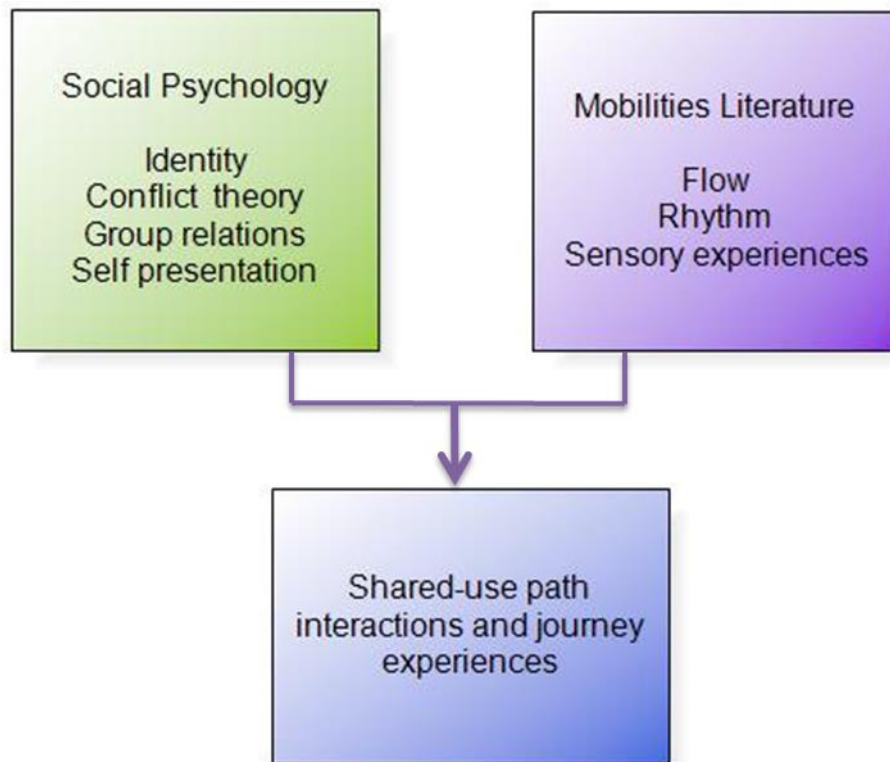
### **7.2.1     *Theoretical contribution***

By setting this research in a novel theoretical framework and by drawing together both the mobilities and social psychology literatures (see Figure 14 below), it is evident that particular aspects related to social and sensory processes impact on path-user relations and experiences. By studying the embodied experience of walking and cycling in a shared-use environment new theoretical insights have been generated. The sensory and corporeal experiences dealt with in the mobilities literature, are often presented and dealt with from an individual and personal point of view; the kinaesthetic aspect of cycling for instance. However, this point of view can be further mobilised by interpreting these experiences from a shared and social outlook. The suggestion here is that the individuals' sensory and embodied experiences of mobile spaces and mobile actions can be further explored by



examining how they interact with other mobile sensory beings; in the context of the social processes highlighted by social interaction and social psychology literature.

**Figure 14 - Theoretical Framework**



### **7.2.2 Interactions**

When examining the interactions experienced by the research participants, the survey results highlighted that the majority of interactions experienced by the path-users were neutral or positive. The video recordings and interviews showed that there are more complex processes taking place. Path users are adapting to the space and reacting to the little guidance that there is on path use. Thus, in order to attempt to create a pleasant environment and journey experience the respondents implement particular processes. The processes involve complex factors such as attempting to read and predict other path users' behaviours based on varying levels of trust and judgement. Path users are required to negotiate interactions based on levels of trust and assumptions about the movements of others; this involves subtle and non-verbal communication. The respondents also showed differing preferences for their levels of engagement with others. There were respondents whose perception of a pleasant journey was that of one which involved eye contact,

acknowledgement of and communication (not necessarily verbal) with other path users. This was particularly with the aim of creating a sense of community on the path. On the other hand, there were also respondents who reported using walking or cycling equipment to intentionally inhibit engagement with others on the path.

This research has revealed some of the coping strategies that the respondents use in order to share space. They are forced to negotiate the space based on judgements and perceptions of others, as there is a lack of clarity on how to use and interpret the path and its users. As noted above, the path users also choose to engage with others to varying degrees. This highlights the complexity of the space and difficulty for designing for a space which caters for two different modes, with differing journey types and purposes within these. By uncovering this knowledge about path user interactions and sharing practices this research assists in the development of better informed shared-use path policy and management decisions.

### **7.2.3 Identity**

Processes associated with identity were also uncovered as an important aspect of path-user interactions. Individuals engage in processes of social categorisation and thus identity formation; the preservation of transport identities has an impact on path-user relations. Path users showed evidence of being aware of and attempting to present the identity of their 'mode' social grouping in a positive light by interacting with other path users in a particular way. However, transport identities were not evident amongst the pedestrian respondents. Along with this lack of transport identity, pedestrians have a weaker sense of space ownership than cyclists during peak-times on the path (further on this in Section 7.4). The findings suggest that there is a perception amongst path users that cyclists dominate the space and are perceived to have more right to space, suggesting that the rhythms of motor-traffic in the road space have been transferred to the shared path, and that in this context the bicycle has taken the place of the car.

