

Mixed Climate Change Experiences and Travel Behaviour:
About Diversity, Ambivalence, and Complexity

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Abstract:

The anthropogenic nature of climate change is widely acknowledged. In particular, travel behaviour plays a prominent role in contributing to climate change due to an increasing emission of greenhouse gases. This study aims to obtain an in-depth understanding of how personal climate change experiences relate to travel behaviour. In doing so, various elements of the theory of planned behaviour have been examined in a qualitative way through eleven semi-structured interviews. The outcomes of this study show that climate change experiences are diverse, ambivalent and imbued with different emotions. Climate concerned participants express a strong intention to consider climate change in their travel behaviour but a gap often remains between intentions and actual behaviour. Furthermore, the evidence demonstrates that travel behaviour is highly complex comprising multiple factors such as climate change, costs, travel time, comfort, distance, and ease, influenced by changing circumstances such as size of travel group, travel purpose, and length of stay at arrival destination. Finally, applying conjoint analyses qualitatively appears to be fruitful in eliciting rich in-depth understandings of travel behaviour intentions compared to more unstructured interviewing methods.

1. Introduction:

The transport sector is the most rapid growing contributor to climate emissions (World Health Organization, 2019). In 2017, 27% of the total emissions within the European Union could be attributed to the transport sector (European Environmental Agency, 2017). In particular, car use, road freight and aviation are the three largest contributors within the transport sector (Chapman, 2007). In the Netherlands, this leads to societal debates regarding more sustainable transportation choices especially given the fact that the percentage of Dutch people who believe that climate change is the result of human behaviour has increased considerably from 43% in 2010 to 71% in 2018 (Den Ridder & Dekker, 2010; Dekker et al., 2018). Besides societal relevance, academics have recognized the importance of more sustainable modes of transport. Chapman (2007) illustrates that technological developments in the transport sector significantly reduced environmental impacts. However, due to economic growth, emissions within the transport sector are still rising. This means that behavioural change is increasingly advocated (Chapman, 2007; Steg & Vlek, 2009; Møller et al., 2018). Additionally, Urry (2012) even argues for large scale system changes disposing oil-dependency. There appears to be a need for researchers to conduct research aimed at understanding transitions towards low-carbon transport systems by focusing on human behaviour (Banister et al., 2012).

Much research on human behaviour, climate change, and transportation has been conducted quantitatively applying models that predict travel behaviour such as the Theory of Planned Behaviour and the Norm-activation model (Morten et al, 2018; Møller et al., 2018). Even though these quantitative models have increased our understanding of human behaviour considerably, these approaches have been critiqued lacking subjective elements such as human experiences, feelings and emotions (Norgaard, 2011; Hoggett, 2019).

The aim of this study, therefore, is to understand how climate change experiences influence travel behaviour. In doing so, this study moves away from positivist models that aim to explain human behaviour and shifts towards individual human experience. Understudied is 'experience' as it has often focused on the 'how' and 'why', but rarely has attempted to grasp how climate change and travel behaviour is experienced (Lertzman, 2009). In particular, the focus of this study is to gain diverse in-depth insights into climate change experiences and factors influencing travel behaviour using elements of the Theory of Planned Behaviour (Ajzen, 1991) combined with the idea of Climate Psychology (Hoggett, 2019). Climate Psychology is "concerned with the many ways in which we engage with climate change, how

we avoid, deny, embrace or accept it, dream about it, get depressed, terrified or guilty about... (Hoggett, 2019, p.8).” The contribution of this study is twofold. First of all, this study will enhance in-depth understanding of climate change experiences and travel behaviour within a European context. Secondly, this research applies an innovative research methodology, based on the combination of the TPB and a Deep Psychology research approach.

2. Theoretical Framework

2.1 Current work in transportation research

The transport of people, goods and information has exponentially increased on a global level over the last 50 years (Banister et al., 2012). Considering its negative impacts on the climate there is growing consensus on the need for emission reduction within the transport sector (Chapman, 2007; Banister et al., 2012; Goulden et al., 2014; Schwanen, 2019). According to Chapman (2007), the biggest challenge appears to be growth in car use, aviation and freight. Since freight is less related to individual human travel behaviour, this theoretical section will start outlining various academic efforts on car use, air travel, and public transportation.

2.1.1 Car use

Car trips are undertaken for a variety of reasons and are often perceived necessary in daily life (Lucas & Jones, 2009). This perception can be attributed to the advantages associated with car use such as convenience, independence, freedom, comfort, flexibility, security and status (Steg & Gifford, 2005; Howarth & Ryley, 2012). However, car use is also related to disadvantages such as congestion, air pollution, and its role in climate change (Howarth & Ryley, 2012). The motivations for car use are varied, complex and often related to individual preferences (Howarth & Ryley, 2012). Within a context of car use, Gärling (2005) describes the main determinants of travel behaviour as being activity choice, spatial organisation of the environment, travel demand and travel mode choice, with the latter being the main focus of this study. A large compilation of factors influence these core determinants and are regularly turned into an individual’s desire to travel. These factors range from trip purpose and social norms, to information and habitual behaviour. Bamberg & Schmidt (2003), for instance, predicted students’ car use for university routes in Germany using various sociological models. In doing so, they confirm the view that car use appears to be a habitual process that is rooted in once made conscious considerations about advantages and disadvantages related to car use. Steg (2005) investigated various motives for car use. She finds that instrumental (enabling activities), symbolic (car use as a means to express yourself), and affective motives (connection

with deeper needs and desires) for car use are related to car use. More specifically, the findings indicate that the symbolic and affective motives are important in explaining the degree of car use.

2.1.2 Air travel

Theory-based research investigating air travel motivations has not been conducted extensively (Morten et al., 2018). In their paper, Morten et al., (2018) apply the theory of planned behaviour to explore motivations to reduce leisure air travel. They find that the theory of planned behaviour is a suitable framework and show a significant amount of variance in intention to fly for leisure purposes. More specifically, social norms, attitudes towards flying, and behaviour-specific self-identity are found to be significant predictors. Thus, they argue, interventions aimed at targeting attitudes, subjective norms, and behaviour-specific self-identity could potentially be successful in reducing leisure air travel. Another study examining air travel behaviour has been conducted by Nursey-Bray et al., (2019). They employed an institutional case-study at the university of Adelaide to see how air travel motivations relate to the university's sustainability plan. The results indicate a gap between climate attitudes and air travel behaviour. While most participants indicated to be very concerned with climate change, they did not alter their flying behaviour because it was perceived to be too important for their academic career. Ultimately, the authors propose a shift from individual responsibility to institutional responsibility in order to "incentivise transformative individual pro-environmental behaviours by role modelling them at an institutional scale (Nursey-Bray et al., 2019. P. 16)." Finally, Lu & Wang (2018) underline the importance of communication strategies regarding environmental knowledge and carbon offsetting towards the public. They find that media can play an important role in increasing passengers' knowledge of aviation impacts. This could potentially increase the willingness of passengers to offset flights and effectuate behavioural change, though knowledge is only one of the determining factors in travel choice.

