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Citizens as agents of change in the mobility transition: A social identity approach to understanding transformative action

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Abstract

Engaging citizens as political agents of change is essential for achieving an environmentally sustainable and socially just mobility transition. However, the current car-centric mobility system, with its economic and political entrenchments, resists change. This dissertation contributes to a better understanding of how individuals can drive systemic changes in mobility through active citizenship. It does so by examining exemplary behaviors individuals can adopt to challenge the car-centric transport system and explores their behavioral antecedents.

First, I review conceptualizations of agency and pro-environmental social change within transitions literature and environmental psychology respectively. In Chapter 2, I explore how individuals can foster social norm shifts by changing their mode choice, thereby renegotiating structures of normality in transport behavior. Chapter 3 investigates how the social identification with transport user groups impacts the willingness to actively support contested transport policies, such as the redistribution of street space. In Chapter 4, I explore the interplay between social identity processes that motivate collective action against car-dependent structures and the systemic characteristics of the transport regime. Moving on to Chapter 5, I explore the challenges and potential of citizen assemblies in driving local changes in mobility by focusing on discourses in a deliberative envisioning process. Finally, Chapter 6 discusses theoretical and practical implications that can be derived from this thesis, highlights avenues for future research and acknowledges the limitations of this thesis.

In this dissertation I focused on integrating social psychological knowledge, particularly Social Identity Theory, with sociology and the Multi-Level-Perspective from Transition Studies to deepen our understanding of individual agency within the mobility transition. The findings indicate how through active citizenship individuals can partake in shaping the mobility transition – for example through supporting policies, engaging in activism or partaking in formal participation processes. However, obstacles such as limited problem recognition, discourses that delay mitigation action or feelings of powerlessness in regard to industry actors can hinder engagement, especially if the behavior is costly. Conversely, evoking positive emotions towards a sustainable mobility system as well as highlighting co-benefits of a mobility transition as common goals seems to be effective in motivating action. These results suggest that there is merit in involving citizens as political actors throughout different stages of the mobility transition and emphasize the need for future interdisciplinary research to further investigate underlying motivational factors of engagement.

Keywords: mobility transition, citizen engagement, social identity, social norms, individual agency

Deutsche Zusammenfassung

Bürger:innen als politische Akteure in den Transformationsprozess einzubinden ist entscheidend, um die Mobilitätswende nachhaltig und sozial gerecht zu gestalten. Das derzeitige, autozentrierte Mobilitätssystem ist jedoch aufgrund seiner engen wirtschaftlichen und politischen Verflechtungen änderungsresistent. Diese Dissertation widmet sich der Frage, wie Bürger:innen die Mobilitätswende aktiv fördern können. Dabei werden exemplarisch Verhaltensweisen untersucht, die zur Destabilisierung des autozentrierten Mobilitätssystems beitragen sowie denen zugrunde liegende psychologische Prozesse analysiert.

Zunächst fasse ich Konzeptualisierungen von Nachhaltigkeitstransformationen sowie agentischem Handeln aus Umweltpsychologie und Transformationsforschung zusammen. In Kapitel 2 erarbeite ich, wie Individuen durch Änderung ihrer Verkehrsmittelwahl soziale Normen neu aushandeln können. Kapitel 3 untersucht inwiefern die soziale Identifikation mit Verkehrsmittelnutzergruppen die Bereitschaft beeinflusst, verkehrspolitische Maßnahmen zur Neuaufteilung des Straßenraumes zu unterstützen. Im vierten Kapitel analysiere ich wie soziale Identifikationsprozesse, die Engagement zugrunde liegen, mit systemischen Bedingungen des Automobilitäts-Regimes zusammenhängen. In Kapitel 5 untersuche ich das Potenzial und die Herausforderungen von Bürgerräten dabei lokale Mobilitätswenden voranzutreiben. Im letzten Kapitel diskutiere ich die theoretischen und praktischen Implikationen der Forschungsarbeit, entwerfe Ideen für zukünftige Forschung und beschreibe die Limitationen der Dissertation.