### **7.2.4 Sharing mobile experiences**

There were differences in how cyclists and pedestrians engaged with their journeys: the physical and tactile aspects of the journey were more prominent in the cycling respondent accounts, whereas the visual senses were a more prominent aspect of the walking respondent journey accounts. However, these differences did not appear to be the main

influencing factor behind frustrations between path users. Path users with the same sensory goals and experiences could still cause frustration to each other by showing a lack of consideration or a lack of awareness for others. Thus, another key finding of relevance is that collegiality between path-users of the same mode may not be the main driver behind shared-path relations. Additionally, reported frustrations between path users were not distinctly cyclist-pedestrian frustrations; reported frustrations were more about consideration. A perceived lack of consideration by other path users was a main factor impacting on their reported accounts of frustrations with others on the path. This finding is relevant in that it highlights an aspect of path relations which should be addressed when promoting path use, in order to encourage pleasant walking and cycling experiences.

#### **7.2.5    *The path***

The research has also revealed information regarding the mobile space itself: the shared-use path. A rule that all users should keep left and more formal guidance were the most popular choices when asked what would make sharing the path more enjoyable. However it was emphasised that this would be preferred in the form of guidance/signage rather than regulations. Linked with this, the findings uncovered that shared-use paths are lacking a specific identity as a space of mobility. Contrasting expectations of norms of behaviour exist. Expectations, terminology and stereotypes are being transferred from the road and pavement to the path. This lack of clarity around the path and its use is having implications on path-user relations. There are differing interpretations of the path's name and of which side it is appropriate for each mode to move on. This is leading to frustrations and tensions between path users. Additionally, the respondents are interpreting the path and its users in terms of road terminology and behaviour; differing expectations are developing of the space and this is causing tension. Thus this research has uncovered the lack of identity which exists in relation to the Bristol-Bath path. The respondents for this research did not identify with the space as a place in itself; this is due to confusion over the specifics of its use and related expectations. Therefore, a re-identification of the space is necessary in order to clarify issues around path use and reduce the differing interpretations and expectations which exist about the path; with the aim of reducing potential situations of conflict between path users.

### **7.2.6 *Mobile video method***

Finally, this research has made a contribution to the field of mobilities and mobile methods by implementing and assessing the interview and mobile-video method. This thesis has highlighted aspects of the practicalities of the method which could be improved on, in particular aspects surrounding the participant-camera relationship. The video footage proved very useful in aiding the discussions and accessing the non-visible aspects of the walking and cycling journeys. There were many instances on the video footage which appeared non-eventful through observation, and in fact did have a significant impact on the respondents' journeys, according to their interview accounts (and vice versa). This highlights the importance of implementing a discussion method such as an in-depth interview along with the mobile video method, in order to gain a personal account of the recorded events from the research participants.

### **7.2.7 *Impact of research in practice***

The findings from this research have had a wider impact on practice; as well as making theoretical contributions and recommendations for policy, the findings have also had an impact in practice and benefitted path managers, councillors, practitioners and committee members. The researcher has attended a community meeting about the Bristol-Bath railway path run by the neighbourhood forum 'Up Our Street' and Bristol City Council, and contributed the research findings to discussions about setting up a path management plan and ideas of how to improve journey experiences on the path. Consequently, the researcher has also been invited to present the findings of this thesis at a workshop run by Up Our Street in accordance with Bristol City Council and Sustrans. The aim of this workshop is to share current knowledge about the Bristol-Bath railway path and from this develop an enquiry and path management committee.

## **7.3 *Generalisability of findings***

When the generalisability of the research findings are considered it is suggested that the findings can indeed provide insightful knowledge for current and future walking and cycling infrastructure. The case study path for this research does have some specific local features such as its narrow width at some sections; it is constrained for space and there is little room for widening the path. Also, one of the main local factors is the path's long, mostly straight,

gentle slope towards the city centre. This often encourages increased cycling speeds and may increase the potential for conflict between path users. However, other aspects of the path are common to many walking and cycling spaces, such as the surface type, the mix of journey purposes and the mix of different types of cyclists and pedestrians.

Also, the path provides a useful example of a space where frequency in use has increased, putting pressure on the space. Thus the research findings will prove insightful for other shared-use converted railway paths which have seen (and are expected to see) an increase in usage; such as the Derwent Walk Railway Path in Durham and the Chester Railway Path (as outlined in Section 2.2). Additionally, when considering the wider implications of this research, the findings can be applied to new paths. For instance the findings and recommendations relating to path identity, branding and the code of conduct (previous Chapter 6.0 and Section 7.4 below) will be important to the planning of new shared-use paths. The findings are also relevant to broader categories of mobile spaces such as segregated shared-use paths and shared spaces between cyclists and pedestrians. For example, much of the findings related to how the respondents perceive others and their attitudes to particular modes can be transferred and are relevant to the types of users in shared spaces and on segregated paths.

#### **7.4     *Recommendations***

It is recommended that the Bristol and Bath Railway path managers and council representatives should consider introducing an identity-influencing strategy for the path. To this end, a re-branding of the path and its resources (such as the path-use guidance and the path website) is required. This should cover addressing the key findings and issues outlined above; space ownership, terminology, and uncertainty about path use. The more specific recommendations relating to these findings are outlined below, along with a final recommendation concerning the mobile video method used in this research.

The proposed code of conduct in Chapter 6.0 should be central to this identity influencing strategy. The thesis has recommended a number of factors in order to promote and implement this strategy. First, the website should be updated and re-launched to raise its profile through a publicity campaign; the website should contain additional information on the code of conduct. Second the code should be situated on the path itself, it has been designed taking this purpose into consideration, thus it is concise and clear. In order to give

the new code and the re-branding of the path permanence, the code should be in the form of a small permanent metal sign. The code should be located at access points to the path. By implementing this strategy the recommendations below can also be addressed.