2.1.3 Public transportation

Besides car travel and aviation, public transportation provides considerable alternatives to move from one place to another. Chapman (2007) demonstrates that trains and coaches emit only half as much or less CO₂ per person per kilometre compared to a diesel car or an airplane. With regard to train travel motivations, Löfgren (2000) indicates that one of the most important factors is the great view of landscapes associated with train travel. Furthermore, the pro-environmental aspects associated with train travel are also important, but are often outweighed

by other factors such as travel cost, duration, price, comfort, convenience and avoidance of stress (Gutiérrez, 2001; González-Savignat, 2004), and these factors become more prominent in long-distance travel (Dickinson & Lumsdon, 2010). Besides train travel, long-distance bus services are also considered to be a pro-environmental alternative for traveling due to its operation on high loadings and are mainly attractive for its low fares (Dickinson & Lumsdon, 2010). Within Europe, Flixbus is now market leader in long-distance bus services (Gaggero et al., 2019). However, extensive research into motivations why people opt for long-distance travel by bus and train is lacking. Within the context of tourism, both train- and bus travel are considered to be part of slow travel. These movements provide an alternative to car use and air travel and are characterized by shorter distances, low-carbon consumption and putting a greater emphasis on the travel experience (Dickinson & Lumsdon, 2010).

2.2 Predicting travel behaviour with the theory of planned behaviour

A theory often applied in the context of travel behaviour is the Theory of Planned Behaviour (TPB) (Steg & Vlek, 2009). The TPB is a general theory aiming to explain human behaviour in different contexts (Ajzen, 1991). The rationale of the TPB is that “intentions to perform behaviours of different kinds can be predicted with high accuracy from attitudes towards the behaviour, subjective norms, and perceived behavioural control; and these intentions, together with perceived behavioural control, account for considerable variance in actual behaviour (Ajzen, 1991, p. 179).” Attitudes refer to the participant’s appraisal of the behaviour as either positive or negative, subjective norms include the individual’s perception of whether others would want him or her to perform the behaviour and perceived behavioural control considers the individual’s belief of control over the behaviour to be performed. A large number of studies applying the TPB have demonstrated the theory to be successful in explaining various types of environmental behaviour, including travel behaviour (Anable, 2005; Steg & Vlek, 2005; Morten et al., 2018). An interesting extension of the TPB within the context of pro-environmental behaviour is the concept of self-identity. This concept refers to “how an individual sees him/herself, and can encompass all aspects of the self ... (Gatersleben et al., 2014, p. 376).” Research shows that including self-identity might increase explanatory power of the TPB (Gatersleben et al., 2014; Morten et al., 2018). Besides its considerable predictive power, researchers have generally critiqued the TPB for its assumption of rationality. In doing so, they argue that the TPB does not sufficiently include cognitive and affective processes that bias human judgement and behaviour. Another criticism concerns the fact that feelings and emotions of people are neglected (Ajzen, 2011; Andrews, 2019). Indeed, the TPB does not

include feelings as such and merely emphasizes the cause/effect nature between cognition and behaviour.

2.3 The role of affect and climate change in travel behaviour

The abovementioned literature suggests that travel behaviour has mostly been investigated using quantitative approaches emphasizing humans as rational actors. In this way, quantitative approaches ignore ‘the self’ (Hoggett, 2019). However, few studies have examined the role of affect in travel behaviour. Anable & Gatersleben (2005) studied instrumental and affective factors when travelling for work or a leisure day trip. In doing so, they show that for work journeys instrumental factors such as flexibility, convenience, cost, environment, health, and predictability are more important than affective factors like relaxation, freedom, stress, control, and excitement. For one day leisure trips, instrumental and affective factors appear to be equally important. Furthermore, Line et al., (2010) examined the travel behaviour intentions of younger people within a context of climate change. Consistent with Steg (2005) they find that values relating to identity, self-image, and materialism as well as affective attitudes towards transport modes influence travel behaviour at the expense of environmental values. In other words, the travel behaviour intentions were dominated by non-environmental values. The timing of the study (before the Kyoto Protocol came into force) and the intangibility of climate change (people do not directly see consequences of their behaviour) appear to be important factors with regard to the participants’ aversion against dealing with environmental issues. Furthermore, Møller et al., (2018) studied the associations drawn between daily transport and environmental impact among 15-year old Danish adolescents. They concluded that adolescents only draw weak spontaneous associations between travel behaviour and environmental impact. On the contrary, Abrahamse et al., (2009) demonstrate that environmental factors can play a role in car use reduction. In their study, they find that the more participants felt morally obliged to reduce car use and the more they are aware of its environmental impact, the less often they drove to work.

What is notably absent, however, is a perspective including human experiences with climate change and travel behaviour as it remains unclear how individual climate change experiences relate to travel behaviour. Focusing on diverse personal experiences allows researchers to “grasp the self in all its complexity, as something dynamic, highly differentiated, relational and conflictual (Hoggett, 2019, p. 8).” Recent work in the field of climate psychology has started to study personal experiences with climate change. Lertzman (2019) applied a framework consisting of three A’s; anxiety, ambivalence and aspiration, to grasp the experiences people

hold when discussing climate change, energy and the environment. She applied this framework thoroughly in a study on climate sceptic attitudes of republican politicians in the United States finding that all three dimensions are useful in framing climate change experiences. Hamilton (2019) discusses emotional reflexive methodologies that are able to open up a range of emotions triggered by climate change such as fear, helplessness, guilt, anxiety, potential loss, grief, trauma, and anger. In doing so, she showed that climate change experiences are imbued with emotions. Therefore, the role of emotions will be included in this study. Tollemache (2019) discussed climate change with twenty mostly middle-class inhabitants of London. He found that meanings attributed to climate change are explicitly influenced by their social identities. What appears from his research is the strong power that influences individuals to deny the evidence of climate change. As a result, participants refuse to engage fully with the problem. Norgaard (2011) demonstrates in a case-study on Bygdaby (pseudonym for a town in Norway) that most people acknowledge science regarding human-induced climate change but do not act pro-environmentally due to the gap between the abstract threat of climate change and everyday life. Furthermore, to explain why this gap persists, she reasons that an information deficit approach, where the lack of information is used to explain non-engagement with climate change, is not sufficient. The focus should rather shift towards social context and political economy, and the centrality of social interaction and emotions to explain the lack of engagement in climate change.

2.4 Reframing the TPB to capture human experiences with climate change

In this study, the TPB is reframed in a qualitative way to capture experiences with climate change and travel behaviour. In this way, this study copes with current critique regarding climate change and travel behaviour for ignoring the centrality of feelings, emotions, negotiations with ‘the self’ and cultural processes (Norgaard, 2011; Hoggett, 2019; Lertzman, 2019). This leads to the following conceptual model (figure 1).