Ein zentraler Aspekt dieser Doktorarbeit ist die Integration psychologischer Theorien, insbesondere der Theorie sozialer Identitäten, mit Perspektiven aus Soziologie sowie der Multi-Level-Perspektive der Transformationsforschung, um die individuelle Handlungsfähigkeit (agency) in der Mobilitätstransformation besser zu verstehen. Die Ergebnisse deuten darauf hin, dass Individuen in ihrer Rolle als Bürger:innen die Mobilitätswende aktiv fördern können – etwa durch die Unterstützung verkehrspolitischer Maßnahmen, aktivistisches Engagement oder die Teilnahme an Partizipationsformaten. Allerdings hindern eine geringe Problemwahrnehmung, Verzögerungsdiskurse oder Gefühle der Hilflosigkeit gegenüber wirtschaftlichen Akteuren die Bereitschaft Einzelner aktiv zu werden, insbesondere bei Verhaltensweisen mit hohen zeitlichen oder persönlichen Kosten. Positive Emotionen gegenüber der Mobilitätswende sowie die Kommunikation von Co-Benefits können die Engagementbereitschaft hingegen fördern. Diese Dissertation unterstreicht die prägende Rolle von Bürger:innen als transformationstreibende Akteure und betont die Relevanz zukünftiger Forschung, diese Verhaltensweisen besser zu verstehen.

Schlagwörter: Mobilitätswende, Bürgerbeteiligung, soziale Identitäten, soziale Normen, agency

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Chapter 1: General introduction

The decarbonization of the transport sector is central in combating the climate crisis, especially in affluent countries where rising emissions in transport highlight the urgency of a deep transformation to meet climate goals (Transport & Environment, 2024). Road passenger transport accounts for the largest share of the sectoral emissions, driven by excessive car traffic (Transport & Environment, 2024). However, changing the current mobility system is not only necessary in order to reduce CO2 emissions – it is crucial to protecting other planetary boundaries as well, which are currently at risk due to rising travel demands (Willberg et al., 2024). The transport sector is a key contributor to biodiversity loss, land system changes as well as air pollution due to particulate matter originating in the wear of tires and breaks (Parkin et al., 2025; Willberg et al., 2024). Car-reliant transport systems thus exacerbate health risks such as air and noise pollution, which often disproportionately affect vulnerable populations (Miner et al., 2024). Furthermore, facets of 'car harm' include broader societal issues such as reduced accessibility for rural populations, a higher risk of social isolation or inflated costs of goods and services, all of which are facets of transport poverty (Mattioli, 2021; Miner et al., 2024).

Shifting to an environmentally and socially sustainable mobility system requires widespread changes. While technological advancements have improved energy efficiency in the sector, their impact has been offset by the continuing rise in travel activity (Transport & Environment, 2024). Achieving meaningful progress therefore hinges on large-scale behavior change meaning people traveling less and reducing private car use (Arnz & Krumm, 2023; Whitmarsh & Hampton, 2024). This transition, however, needs to be accompanied by policies that create enabling conditions for the required behavior change by dismantling the privileges of the private car and improving transport infrastructure for alternative modes (Kuss & Nicholas, 2022; Whitmarsh & Frost, 2024).

Challenging the car-centric status quo remains highly contentious, especially in suburban and rural areas characterized by car-dependent lifestyles (Ortar et al., 2024; Walker & Brömmelstroet, 2025; Wild et al., 2018). A key dilemma in transport is that social and environmental policy goals seem to be at odds, raising concerns that a decarbonization may exacerbate injustices (such as restricted access to the job market, see Grossmann et al. (2022)). The controversies around transport policies can lead politicians and local authorities to favor softer and less intrusive pull-policies (meaning policies incentivizing the desired behavior), which however do not suffice to reverse the trend of rising CO2 emissions in the sector (Whitmarsh & Hampton, 2024). Instead, discontinuing car-centric mobility and planning practices is necessary and requires bold policy interventions (S. Hoffmann et al., 2017). This leads to the question of how necessary, transformative change in the mobility sector can unfold and which societal actors drive or resist such transitions.