As outlined in the previous chapter, at peak-times (when this research was carried out) cyclists reported having a stronger sense of space ownership than pedestrians on the path. It is possible that there is a more even balance of space ownership between cyclists and pedestrians at non-peak times (see Section 6.3.3 for more detail on this discussion). However, this distinction between peak and off peak flows and sense of space ownership is important. If targets to increase levels of walking and cycling are attained in the UK, there will be an increased pressure on walking and cycling infrastructure such as shared-use paths. Interactions between cyclists and pedestrians will increase, as current 'peak' conditions occur throughout more of the day, and the peaks themselves will become more intense. Hence, it is recommended that a culture of sharing is promoted on busy paths. Attempting to maintain a balance in power-relations between cyclists and pedestrians during times of high frequency of use is vital to shared-use path regulations and policy. This can be addressed through the implementation of the identity-influencing strategy outlined above.

It is recommended that the wording used in policy, guidance, media and any other influencing documents should be carefully considered in order to promote shared-use paths and path-users as distinct from the road and its users. This would address the issue of terminology (outlined in Section 6.4); respondents referred to roads and road users in order to interpret the shared-use path and its users. For instance, the Seattle Neighbourhood Greenways organisation (2015) has developed a campaign, 'How to Talk about Safe Streets', which highlights the importance of using appropriate terminology when discussing mobile spaces. They have developed a 'cheat sheet' for neighbourhood advocates and city officials. This is a one page document outlining alternative wording for common terminology used when describing streets and their users. The aim of this is to encourage individuals to interpret other transport users as 'people' biking/walking/driving rather than by their chosen mode such as 'bikers' /'drivers'. This research recommends that terminology relating to the path as a shared space should be promoted. Clarification should be provided on the path's use and name so that path users can share the space working from a common viewpoint and understanding. It is suggested that this issue should be addressed through a re-branding of the path by updating the website and promoting a new code of conduct (as discussed above).

The final point of recommendation is related to the data collection methods implemented for Phase II of this research. Taking part in the mobile video and interview research had a positive effect on the research participants. They reported having a broadened outlook on the path and its users from reflecting on their journeys and watching the video footage. As outlined in Chapter 6.0 they discussed that taking part in the research process has increased their awareness of other path users and the potential impact of their own actions on others. Thus it is suggested that path-user relations can be impacted upon and enhanced by encouraging path users to see the path from another user's point of view. It is recommended that video footage such as that collected for this research could be distributed via the path website along with individuals' descriptions and explanations of their journey experiences. This would allow path users to see other individuals from a different point of view, for instance the behaviour of the 'speedy Lycra types' could be alternatively interpreted as the 'meditative' experience that it was presented as by some of the cyclist respondents (Section 5.3).

## **7.5     *Future Research***

Reflecting on the research findings in a theoretical and practical context (Chapter 6.0), and reflecting on the methods implemented for this research (Chapter 4.0); particular avenues for future research have become apparent. In concluding this thesis, the suggestions for future research are presented, focusing on the potential for carrying out follow-up research to further explore the findings presented in this thesis.

The first point relates to the timings of the data collection strategy. Due to the focus of the research on interactions, the data collection was carried out during peak times when frequencies of use and interactions would be higher. Thus, as debated in the discussion chapter, conclusions about space ownership and balance of power relations between cyclists and pedestrians reflected the timings of the data collection; and cyclists were reported to take more space ownership than pedestrians at peak-times. Therefore it is recognised that further research into walking and cycling interactions and experiences on shared-use paths at off-peak and quieter times would be beneficial, in order to compare the differences, if any, in power relations at these times.

Second, in order to take the findings and recommendations of this thesis further, it would be beneficial to implement a follow-up research project to test the proposed code of

conduct (Section 6.5). The impact of the code and re-branding of the path could be tested with the Bristol and Bath Railway path users; implementing a before-and-after research approach examining attitudes and behaviours towards the path. Additionally, the code and the identity-influencing strategy (outlined in Section 7.3), could be tested on other shared-use paths in order to examine the generalisability of the strategy to a wider context.

The final suggestion for future research relates to the impact of the research process on the participants. As discussed above in Section 7.3, the participants reported having a greater awareness for their behaviour and the behaviour of others on the path since taking part in the research; particularly the mobile video and interview method. It would be beneficial to carry out further research into the specific impacts of this on path-user relations, and whether or not these are sustained. If shown to have a sustained impact on path users, this process of reflecting on path behaviour using video recordings, could act as a useful intervention along with the re-branding of the path; to increase awareness and improve path user relations on shared-use paths.

This research has demonstrated that by examining walking and cycling interactions on shared-use paths from a more subjective, personal, and in-depth point of view, and drawing together the mobilities and social psychology literature; it is evident that there are many complex processes, often unobservable and subtle, that take place. The findings from this research have revealed that these processes can have an impact on how people interact and share space, thus impacting on walking and cycling experiences. If walking and cycling levels are to increase in the UK, the research approach presented throughout this thesis should be considered, along with (not instead of) the current more traditional quantitative and observational approaches. Also, this thesis is in line with the government's recognition of the importance of quality of life and transport-user experiences (DfT, 2009). This research (approach) provides a more in-depth and enriched understanding of individual and shared walking and cycling journey experiences; in order to enable a more informed design, policy and management setting for shared-use paths.