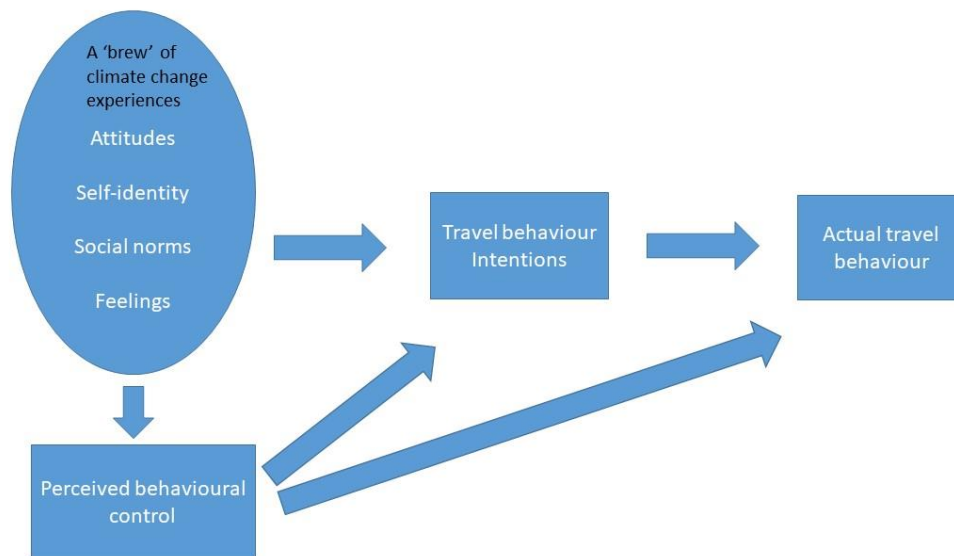


Figure 1: A conceptual model, based on the TPB (Ajzen, 1985) and the notion of 'Climate Psychology' (Hoggett, 2019) regarding climate change experiences and travel behaviour.

This model considers the different elements of the TPB to be a 'brew' of experiences consisting of "incredibly complicated feelings, attachments, drives, and sentiments (Lertzman, 2019, p. 29)" towards climate change.

The 'brew', consisting of attitudes, self-identity, social norms, and feelings, together with the perceived behavioural control influences travel behaviour intentions. The travel behaviour intentions combined with the perceived behavioural control results in the actual travel behaviour. In turn, the model is iterative in the sense that the experiences with the actual behaviour will influence all elements of the model for future travel behaviour.

3. Methodology

3.1 Introduction

Previous research investigating travel behaviour has been focusing almost exclusively on quantitative techniques such as surveys to develop statistical models explaining travel behaviour (Morten et al., 2018). However, adopting the notion of climate psychology implies a shift from quantitative approaches towards qualitative methodologies. In doing so, individual experiences with climate change and travel behaviour are the main focus of this research.

Consequently, interviewing has been adopted as the main method in this study. This method is capable of eliciting in-depth information regarding climate change experiences and transport

choices while examining people's context at the same time (Longhurst, 2012). Furthermore, interviews are most suitable in acquiring in-depth information compared to other qualitative methods such as focus groups because they are less prone to external social influences and pressures that might prevent participants to reveal their ideas and experiences to the researcher. Nevertheless, focus groups were initially part of the methodology but have been excluded for circumstantial reasons of time and the Covid-19 pandemic.

3.2 Recruitment

The main aim of this study is to gain in-depth insights into climate change experiences and travel behaviour. In doing so, a diverse sample has been acquired in order to fully capture the wide range of climate change experiences. Participants were recruited explicitly mentioning the topic of personal experiences with climate change and travel behaviour. In this regard, participants are self-referred and willing to discuss personal climate change experiences and travel behaviour. Various recruitment strategies have been employed to acquire a diverse sample of participants. First of all, the researcher posted a message on LinkedIn to find participants willing to join a pilot interview to test the interview guide. Subsequently, snowballing was used as a second recruitment technique. Furthermore, a Dutch climate sceptic foundation was approached in order to include participants with a more climate sceptic view in the research. The response was overwhelming, which might have been caused by the Covid-19 pandemic forcing everyone to remain at home, which results in spare time. The researcher also used connections tied to the university to reach out to Dutch government institutions and hang advertisement posters across public buildings in the city of Groningen. Finally, connections in the local neighbourhood were also used by the researcher to recruit participants.

3.3 Background of the participants

Eleven people ($n = 11$) were interviewed during February, March and April 2020. Seven of the participants were male, and four female. The interviews typically lasted between forty-five and sixty minutes. The average age is fifty years with the youngest participant being twenty-two and the oldest participant eighty-four. Furthermore, participants have a variety of educational backgrounds ranging from Sociology to Physics, and Economics to Medicine. In general, participants in this study are well-educated with every participant attending at least university or higher education. This might have biased the results as low-educated people are not represented in this study. Moreover, job positions are also diverse including both public and private positions at various institutions and companies. The place of residence demonstrates

that participants from all over the Netherlands are included. Lastly, six participants indicated to be (very) concerned about climate change thereby acknowledging human-induced climate change whereas four participants hold more sceptic positions denying human influence on current climate change processes. One participant indicated to be sceptic of climate change policies, but acknowledged human influence on the climate. The following table (table 1) provides an overview of the participants included in this study:

Participant (pseudonym)	Sex	Age	Educational background	Current Job	Place of Residence	Climate Change attitude
Rose	Female	23	Econometrics (wo)	n.a. (student)	Steenwijk	Concerned
Mary	Female	22	Sociology (wo)	n.a. (student)	Groningen	Concerned
Harry	Male	57	Sociology (wo)	Owner of volunteering foundation	Groningen	Concerned
Mark	Male	82	Physics	Retired	Weesp	Sceptic
Ed	Male	84	Physics	Retired	Nieuwegein	Sceptic
James	Male	46	Medicine	Occupational Physician	Soest	Sceptic
Owen	Male	74	Economics (wo)	Retired	's Hertogenbosch	Concerned/Sceptic
John	Male	56	Human resources (wo)	Handyman in a medium-sized company	Vlaardingen	Sceptic
William	Male	63	Electrical Engineering	Works at the Dutch government	Ijsselstein	Concerned
Helen	Female	49	social-pedagogics	Teacher at Higher Educational institution	Groningen	Concerned
Aydan	Female	35	Mathematics	Works at the Dutch government	Utrecht	Concerned

Table 1: An overview of the participants

3.4 The interviews

The interview structure consists of three parts, all of which are informed by the different elements of the TPB (See Appendix A). First of all, the participants were asked to introduce themselves by describing their background and their current travel behaviour. Various socio-economic indicators were included such as place of residence, age, job/studies, and additional activities. The second part of the research focused on the participants' experiences with climate change, environmental self-identity, social norms, and feelings. The environmental self-identity was measured using five statements (see Appendix A). Participants could indicate to

what extent they agreed with the statement and why. The third and final part started with a conjoint analysis (See Appendix B). A conjoint analysis is particularly useful for eliciting preferences regarding particular goods or services given certain changeable circumstances (Álvarez-Farizo & Hanley, 2002). In this analysis, participants were provided with three transport dilemmas regarding Amsterdam – London, Amsterdam – Berlin and Amsterdam – Budapest. For each of these travel routes, they were presented the options of taking a plane, a coach, a car and a train compared to absolute travel time (the time you are actually on the transport modality traveling towards the arrival destination), the approximate costs in euro's, and the total amount of greenhouse gas emissions in kilograms. For each of the different options, the participants were asked to describe and explain their preferred option. After the conjoint analysis, several further questions were posed with regard to experiences with car driving and flying, the perceived behavioural control, and their future perspectives on transportation within a context of climate change. Finally, during the interviews, participants were also observed regarding non-verbal communication elements such as change of voice. These observations have been included in the analysis.

3.5 Analysis

Atlas.ti 8.3 was used to analyse the transcripts systematically. First of all, the interviews were transcribed verbatim and read thoroughly by the researcher to increase familiarity with the data. Secondly, all transcripts were deductively coded in accordance with the different elements of the conceptual model presented. Furthermore, elements inductively appearing from the data were included in the analysis as well. Thirdly, the data was analysed cross-sectionally and results were drafted. Preliminary results were extensively discussed with the supervisors of this study.

3.6 Ethical considerations

Several ethical considerations have been addressed while designing and conducting this study. First of all, before the interviews started, the researcher thoroughly explained the consequences of being involved in the study together with a brief explanation of the topic. At the same time, permission to record the interviews was obtained. In this way, informed consent was realised. Secondly, in order to create a convenient research setting, the researcher indicated there was no 'right' or 'wrong' and emphasised that participants should rather consider the interview a conversation. Thirdly, participants have been explained that (partial) withdrawal of answers is always possible until publication of the study. Fourthly, data of the participants have been

stored in a safe environment that is password-protected and only accessible by the researcher and participants if requested. Furthermore, the data has been treated confidential using pseudonyms for each participants. Finally, the researcher is aware of the sensitive nature of climate change and therefore always tried to assess whether participants were feeling at ease. If not, the researcher aspired to create a more comfortable atmosphere.

3.7 Positionality

It should be noted that the researcher holds a strong climate concerned position. This meant that the researcher sometimes experienced a tension between his objective stance as an academic and his more subjective position as an individual during the interviews. This was especially the case when interviewing participants that hold climate sceptic attitudes. Being aware of this tension helped the researcher to maintain his objective position, but contradicting thoughts were often present. These thoughts, however, were never translated into subsequent questions posed to the participants. Moreover, the researcher always posed open questions to prevent steering of answers.

Secondly, it is important to indicate that the cultural context in which the researcher is embedded might have influenced interpretations of the answers given during the interviews and the data during the analysis. In this regard, Dowling (2016) states that researchers involved with subjective research should be reflexive, meaning that researchers have to consider their own position, the social relationships they engage with, whether they influence the data, and how they position themselves within the research process.

4. Results

In order to effectively demonstrate the outcomes of this study, the results presented here reflect the heterogeneity of the sample. In this regard, much space has been awarded to individual experiences and quotes. Nevertheless, commonalities across the sample are presented as well.

4.1 Climate change experiences

When discussing climate change experiences, participants were posed the question: “Could you tell something about climate change?” Six participants conveyed their concerns stating that the human impact on the climate is problematic and should be changed whereas four participants denied a considerable human role in climate change processes. One participant showed concern with regard to the environmental impacts and the human role in climate change but was highly sceptic regarding climate change policies implemented by governments

compared to other concerned participants. Subsequently, when asked about why participants are concerned or in denial, the following insights were gained. Climate change concerned participants show a high and diverse awareness of environmental impacts of climate change referring to water shortages, forest fires, an increase in frequency and intensity of rain showers, an increase in average temperature, and melting ice sheets. Some climate concerned participants emphasised individual choices and responsibility with regard to climate change. Mary (22) for example, indicates that individuals should carefully consider their behaviour related to using the heater, driving the car, or recycling materials. Other climate concerned participants referred to the government and the 'system' with regard to climate change. In this regard, Harry (57) mentions that humans are economic opportunists who are prone to financial incentives and cannot be expected to act pro-environmentally all by themselves. Climate sceptic participants referred to the idea that the climate has historically been warming, and that humans have little to no influence on this warming process. Moreover, they believe that CO₂, which is often at the heart of climate change discussions, only has a positive impact on climatic conditions. John (56) for instance, explains he believes that as far as CO₂ has an influence on the climate it can only be positive because it is essential for life on earth. When asked why they hold sceptic attitudes, climate sceptic participants show distrust against governmental institutions and climate scientists. When discussing scientific evidence regarding climate change, one of the climate sceptic participants expressed his idea that evidence against anthropogenic climate change is suppressed for political purposes:

“So a lot of reasonable facts are being superseded probably in order to pursue a sort of globalist aim. A sort of super nation in which every emission is being controlled. I think it is more about power than reason.” (James, 46).

Ed (84), a former physicist, explained that he does not trust scientific calculations with regard to climate change undertaken by the Royal Netherlands Meteorological Institute (RNMI):

“You have to ask what does CO₂. We (referring to a climate sceptic foundation) have asked the RNMI to explain to us the role of CO₂ in climate change. And during that explanation it turned out they have to hire some statisticians, because the correlation they find between CO₂ and temperature does not make any sense (laughing).”

4.2 Environmental self-identity

During the interviews, five statements with regard to environmental awareness were read aloud to measure the perceived environmental self-identity of participants. Participants were asked to what extent they agreed with the statement and why. It appears that all participants identified themselves as environmentally aware. However, when discussing pro-environmental behaviour, the idea of being environmentally aware and acting pro-environmentally was perceived differently. Some participants related to behaviour such as picking up garbage off the street or using transport systems efficiently, whereas others referred to more drastic behaviour changes such as eating less meat or purchasing more second hand clothing. This difference is nicely reflected in a quote by Owen (74), a retired economist:

“You know, everyone says I am environmentally aware because I am saving bottles to throw into the bottle bin and I save old paper..... but it is not like that. It intervenes much deeper into your way of life, you have to reflect on it.”

Climate concerned participants showed a higher degree of awareness with regard to environmental aspects of behaviour. Often, they indicated negotiating with themselves regarding their daily behaviour in transportation, food, and recycling. During one of the interviews, one participant even felt she was justifying her own behaviour. When explaining why she did not separate plastic from other waste due to the unavailability of sufficient infrastructure she explains:

“Because I think that is too difficult, you know. Because in some of the neighbourhoods... ah damn it, I am defending my own behaviour here, that is not good. But...” (Aydan, 35)

Subsequently, participants responded to the statement whether they felt ashamed of their own environmental behaviour compared to others. Here also an internal negotiation process seems to be present, for instance with Harry (57) indicating:

“I feel ashamed for my environmental behaviour when I reflect on what are my own values deep inside.”

However, afterwards he indicated that it is also human to look for pleasure in life even if it is at the cost of the environment. This appears to reveal the highly ambivalent nature of climate

change having environmental values on the one hand, but not always acting pro-environmentally on the other hand due to other types of values that might interfere.

Finally, the statement regarding group identity revealed a mixed picture. Almost all participants expressed a certain relationship to a group. Climate concerned participants positioned themselves in a group or generation that is concerned with climate change. Mary (22) identified herself to the current generation 'western millennials' explaining that they have to 'fix something' regarding climate change. She argues that the younger the generation, the easier it is to change where older generations will more like face difficulties when changing their patterns. Moreover, she indicated that her generation still has to put their children onto the world. Climate sceptic participants identified themselves with groups that are more sceptic towards human induced climate change and climate change policies.