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## 9.0 Appendix

### 9.1 *Appendix 1 - Descriptive statistics for each survey question*

- Most respondents were travelling alone (78.8%), 14.2% were with another adult, 4.5% with a child and 2.5% with a dog.
- 25% male cyclists, 25% female cyclists, 25% male pedestrians, 25% female pedestrians (please note that this is based on quota sampling method)
- Out of the respondents that were walking, 55.3% also cycle.
- 47.3% were travelling for work/education, 29.0% for leisure, 16.2% shopping, 2.0% escorting to/from school and 5.5% other.
- 58.1% of respondents regularly use the path as a cyclist, 18.5% less often and 23.4% never.
- 51.0% of respondents regularly use the path as a pedestrian, 28.1% less often and 20.9% never.
- 60.4% of respondents classed themselves as experienced cyclists, 18.9% as inexperienced and 20.7% do not cycle.
- Overall, 89.5% of respondents feel comfortable sharing with cyclists and 91.0% feel comfortable sharing with pedestrians.
- 78.8% agree that cyclists and pedestrians generally get on well on the path.
- 81.1% agree that cyclists are considerate of other path users and 79.2% agree that pedestrians are considerate.
- 37.9% of respondents agree that their journey would be more enjoyable if cyclists and pedestrians were separated
- 34.6% of respondents were frustrated by a cyclist and 25.9% by a group of cyclists. 31.2% were frustrated by a pedestrian and 29.6% by a group of pedestrians. Overall 52.3% said they were frustrated by another path user but only 23.4% showed their frustration
- 63.5% of respondents said they never choose to avoid the path for an alternative route, 11.9% said they do when it is busy and 27.1% said they do when it is dark.
- 98.8% of respondents agree that they are aware of their physical surroundings while travelling on the path, 98.8% also said they were aware of other path users.

91.2% said they were aware how their body was moving and 53.0% get lost in their thoughts. Almost half (45.5%) said they get frustrated if their journey doesn't flow as freely as they would like.

- 13.8% of respondents said that cyclists should have priority, 17.6% chose pedestrians and 68.6% neither. 36.3% said cyclists currently do have priority, 17.6% said pedestrians currently have priority and 46.1% chose neither.
- 56.1% of respondents think more formal guidance would make sharing the path with cyclists/pedestrians more enjoyable, 31.7% chose more measures to reduce speed, and 60.9% chose a rule that all users should keep to the left, 34.3% chose white line segregation.
- The distribution of age groups of respondents was mostly even, however, the 17-20, 60-69 and 70+ categories were under represented.

		Frequency	Valid Percent
Valid	17-20	56	9.4
	21-29	124	20.9
	30-39	139	23.4
	40-49	123	20.7
	50-59	94	15.9
	60-69	45	7.6
	70plus	12	2.0
	Total	593	100.0
Missing	Non response	7	
Total		600	

## 9.2 Appendix 2 - Survey form



University of the  
West of England

### Walking and Cycling Interactions on Shared Use Paths

#### BEFORE YOU START

Please tick the box below to confirm that you agree to be a part of this research:

*I am willing for my answers to be used confidentially as part of this research* ☐ (Please tick)

#### I ABOUT YOU

1. How are you travelling on this path today? (Please tick one) ☐ Cycling ☐ Walking (includes running) ☐ Other

If you ticked walking, do you ever cycle on this path or anywhere else? ☐ No ☐ Yes

2. What is the purpose of your journey today? (Please tick one)

☐ Commuting ☐ Leisure (including training and dog walking) ☐ Shopping  
☐ In course of work ☐ Escorting to/from school ☐ Education ☐ Other

3. How often do you use this path as a cyclist? (Please tick one)

☐ Never ☐ Daily ☐ 2-5 times per week ☐ Weekly  
☐ Fortnightly ☐ Monthly ☐ Less frequently ☐ First time

4. How often do you use this path as a pedestrian? (Please tick one)

☐ Never ☐ Daily ☐ 2-5 times per week ☐ Weekly  
☐ Fortnightly ☐ Monthly ☐ Less frequently ☐ First time

5. What sort of cyclist would you say you are? (Please tick one)

☐ I don't cycle ☐ New to it ☐ Starting it again  
☐ Occasional ☐ Experienced occasional ☐ Experienced regular

#### II HOW YOU GET ON WITH OTHERS

6. How strongly do you agree/disagree with the following statements about your journey on this path today?

	Strongly agree	Agree	Disagree	Strongly disagree
I feel comfortable sharing this path with cyclists				
I feel comfortable sharing this path with pedestrians				
Cyclists and pedestrians generally get on well on this path				
Most cyclists on this path are considerate of other users				
Most pedestrians on this path are considerate of other users				
My journey on this path would be more enjoyable if cyclists and pedestrians were completely separated				

7a. How strongly do you agree/disagree with the following statements about your journey on this path today?