4.3 Social Norms

Participants were asked if they could tell something about their social environment and climate change. Generally, climate concerned participants referred to a social environment that is becoming more aware of the importance of climate change, whereas climate sceptic participants described a social environment that does not really believe climate change is an important issue. This seems to align with the role of social norms within the Theory of Planned Behaviour (Ajzen, 1991). However, participants did not explicitly state to feel a pressure to adjust their behaviour to their social environment. When examining this social environment more closely, a mixed picture appeared. Seven participants explicitly stated that their family holds similar attitudes towards climate change whereas three participants explained that family members possess contrasting attitudes towards climate change. Climate change attitudes of friends and colleagues differ more often compared to the participants' attitudes than family members. In this case, climate concerned participants described situations of social tension. Rose (23), for instance, explained that she took a bottle out of the regular bin for recycling purposes and got laughed at by her friends. Mary (22) described that roommates teased sarcastically at her when she was eating fish, because it was not according to her own environmental standards. These examples demonstrate that social pressure to perform behaviour that aligns with the specific social environment can be outweighed by strong personal attitudes to perform pro-environmental behaviour. Moreover, Helen (49) indicated that it is a challenge not to show too often that one should behave environmentally thereby appearing moralistically superior, but rather let people live and go. However, she afterwards nuanced this statement expressing that much change is needed. When asked how climate

concerned participants cope with these social tensions regarding climate change they indicated that they aim to develop a sense of environmental awareness in others, but do not want to appear moralistic. It seems they tend to settle with the idea that not everyone is as environmentally aware as they are. Finally, participants indicated that the social context of participants influences the behaviour of the participants, as the following quote indicates:

“When you deal with a lot of people that are environmentally aware then you will become more like that, because when I was abroad I ate more meat because in Africa or Asia there are less alternatives, and when I came back to the Netherlands, I realised I started to eat more meat, but then I started to see my sister and more vegetarians, that got me thinking like oh shit...”
(Mary, 22)

4.4 Feelings

A final element regarding climate change experiences considers feelings that participants hold with respect to climate change. In general, a wide variety of feelings were expressed from both climate concerned and climate sceptic participants during the interviews. Climate concerned participants indicated feeling ashamed, frustrated, sad, and powerless. Feelings of shame of climate concerned participants are expressed in situations in which pro-environmental intentions are contradicted by environmentally harmful behaviour, for instance with air travel. This seems to relate to the general idea of cognitive dissonance where individuals realise their behaviour is not consistent with their attitudes (Baron et al., 2006). William (63) expressed feeling sad when thinking about the environmental losses caused by climate change:

“I think that, well (sighing), it is an irretrievable process. Look, for instance at what happened to the large reefs in the ocean, and especially the horrible overfishing...”

Climate sceptic participants conveyed feelings of frustration, worry, and anger. James (46) clearly raised his voice when expressing his frustrations with while at the same time also demonstrating a sense of acquiescence:

“I can be very angry and agitated when sensing that people... but actually, well, there will always be people that cannot be convinced...”

Besides a diverse range of emotions, similarities were also found between climate concerned and climate sceptic participants. From the interviews, it appears that participants are concerned with how climate change policies are generally implemented. Mary (22) for instance, explains that she is deeply frustrated about the fact that the effects of climate change have been known for decades but that the political debate still mainly focused on economic growth. On the contrary, John (56) confesses that he is not necessarily worried about climate change impacts but rather on the potential damage that climate change policies might do to the Dutch economy. Ultimately, the feelings expressed by the participants demonstrate that the abstract issue of climate change has become highly politicised and has been translated into specific issues considering the organisation of infrastructure, the economy, and the supply of energy. In this regard, it seems that feelings have become an important element of climate change experiences as they appear to be part of these climate change issues as previously shown by Norgaard (2011) and Hamilton (2019).

4.5 Participants' general travel behaviour within a context of climate change

The question: "Could you tell something about your current travel behaviour?" yielded various insights. First of all, it appears that all participants use multiple modes of transport. Walking, cycling, driving, taking a train or bus, and flying were all mentioned with each participant indicating he or she uses at least two different modes of transport. Climate concerned participants indicated that they often prefer more pro-environmental travel options (train, bus, cycling or walking) whereas climate sceptic participants did not and were more likely to commit to more polluting modes of transport such as car-driving or flying using ease and comfort as important arguments. However, results were partly mixed with some climate sceptic participants taking the train to work, and climate-concerned participants indicating substantial car-use. The reasons for taking particular modes of transports differ widely from 'ease' and 'comfort' to 'weather', 'accessibility', 'travel time', and 'work' and seem to be context-dependent. For example, when traveling to work, James (46), an occupational physician, explains he always drives the car to work because it is faster compared to other forms of transport and more comfortable. However, when visiting Amsterdam for leisure purposes, he takes the train due to accessibility reasons.

A second insight seems to reveal another difference between climate concerned and climate sceptic participants. Climate concerned participants show a high awareness of their environmental impact with regard to travel behaviour whereas climate sceptic participants did not. Rose (23) explained she intends to take the train more often instead of the plane. Moreover,

when she was working in Saudi-Arabia, she took night buses to cover long distances rather than a flight. Furthermore, Harry (57) described a conversation with his daughter in the city of Athens in November 2018:

“And then I said oh baby, do you know how many flights I have taken this year? This is my seventh already. And then she said, dad, this is my eleventh flight. That is a shame.”

Related to this insight, climate concerned participants explained a discrepancy between their concerns for climate change, and their flying behaviour. From their interviews, it appears they often feel ashamed when taking a plane. When asked about how they cope with this feeling of shame they explained that they only fly when necessary. Reasons to fly included family visits, school reunions, and educational or work-related purposes. This discrepancy between the willingness to act pro-environmentally and the actual behaviour seems to align with the ‘ambivalence’-element of the framework proposed by Lertzman (2019), thereby emphasizing that climate change experiences can be characterized as contradicting. On the contrary, climate sceptic participants appear to fly for necessary and leisure purposes and did not show signs of environmental concern.

4.6 Travel behaviour in a European context

Using a conjoint analysis, participants were provided with various transport dilemmas for three different trajectories. In doing so, they were required to decide what mode of transport (Plane, Car, Coach or Train) they would use to travel from Amsterdam to London, Berlin, and Budapest. It is assumed that participants undertake a single trip, alone, for a weekend with leisure purposes. Subsequently, participants were asked why they would use these particular modes of transport with respect to other modes of transport.

First of all, it appears that climate concerned participants tend to take climate change more often into account when deciding on transport mode compared to climate sceptic participants, thereby more often preferring a more sustainable mode of transport such as trains or coaches. However, the distance Amsterdam – Budapest seems to be a tipping point, where most climate concerned participants indicate that, regardless of their climate concerns, they would still travel by air because of time, travel distance and lack of reasonable alternatives. Thus, it seems that other factors such as travel time become more important compared to climate change at this trajectory. Climate sceptic participants did not take into account climate change when determining a preferable mode of transport but rather focused on time, costs, ease, and comfort.

It appears that efficiency is an important starting point when selecting modes of transport. Secondly, from the explanations that all participants provide, travel behaviour for each different trajectory is motivated by multiple factors rather than one. Travel behaviour, especially when it comes to trips to other European destinations, appears to be a negotiation process based on different factors. This is mainly the case for climate concerned participants who struggle to align their pro-environmental values with travel behaviour. Harry (57) for instance, when discussing his travel choice regarding the trajectory Amsterdam – London, explains:

“You know, that is the double side of it, you know, I would definitely consider... the emissions, but I also admit that, that I also see, and know and feel how this plays out practically...you know my brother who says, hey would you join me next week there is quite a cheap flight to London, and we have tickets for Chelsea – Arsenal. And then you think, yes that is also nice.”