	Strongly agree	Agree	Disagree	Strongly disagree
I have been frustrated by the actions of a cyclist				
I have been frustrated by the actions of a pedestrian				
I have been frustrated by the actions of a group of cyclists				
I have been frustrated by the actions of a group of pedestrians				

7b. If you have not been frustrated by the actions of another path user please continue on next page to Q8

If you have been frustrated by the actions of another path user; did you show your frustration? ☐ No ☐ Yes

Please continue on next page



8. On this path today, did any cyclist do any of the following when passing you? (Please tick all that apply)

- ☐ Wave/Smile                      ☐ Eye contact                      ☐ Near collision  
☐ Friendly verbal exchange      ☐ Unfriendly verbal exchange      ☐ Bike bell                      ☐ None

9. On this path today, did any pedestrian do any of the following when passing you? (Please tick all that apply)

- ☐ Wave/Smile                      ☐ Eye contact                      ☐ Near collision  
☐ Friendly verbal exchange      ☐ Unfriendly verbal exchange      ☐ None

10. Do you ever choose to avoid this path and use an alternative route? (Please tick all that apply)

- ☐ No                      ☐ Yes, when the path is busy                      ☐ Yes, during hours of darkness

### III JOURNEY EXPERIENCE

11. How strongly do you agree/disagree with the following statements about your journey on this path today?

	Strongly agree	Agree	Disagree	Strongly disagree
I am aware of my physical surroundings				
I am aware of other path users				
I am aware of how my body is moving				
I get lost in my thoughts when using this path				
I get frustrated when my journey doesn't flow as freely as I would like				

### IV REGULATIONS

12. Who do you think should have priority on this path? (Please tick one)    ☐ Cyclists                      ☐ Pedestrians                      ☐ Neither

13. Generally, who has priority on this path? (Please tick one)                      ☐ Cyclists                      ☐ Pedestrians                      ☐ Neither

14. What would make sharing this path with cyclists/pedestrians more enjoyable? (Please tick all that apply)

More formal guidance on how this path should be used	
More measures to reduce speed	
A rule that all users should keep left (except when overtaking)	
A white line separating cyclists to one side of the path and pedestrians to the other	
A white line separating everyone travelling in one direction from everyone travelling in the other	

15. Please tell us your age: \_\_\_\_\_

16. Please write below any other comments you have about cyclists and pedestrians sharing this path:

---

---

Would you be interested in taking part in a follow up interview for this research? If so, please provide your contact details below:

Your name: \_\_\_\_\_

Email address: \_\_\_\_\_

Tel no.: \_\_\_\_\_

**THANK YOU FOR YOUR TIME**

#### FOR OFFICE USE:

Site ref: \_\_\_\_\_ Group: No ☐ Ad ☐ Ch ☐ Dog ☐ Gender: M ☐ F ☐

### 9.3 Appendix 3 - Interview consent form



## *Consent form - journey recording and interview research*

**PhD research: Walking and cycling interactions on shared-use paths**

***Please tick the appropriate boxes, and then sign the form below***

I have read and understood the Project Information Sheet related to this project.	<input type="checkbox"/>
I have been given the opportunity to ask questions about the project.	<input type="checkbox"/>
I understand that my taking part is voluntary; I can withdraw from the study at any time and I will not be asked any questions about why I no longer want to take part.	<input type="checkbox"/>
I understand that any personal details that I may provide, such as name, email address, phone number or postal address will not be revealed to people outside the project.	<input type="checkbox"/>
I understand that my words and video recordings of my journey may be quoted in publications, reports, web pages, and other research outputs but my name or other identifying information will not be used.	<input type="checkbox"/>
I understand that other researchers may have access to this data provided they agree to preserve the confidentiality of that data and if they agree to the terms I have specified in this form.	<input type="checkbox"/>
I understand that other researchers may use anonymous quotes or video recordings of my journey from any report created in this study in publications, reports, web pages, and other research outputs according to the terms I have specified in this form.	<input type="checkbox"/>
I understand that any potential health, safety and legal implications regarding the walking/cycling journey undertaken for this research will be my individual responsibility and not that of the researcher's.	<input type="checkbox"/>

\_\_\_\_\_  
Name of Participant

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Researcher

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## **9.4     *Appendix 4 - Interview Schedule***

### **Phase II: Interview schedule**

#### **Introduction:**

I'm interested specifically in your journey on the path that you recorded; your experiences, feelings and encounters with others, how this impacted on your journey. I'd like to talk about both the positive and negative aspects of your journey, if there's any of either.

[Check it's ok to record the discussion]

First I'll hand over to you and if you could reflect on your journey, tell me about it how you felt, who you encountered, what happened, if there is anything that you would like to pick up on and talk about. You can also use the video footage to help with this. Then I'd like to talk through with you some parts of the video that I have picked out and then I have some more specific questions about your survey responses.

[Make sure the participant is comfortable in using the video footage controls]

---

#### **Section 1**

##### **Participant leading discussion:**

[Encourage the participant to talk freely about the journey; make notes on this, picking up on any particular 'interactions' or 'mobilities' themes. Now further question any interesting points]

Prompts if needed: Tell me about your journey on the path, how was it? How did you physically/mentally feel? Did you have a lot on your mind, what were you thinking about? Did you have any interactions with other path users? How did they make you feel/how did this impact on your journey? Can you show me where this happened on the video?

---

#### **Section 2**

##### **Questions about specific interactions:**

[Show the interactions and discuss the participant's reaction and how each of the interactions impacted on the participant's journey and sensory experience]

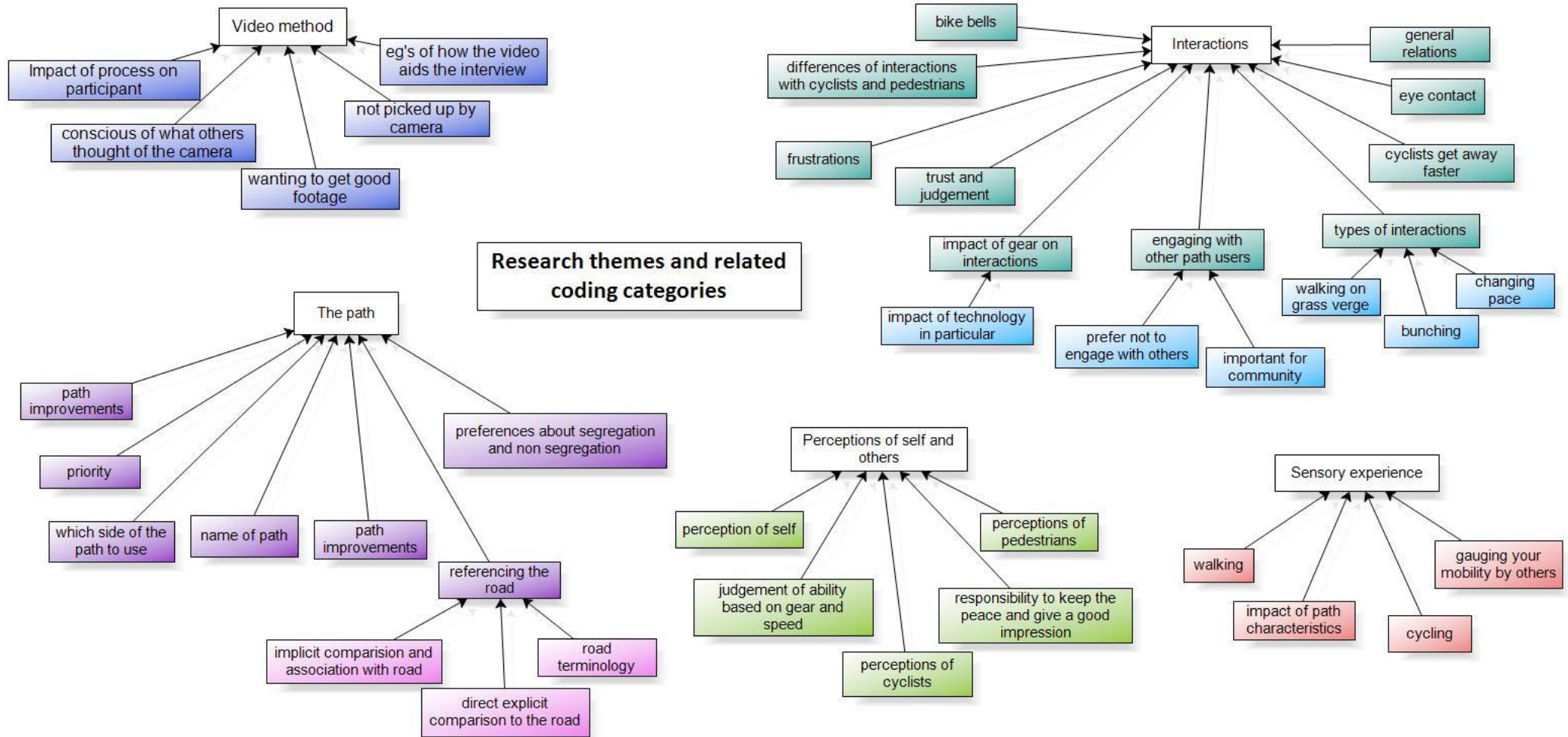
- Explain what happened here, how and why did it occur?
- How did you feel before?
- What did you think when you saw the other path user? What did you feel? How did you react? Why?
- And after how did you feel, how did it impact on your journey?
- How do you think the situation could have been improved? (if at all)
- Who should have priority in this situation? Why?

### Structured questions:

[Many of these may also be covered in the previous section but can be referred to below if the participant is not responsive to the video]

1. From your experience on the path, are there any differences in how you share the path with / types of interactions that you have with cyclists compared to people walking? (What are these and why?)
2. [Refer to their response to Q11 on survey]
  - Please explain this further, how does this affect your journey. Can you give me examples of this?
3. [Refer to their response to Q6 on survey]
  - Please explain this further. Can you give me an example of this?
  - Please talk through the differences in your experience on the segregated and non-segregated section of the path (how you felt/behaved)
  - What do you like/dislike about segregated/shared-use paths?
4. [Refer to their response to Q12 on survey]
  - Why?
  - Does this bother you/affect your journey?
  - How do you react to others who take priority?
  - Why do you think it happens?
5. [Refer to their response to Q7 on survey]
  - How did you interpret 'frustration'?
  - Were you frustrated on the journey you recorded? With who? Why? How did you react (visible/non visible, why?), how did it affect your journey? How did it make you feel?
  - Do your levels of frustration increase/decrease with cyclists/pedestrians?
  - When walking/cycling on the path does your experience of this differ?
6. [Refer to their response to Q14 on survey]
  - Please explain this further
  - What are the most important factors of a journey for you on the path?
  - Did you know that the path has its own website/code of conduct?
7. How did you find the video recording, did it affect your journey/thinking/behaviour?
  - How did you find the video during the interview?
  - Any suggested improvements?
8. Anything else you would like to discuss about your journey or method that we haven't already covered?