These results indicate that travel behaviour is highly complex (Howarth & Ryley, 2012). After participants were presented with the conjoint analysis, they were asked what would happen when circumstances would change the purpose of the trip, length of stay at the arrival destination or being accompanied by friends and family. The results demonstrate that these changing circumstances highly matter for the choices being made, as Mary (22) indicates when discussing car travel with three friends to Budapest:

“So emissions would be cut in four. So, then it does not make a big difference anymore (referring to emissions per person traveling by coach). So I would really consider traveling by car earlier.”

When changing the travel purpose to Budapest from holidays to business, Helen (49) indicated that she would take the train instead of the car:

“Then I would rather take the train because then you would not make a little trip, because imagining driving to Budapest, then you will quickly visit nice places along the way, or you take an overnight stay here and want to see nice sites there.”

4.7 Other factors determining travel behaviour

Participants were asked about factors that might hamper their ability to freely consider their travel choices. Most participants did not explicitly indicate barriers with regard to picking modes of transport. However, various factors were mentioned such as a lack of parking spaces in inner cities limiting car use, expensive 'bike-on-train'-tickets, safety issues in foreign countries and a lack of well-developed high speed rails between the core regions and cities of Europe.

More indirectly, however, various other factors can also be considered to limit behavioural control. Throughout the interviews, participants talked about costs, distance, weather, travel time all impacting their travel choices.

4.8 Future perspectives on travel behaviour

In order to examine future perspectives on travel behaviour and policy-making within the context of climate change, participants were asked to design their ideal utopia regarding travel behaviour within a context of climate change. This question yielded a wide variety of future perspectives. Five climate concerned participants indicated they would like to see a more optimised rail network. At the same time, they underlined the importance of financial measures to promote public transport, and to increase the price of unsustainable transport options such as air travel. In doing so, they highlight the role of the central Dutch government to take initiative. When asked why they think this is not yet the case, they mentioned the lack of political support as the main reason. Furthermore, with regard to behavioural change, climate concerned participants seem to suggest that personal choices regarding travel behaviour are also important for the future. Harry (57), for instance, explains:

“Well it would be nice if we all get rid of the idea that the world is easy to travel. So yes, if you ask me, plane travel should be reasonably expensive.”

Climate concerned participants highlighted the importance of improved technologies to decrease greenhouse emissions. Here, they often mentioned electricity and hydrogen as potential solutions for future transportation. Climate sceptic participants also emphasised electrical and hydrogen solutions, but with respect to the declining stock of fossil fuels. Furthermore, climate sceptic participants delineate a future that is based on technological developments and increased efficiency.

5. Discussion:

5.1 Climate change experiences and travel behaviour

The purpose of this study was to gain a diverse and in-depth understanding of climate change experiences and travel behaviour. Based on the data, the qualitative application of the TPB appears as a suitable framework to gain an in-depth understanding of the relation between climate change experiences and travel behaviour. In contrast with previous studies (e.g. Line et al., 2010; Møller et al., 2018), climate concerned participants demonstrated a high awareness of the association between climate change and travel behaviour. However, this result does align with other studies such as Abrahamse et al., (2009) demonstrating that environmental factors can lead to a decrease in car use. Nevertheless, a clear difference exists between climate concerned and climate sceptic participants, with the latter group explicitly denying associations between climate change and travel behaviour. Explicitly stating interest in associations between climate change experiences and travel behaviour during the interviews might have influenced this result as it prompted participants to actively consider this association.

Although a clear difference between travel behaviour intentions was found between climate concerned and climate sceptic participants, this did not necessarily lead to consistent behaviour. With regard to air travel, climate concerned participants explain that they still travel by plane when they considered this necessary. Reasons to fly include education, work, or a class reunion. This result appears to be similar with Nursey-Bray et al., (2019) who found similar outcomes with respect to flying behaviour among academics and more generally with Norgaard (2011) who illustrates that there appears to be a gap between climate change concerns and behaving accordingly. Nevertheless, in their study, Nursey-Bray et al., also found ‘fears of non-flying’ which were not found in this study.

5.1.1 Climate change experiences

Throughout the interviews, the results demonstrated that climate change experiences are diverse, complex, and ambivalent. In that sense, this study shows that climate change experiences can be conceptualized as a ‘brew’ of attitudes, social norms, self-identity and feelings. This seems to be consistent with recent work on climate change from the field of climate psychology (Lertzman, 2019; Tollemache, 2019; Hamilton, 2019) suggesting that climate changes are subjective and extremely difficult to fully grasp. With regard to the ambivalence found in this study, climate concerned participants reveal struggles to fully translate their concerns into consistent behaviour due to other forms of behaviour that are also

perceived important and not necessarily pro-environmental. Furthermore, it is remarkable that climate sceptic participants deny human involvement with climate change but also identify themselves as having a pro-environmental self-identity. A possible explanation might be the personal interview setting prompting participants to provide answers that are socially accepted. Another important finding in this study relates to feelings. Both climate concerned and climate sceptic participants convey feelings of frustration, worry, anger, powerlessness, shame, and sadness when discussing climate change. This underlines the highly emotional nature of climate change experiences as has been previously shown by Norgaard (2011) and Hamilton (2019).

5.1.2 The complexity of travel behaviour

In line with previous studies (Gutiérrez, 2001; González-Savignat, 2004; Gärling, 2005; Howarth & Ryley, 2012), it appears that besides climate change, costs, travel time, comfort, distance, and ease play an important role in determining travel behaviour for both climate concerned and climate sceptic participants. However, the importance of these factors differ per person and with changing contexts of size of travel group, travel purpose and length of stay. Furthermore, participants show that travel behaviour can be understood as a negotiation process between competing modes of transport and different factors influencing travel choice. In this regard, this study adds to previous studies highlighting the complexity of travel behaviour (Howarth & Ryley, 2012). Adding participants' experiences with climate change to this complexity, it can be argued that travel behaviour is a 'brew' (Lertzman, 2019) consisting of climate change experiences and a personalized set of preferences for travel behaviour. However, the influence of climate change experiences on travel behaviour is much stronger for climate concerned participants compared to climate sceptic participants.

5.2 Methodological considerations

In line with the field of climate psychology (Hoggett, 2019), it appears that a more in-depth understanding of climate change requires research approaches beyond quantitative methodologies. In this regard, a qualitative application of the TPB appears to be valuable in providing an in-depth understanding of climate change especially considering the emotional nature of climate change. During the interviews, it became clear that discussing feelings regarding climate change is incredibly difficult, even though the researcher emphasised that there was no 'right' or 'wrong' and that participants should rather consider the interview a 'conversation'. This might be due to the fact that researcher and participant are not yet familiar with each other and more rapport is required for more in-depth emotional conversations.

Furthermore, it aligns with previous work underlining the fact that discussing feelings and emotion in research is extremely difficult (Hamilton, 2019).

The conjoint analysis appears to be a valuable tool in eliciting in-depth information. Participants indicated that they perceived the specific transport dilemmas as comprehensible. Furthermore, the researcher experienced that changing the context of the transport dilemmas that participants were provided with yielded meaningful insights into travel behaviour considerations, especially compared to more open forms of interviewing. Moreover, the conjoint analysis was particularly successful in revealing that travel behaviour is a negotiation process between different elements perceived important for traveling.

5.3 Limitations

This study faces some limitations. First of all, data collection was mainly carried out during the Covid-19 pandemic forcing the researcher to conduct the interviews online via Skype and Zoom. While verbal information was still collectable, non-verbal information such as body language could not be included in this study. Furthermore, online interviews meant that various participants were excluded from the research where they did not feel confident using Skype or Zoom. Finally, as the Covid-19 pandemic provides participants with time to reflect, it might have influenced the climate change experiences and therefore the outcomes of the study in a similar way compared to a study conducted by Line et al., (2010). They argue that the societal context in which data is collected (in their study just before the Kyoto Protocol came into force) might influence the results. In fact, various participants related to the Covid-19 pandemic during the interviews. Secondly, results are based on a small Dutch sample meaning that generalisations cannot be made. The small sample rather invites future research to investigate individual experiences with climate change and travel behaviour in other contexts to see to what extent the outcomes of this study yield similar insights. Thirdly, it seems that climate change can be quite an intense topic as it confronts people with a harsh reality regarding the current state of the planet. This makes interviewing extremely challenging as the topic makes participants feel guilty and shameful. Thus, from an ethical perspective, researchers are obliged to adopt a position during the interviews that make participants feel comfortable. Future research with climate change should therefore address this issue and work on methodologies that acknowledge inconveniences of climate change that participants might have during data collection. Finally, this study did not measure actual travel behaviour. Participants might indicate particular travel behaviour intentions but the actual behaviour could be different as it has not been measured in this study.

6. Conclusions:

6.1 Outcomes of this study

This study contributed to a more in-depth understanding of how climate change experiences relate to travel behaviour in a European context. First of all, it is shown that climate change experiences are diverse, ambivalent, imbued with emotions, and linked to the complex nature of travel behaviour. In this way, climate change experiences can be conceptualised as a fluid personal brew of attitudes, social norms, self-identity, and feelings regarding climate change. Secondly, this study shows that climate concerned participants express a strong intention to consider climate change in their travel behaviour but a gap often remains between intentions and actual behaviour due to other variables that are perceived important. Thirdly, the complex nature of travel behaviour is demonstrated. Important factors influencing travel behaviour include climate change, costs, travel time, comfort, distance, and ease. Using a conjoint analysis, it is shown that the context of travel behaviour including travel group size, travel purpose and length of stay at arrival destinations highly matter for transport choices. Finally, a conjoint analysis seems fruitful in obtaining an in-depth understanding of travel behaviour due to its particular strength to confront participants with concrete transport dilemmas.

6.2 Policy implications

This study has emphasised the diversity, ambivalence and complexity of experiences with climate change and travel behaviour. In doing so, it shows that a silver bullet to foster behavioural change within the transport sector does not exist.

With regard to policy-making, it is important to note that, apart from climate change experiences, strong commonalities regarding travel choices exist across the participants of the study. Time, costs, comfort, and ease appear to be important factors influencing travel behaviour for both climate concerned and climate sceptic participants. In the context of sustainable transportation, it seems that these factors should be included in future policy-making to address participants with different climate change experiences. Specifically, this means that encouraging public transport such as a rail network across Europe that is cheap, fast, comfortable and easy to access might be a successful policy strategy to combat the growing contribution of the transport sector to climate change.

6.3 Future research directions

Various avenues for future research can be identified. First of all, while this study already shows the diverse experiences with climate change, more interviews should be conducted with participants with different backgrounds (eg. with a low economic status) to further map personal experiences with climate change as it might yield additional insights how climate change experiences relate to travel behaviour. Furthermore, extensive research into factors involved in European travel behaviour and its context is necessary to provide representative observations into factors influencing travel behaviour in a European context. In turn, this can improve policy-making regarding the European travel infrastructure. Finally, in line with Norgaard (2011), more research is necessary to further understand the role of emotions and feelings regarding climate change. In particular, novel research strategies to successfully discuss emotions and feelings are needed as they appear to play an important role.

References:

- Abrahamse, W., Steg, L., Gifford, R., & Vlek, C. (2009). Factors influencing car use for commuting and the intention to reduce it: A question of self-interest or morality?. *Transportation Research Part F: Traffic Psychology and Behaviour*, 12(4), 317 – 324.
- Anable, J. (2005). ‘Complacent Car Addicts’ or ‘Aspiring Environmentalists’? Identifying travel behaviour segments using attitude theory. *Transport Policy*, 12, 65 – 78.
- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179 – 211.
- Ajzen, I. (2011). The theory of planned behaviour: Reactions and reflections. *Psychology & Health*, 26 (9), 1113 – 1127.
- Álvarez – Farizo, B. & Hanley, N. (2002). Using conjoint analysis to quantify public preferences over the environmental impacts of wind farms. An example from Spain. *Energy Policy*, 30, 107 – 116.
- Anable, J., & Gatersleben, B. (2005). All work and no play? The role of instrumental and affective factors in work and leisure journeys by different travel modes. *Transportation Research Part A: Policy and Practice*, 39(2-3), 163 – 181.
- Andrews, N. (2019). An Integrative Methodology for Investigating Lived Experience and the Psychosocial Factors Influencing Environmental Cognition and Behaviour In: P. Hoggett (1st ed.), *Climate Psychology* (61 – 84). Cham: Palgrave MacMillan.
- Bamberg, S. & Schmidt, P. (2003). Incentives, morality or habit? Predicting Students’ Car Use for University Routes with the Models of Ajzen, Schwartz and Triandis. *Environment & Behavior*, 35 (2), 264 – 285.
- Banister, D., Schwanen, T. & Anable, J. (2012). Introduction to the special section on theoretical perspectives on climate change mitigation in transport. *Journal of Transport Geography*, 24, 467 – 470.
- Baron, R. A., Byrne, D., & Branscombe, N. R. (2006). *Social psychology* (11th ed.) Boston, MA: Pearson Education, Inc.
- Chapman, L. (2007). Transport and climate change: a review. *Journal of Transport Geography*, 15, 354 – 367.
- Den Ridder, J. & Dekker, P. (2010). *Burgerperspectieven 2010/2*. Den Haag: Sociaal en Cultureel Planbureau.
- Dekker, P., Van der Ham, L. & Wennekers, A. (2018). *Burgerperspectieven 2018/1*. Den Haag: Sociaal en Cultureel Planbureau
- Dickinson, J. & Lumsdon, L. (2010). *Slow Travel and Tourism*. 1st Edition. Oxon, United Kingdom: Earthscan.