## 9.5 Appendix 5 - Phase II analysis; codes and themes



## 9.6 Appendix 6 - Chi-Square Statistical Tests

### 9.6.1 Mode of respondent and getting lost in thoughts

**Crosstabulation**

			Q11DShort. I get lost in my thoughts		Total
			Agree	Disagree	
Q1 How are you travelling on this path today?	Cycling	Count	38	62	100
		% within Q1 How are you travelling on this path today?	38.0%	62.0%	100.0%
	Walking	Count	57	41	98
		% within Q1 How are you travelling on this path today?	58.2%	41.8%	100.0%
Total		Count	95	103	198
		% within Q1 How are you travelling on this path today?	48.0%	52.0%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.062 <sup>a</sup>	1	.005	.007	.003
Continuity Correction <sup>b</sup>	7.275	1	.007		
Likelihood Ratio	8.117	1	.004		
Fisher's Exact Test					
Linear-by-Linear Association	8.021	1	.005		
N of Valid Cases	198				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 47.02.

b. Computed only for a 2x2 table

### 9.6.2 Mode and feeling comfortable sharing with cyclists

**Crosstabulation**

			Q1 How are you travelling on this path today?		Total
			Cycling	Walking	
Q6A Short. I feel comfortable sharing this path with cyclists	Agree	Count % within Q1 How are you travelling on this path today?	184 94.4%	161 80.9%	345 87.6%
	Disagree	Count % within Q1 How are you travelling on this path today?	11 5.6%	38 19.1%	49 12.4%
Total		Count % within Q1 How are you travelling on this path today?	195 100.0%	199 100.0%	394 100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	16.372 <sup>a</sup>	1	.000	.000	.000
Continuity Correction <sup>b</sup>	15.160	1	.000		
Likelihood Ratio	17.234	1	.000		
Fisher's Exact Test					
Linear-by-Linear Association	16.330	1	.000		
N of Valid Cases	394				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.25.

b. Computed only for a 2x2 table

### 9.6.3 Mode and feeling comfortable sharing with pedestrians

**Crosstabulation**

			Q1 How are you travelling on this path today?		Total
			Cycling	Walking	
Q6BShort. I feel comfortable sharing this path with pedestrians	Agree	Count % within Q1 How are you travelling on this path today?	173 87.4%	192 97.5%	365 92.4%
	Disagree	Count % within Q1 How are you travelling on this path today?	25 12.6%	5 2.5%	30 7.6%
Total		Count % within Q1 How are you travelling on this path today?	198 100.0%	197 100.0%	395 100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.320 <sup>a</sup>	1	.000	.000	.000
Continuity Correction <sup>b</sup>	12.919	1	.000		
Likelihood Ratio	15.542	1	.000		
Fisher's Exact Test					
Linear-by-Linear Association	14.284	1	.000		
N of Valid Cases	395				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.96.

b. Computed only for a 2x2 table



#### 9.6.4 Path type and attitude towards consideration of pedestrians

**Crosstabulation**

			Q6EShort. Most pedestrians on this path are considerate of other users		Total
			Agree	Disagree	
Site reference	Shared	Count	329	64	393
		% within Site reference	83.7%	16.3%	100.0%
	Segregated	Count	135	58	193
		% within Site reference	69.9%	30.1%	100.0%
Total		Count	464	122	586
		% within Site reference	79.2%	20.8%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	14.881 <sup>a</sup>	1	.000	.000	.000
Continuity Correction <sup>b</sup>	14.058	1	.000		
Likelihood Ratio	14.303	1	.000		
Fisher's Exact Test					
Linear-by-Linear Association	14.856	1	.000		
N of Valid Cases	586				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 40.18.

b. Computed only for a 2x2 table

### 9.6.5 Experience of frustration – split by mode (segregated survey site)

**Crosstabulation**

			Q7 Total of all parts. Frustrated or not.		Total
			Frustrated	Not frustrated	
Q1 How are you travelling on this path today?	Cycling	Count	63	37	100
		% within Q1 How are you travelling on this path today?	63.0%	37.0%	100.0%
	Walking	Count	42	58	100
		% within Q1 How are you travelling on this path today?	42.0%	58.0%	100.0%
Total		Count	105	95	200
		% within Q1 How are you travelling on this path today?	52.5%	47.5%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.842 <sup>a</sup>	1	.003	.005	.002
Continuity Correction <sup>b</sup>	8.020	1	.005		
Likelihood Ratio	8.909	1	.003		
Fisher's Exact Test					
Linear-by-Linear Association	8.798	1	.003		
N of Valid Cases	200				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 47.50.

b. Computed only for a 2x2 table

### 9.6.6 Regularity of path use and experience of frustration

**Crosstabulation**

			Q7 Total of all parts. Frustrated or not.		Total
			Frustrated	Not frustrated	
Q3Short. How often do you use this path as a cyclist	Never	Count	42	47	89
		% within Q3Short. How often do you use this path as a cyclist	47.2%	52.8%	100.0%
	Regularly	Count	133	99	232
		% within Q3Short. How often do you use this path as a cyclist	57.3%	42.7%	100.0%
	Less often	Count	33	44	77
		% within Q3Short. How often do you use this path as a cyclist	42.9%	57.1%	100.0%
Total		Count	208	190	398
		% within Q3Short. How often do you use this path as a cyclist	52.3%	47.7%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.033 <sup>a</sup>	2	.049
Likelihood Ratio	6.044	2	.049
Linear-by-Linear Association	.180	1	.672
N of Valid Cases	398		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 36.76.