- Dowling, R. (2016). Power, Subjectivity, and Ethics in Qualitative Research. In: Hay, L. (Ed.). *Qualitative Research Methods in Human Geography*, (29 – 44). Canada: Oxford University Press.
- European Environmental Agency. (2017). *Greenhouse Emission from Transport in Europe*. Copenhagen: European Environmental Agency.
- Gaggero, A., A., Ogrzewalla, L., Bubalo, B. (2019). Pricing of the long-distance bus service in Europe: The case of Flixbus. *Economics of Transportation*, 19, 1 – 12.
- Gärling, T. (2005). Changes of private car use in response to travel demand management. In G. Underwood (Ed.), *Traffic and transport psychology. Theory and application*. Proceedings of the ICTTP 2004,. Oxford: Elsevier.
- Gatersleben, B., Murtagh, N. & Abrahamse, W. (2014). Values, identity and pro-environmental behaviour. *Contemporary Social Science*, 9 (4). 374 – 392.
- Goulden, M., Ryley, T. & Dingwall, R. (2014). Beyond ‘predict and provide’: UK transport, the growth paradigm and climate change. *Transport Policy*, 32. 139 – 147.
- González-Savignat, M. (2004). Competition in air transport, the case of the high speed train. *Journal of Transport Economics and Policy*, 38(1), 77–108.
- Gutiérrez, J. (2001). Location, economic potential and daily accessibility: An analysis of the accessibility impact of the high speed line Madrid–Barcelona–French Border. *Journal of Transport Geography*, 9(4), 229–242.
- Hamilton, J. (2019). Emotions, Reflexivity and the Long Haul: What We Do About How We Feel About Climate Change. In: P. Hoggett (Ed.). *Climate Psychology*. (1st ed.). (153 – 175). Cham: Palgrave MacMillan.
- Hoggett, P. (2019). *Climate Psychology*. (1st ed.). Cham: Palgrave Macmillan
- Howarth, C. & Ryley, T. (2012). A Behavioural Perspective on the Relationship Between Transport and Climate Change. In: T. Ryley & L. Chapman (eds.), *Transport and Climate Change* (261 – 286). Bingley, United Kingdom: Emerald Publishing Limited.
- Lertzman, R. (2019). New Methods for Investigating New Dangers. In: P. Hoggett (1st ed.), *Climate Psychology* (25 – 40). Cham: Palgrave MacMillan.
- Line, T., Chatterjee, K. & Lyons, G. (2010). The travel behaviour intentions of younger people in the context of climate change. *Journal of Transport Geography*, 18, 238 – 246.
- Lucas, K., & Jones, P. (2009). *The car in British society*. London, UK: RAC Foundation.
- Lu, J. & Wang, C. (2018). Investigating the impacts of air travellers’ environmental knowledge on attitudes toward carbon offsetting and willingness to mitigate the environmental impacts of aviation. *Transportation Research Part D*, 59. 96 – 107.

- Löfgren, O. (2000). *On Holiday: A History of Vacationing*. Berkeley: University of California Press
- Longhurst, R. (2012). Semi-structured interviews and Focus Groups. In: Clifford., N., French, S., & Valentine, G. (Ed.). *Key Methods in Geography*. 2nd Edition. London: Sage
- Metzler, D., Humpe, A. & Gössling, S. (2019). Is it time to abolish company car benefits? An analysis of transport behaviour in Germany and implications for climate change. *Climate Policy*, 19 (5), 542 – 555.
- Møller, M., Haustein, S. & Bohlbro, M., S. (2018). Adolescents' associations between travel behaviour and environmental impact: A qualitative study based on the Norm-Activation Model. *Travel Behaviour & Society*, 11. 69 – 77.
- Morten, A., Gatersleben, B. & Jessop, D., C. (2018). Staying grounded? Applying the theory of planned behaviour to explore motivations to reduce air travel. *Transportation Research Part F*, 55. 297 – 305.
- Norgaard, K., M. (2011). *Living in Denial: Climate Change, Emotions, and Everyday Life*. Cambridge, Mass.: MIT Press
- Nursey-Bray, M., Palmer, R., Meyer-Mclean, B., Wanner, T. & Birzer, C. (2019). The Fear of Not Flying: Achieving Sustainable Academic Plane Travel in Higher Education Based on Insights from South Australia. *Sustainability*, 11. 1 – 22.
- Schwanen, T. (2019). Transport Geography, climate change and space: opportunity for new thinking. *Journal of Transport Geography*, 81, 1 – 8.
- Steg, L. & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29, 309 – 317.
- Steg, L. (2005). Car use: lust and must. Instrumental, symbolic and affective motives for car use. *Transportation Research Part A*, 39, 147 – 162.
- Steg, L. & Gifford, R. (2005). Sustainable Transportation and Quality of Life. *Journal of Transport Geography*, 13, 56 – 59.
- Tollemache, R. (2019). We have to talk about... Climate Change. In: P. Hoggett (1st ed.), *Climate Psychology* (217 – 237). Cham: Palgrave MacMillan.
- Urry, J. (2012). Changing transport and changing climates. *Journal of Transport Geography*, 24, 533 – 535.
- World Health Organization. (2019). *Climate impacts*. Retrieved on 22-12-2019 from: <https://www.who.int/sustainable-development/transport/health-risks/climate-impacts/en/>.

Appendix A: The Interview Guide

Final interview Guide Master Thesis

Onderwerpenlijst

- ➔ Heel belangrijk om open vragen te stellen ipv gesloten. (bijv. Wat voor emoties roept klimaatverandering bij je op?)

1. *Introductie (Eerst nadruk leggen op conversatie, geen goed of fout, benieuwd naar jouw ervaring)*

Achtergrond:

- Leeftijd
- Woonplaats
- Werk/studie
- Huidige bezigheden
- Huidig transportgedrag

2. *Ervaringen met klimaatverandering*

1. Attitude: (Zou je iets kunnen vertellen over klimaatverandering?)

2. Self-Identity

Stellingen:

- a. Ik ben me erg bewust van vraagstukken omtrent het milieu.
- b. Ik vind mijn gedrag milieubewust.
- c. Ik schaam me over mijn milieugedrag tov van anderen
- d. Mijn vrienden en familie zien mij als milieubewust (Verskil vrienden/familie)?
- e. Ik zie mijzelf als onderdeel van een groep in relatie tot klimaatverandering.

3. Social norms: (Hoe kijkt je omgeving naar klimaatverandering? Denk aan onderscheid familie, vrienden, collega's, hoe vind je dat? Etc. etc.)

4. Wat voelt u tav klimaatverandering?

3. *Transportkeuzes:*

1. Conjoint analysis
 - Amsterdam – Londen
 - Amsterdam – Berlijn
 - Amsterdam Budapest

- ➔ What about group travel? What about a business trip? When would you take the train? Etc.

2. Ervaringen met vliegen en autorijden

Stellingen:

- a. Vliegen is een belangrijk onderdeel van wie ik ben.
- b. Autogebruik is een belangrijk onderdeel van wie ik ben.

3. Mate van controle over dit transportgedrag





- Infrastructuur
- Inkomen
- Beleid
- Afstand

4. Visie voor de toekomst (dromen, fantasieën, utopieën) (Hoe ziet jouw ideale transportwereld eruit?) En waarom is dat nu geen werkelijkheid?

Appendix B: Example of Transport Dilemma (Conjoint Analysis)

Transport dilemma Amsterdam – Berlin*



				
Travel time in hours	1 hour and 30 minutes	10 hours and 40 minutes	7 hours	Six hours and five minutes
Approximate costs in euro's	30,-	30,-	48,-	50,-
Greenhouse gas offset in Kilograms	146,8 KG	18,9 KG	112,52 KG	4,2 KG

- Assuming a single trip, undertaken alone, for a weekend, for leisure purposes