9.6.7 Mode and results for: what would make sharing this path more enjoyable?

Formal guidance:

**Crosstabulation**

			Q14 More formal guidance		Total
			More formal guidance	Chose another option	
Q1 How are you travelling on this path today?	Cycling	Count % within Q14 More formal guidance	108 54.0%	92 46.2%	200 50.1%
	Walking	Count % within Q14 More formal guidance	92 46.0%	107 53.8%	199 49.9%
Total		Count % within Q14 More formal guidance	200 100.0%	199 100.0%	399 100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.408 <sup>a</sup>	1	.121	.134	.073
Continuity Correction <sup>b</sup>	2.107	1	.147		
Likelihood Ratio	2.411	1	.121		
Fisher's Exact Test					
Linear-by-Linear Association	2.402	1	.121		
N of Valid Cases	399				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 99.25.

b. Computed only for a 2x2 table

Keep left:

#### Crosstabulation

			Q14 A rule that all users should keep to the left		Total
			Keep to the left rule	Chose another option	
Q1 How are you travelling on this path today?	Cycling	Count % within Q14 A rule that all users should keep to the left	142 58.4%	58 37.2%	200 50.1%
	Walking	Count % within Q14 A rule that all users should keep to the left	101 41.6%	98 62.8%	199 49.9%
Total		Count % within Q14 A rule that all users should keep to the left	243 100.0%	156 100.0%	399 100.0%

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	17.172 <sup>a</sup>	1	.000	.000	.000
Continuity Correction <sup>b</sup>	16.332	1	.000		
Likelihood Ratio	17.320	1	.000		
Fisher's Exact Test					
Linear-by-Linear Association	17.129	1	.000		
N of Valid Cases	399				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 77.80.

b. Computed only for a 2x2 table

Reduce speed:

#### Crosstabulation

			Q14 More measures to reduce speed		Total
			More measures to reduce speed	Chose another option	
Q1 How are you travelling on this path today?	Cycling	Count % within Q14 More measures to reduce speed	57 43.5%	143 53.4%	200 50.1%
	Walking	Count % within Q14 More measures to reduce speed	74 56.5%	125 46.6%	199 49.9%
Total		Count % within Q14 More measures to reduce speed	131 100.0%	268 100.0%	399 100.0%

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.413 <sup>a</sup>	1	.065	.070	.041
Continuity Correction <sup>b</sup>	3.030	1	.082		
Likelihood Ratio	3.420	1	.064		
Fisher's Exact Test					
Linear-by-Linear Association	3.404	1	.065		
N of Valid Cases	399				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 65.34.

b. Computed only for a 2x2 table

*Segregation by white line:*

**Crosstabulation**

			Q14 A white line segregating cyclists and pedestrians		Total
			White line separating cycs and peds	Chose another option	
Q1 How are you travelling on this path today?	Cycling	Count	53	147	200
		% within Q14 A white line segregating cyclists and pedestrians	38.7%	56.1%	50.1%
	Walking	Count	84	115	199
		% within Q14 A white line segregating cyclists and pedestrians	61.3%	43.9%	49.9%
Total		Count	137	262	399
		% within Q14 A white line segregating cyclists and pedestrians	100.0%	100.0%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.921 <sup>a</sup>	1	.001	.001	.001
Continuity Correction <sup>b</sup>	10.235	1	.001		
Likelihood Ratio	10.991	1	.001		
Fisher's Exact Test					
Linear-by-Linear Association	10.893	1	.001		
N of Valid Cases	399				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 68.33.

b. Computed only for a 2x2 table

### 9.6.8 Age and results for: what would make sharing this path more enjoyable?

Formal guidance:

**Crosstabulation**

			Q14 More formal guidance		Total
			More formal guidance	Chose another option	
AgeShort	17-29	Count	41	65	106
		% within Q14 More formal guidance	20.6%	33.2%	26.8%
	30-49	Count	97	90	187
		% within Q14 More formal guidance	48.7%	45.9%	47.3%
	50-70+	Count	61	41	102
		% within Q14 More formal guidance	30.7%	20.9%	25.8%
Total		Count	199	196	395
		% within Q14 More formal guidance	100.0%	100.0%	100.0%

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.595 <sup>a</sup>	2	.008
Likelihood Ratio	9.668	2	.008
Linear-by-Linear Association	9.299	1	.002
N of Valid Cases	395		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 50.61.



Reduce speed:

#### Crosstabulation

			Q14 More measures to reduce speed		Total
			More measures to reduce speed	Chose another option	
AgeShort	17-29	Count	22	84	106
		% within Q14 More measures to reduce speed	17.1%	31.6%	26.8%
	30-49	Count	59	128	187
		% within Q14 More measures to reduce speed	45.7%	48.1%	47.3%
	50-70+	Count	48	54	102
		% within Q14 More measures to reduce speed	37.2%	20.3%	25.8%
Total		Count	129	266	395
		% within Q14 More measures to reduce speed	100.0%	100.0%	100.0%

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.552 <sup>a</sup>	2	.000
Likelihood Ratio	16.588	2	.000
Linear-by-Linear Association	16.262	1	.000
N of Valid Cases	395		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 33.31.

Keep left:

#### Crosstabulation

			Q14 A rule that all users should keep to the left		Total
			Keep to the left rule	Chose another option	
AgeShort	17-29	Count	74	32	106
		% within Q14 A rule that all users should keep to the left	30.7%	20.8%	26.8%
	30-49	Count	115	72	187
		% within Q14 A rule that all users should keep to the left	47.7%	46.8%	47.3%
	50-70+	Count	52	50	102
		% within Q14 A rule that all users should keep to the left	21.6%	32.5%	25.8%
Total		Count	241	154	395
		% within Q14 A rule that all users should keep to the left	100.0%	100.0%	100.0%

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.784 <sup>a</sup>	2	.020
Likelihood Ratio	7.803	2	.020
Linear-by-Linear Association	7.714	1	.005
N of Valid Cases	395		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 39.77.