This dissertation seeks to deepen the understanding of individuals as agents of change in the mobility transition, specifically examining how individual behavior can serve as a lever for structural changes as well as exploring how the systemic context shapes individual behavior in turn. It explores the interaction between individual agency and social structures, investigating the underlying processes of transformative action, with a particular focus on active citizenship as a driver of large-scale changes.

1.1 A Multi-Level-Perspective on the mobility transition

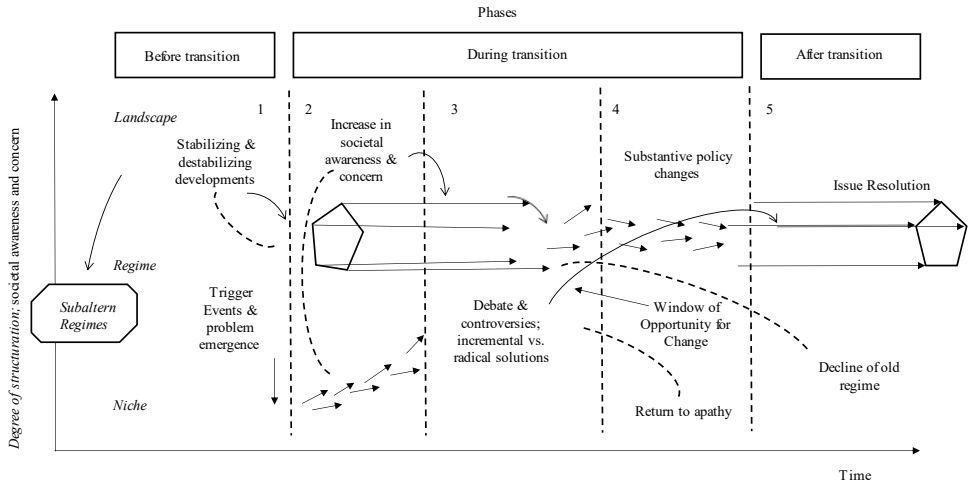
The debate on responses to the climate crisis often revolves around the contentious issue of responsibility for mitigation efforts, juxtaposing individual action and systemic interventions. In an influential paper, Chater and Loewenstein (2022) criticized psychology and behavioral sciences for overemphasizing what they called i-level interventions (that is interventions targeting individuals for behavior change) while neglecting the broader social, political, legal and infrastructural conditions shaping those behavioral decisions. They argue,

that targeting these systemic drivers offers greater leverage for meaningful change. This critique has been put forward repeatedly by other disciplines, such as sociology (Hallsworth, 2023; Shove, 2010), but it is only recently that such reflections have prompted a more widespread critical reassessment of research traditions and epistemologies within environmental psychology itself (Adams, 2021; Nielsen et al., 2024; Schmitt et al., 2020).

Theorizing and analyzing systemic change processes toward sustainability has traditionally been subject to sociology and transition studies (Geels, 2012; Shove, 2010; Urry, 2004). Decarbonizing transport showcases characteristics of a 'wicked problem' (Rittel & Webber, 1973) in planning and policymaking as the deep entanglement of societal and economic structures in transport resists simple policy responses (Givoni, 2014). The way societies organize mobility is closely intertwined with economic systems, infrastructure provision as well as dominant lifestyle choices and consumption patterns (Mattioli et al., 2020). These interdependencies are what transition scholars describe as *regime structures* in the widely applied *Multi-Level-Perspective (MLP)* presented by Geels and Schot (2007). The MLP consists of three levels and is used to describe and conceptualize societal structures and change processes that occur within (see Figure 1).

Figure 1

Multi-Level-Perspective, own illustration based on Bodenheimer & Dütschke (2021)



The regime level encompasses the ongoing, highly institutionalized actions of economic, political and other societal actors. In transport, the dominant automobility regime is sustained by transport planning practices, the economic model of the car industry as well as social norms around mobility behavior (Geels, 2012). Existing alternative modes, such as public transport or cycling, are often categorized as ‘subaltern regimes’ (Geels, 2012) – established but structurally disadvantaged in comparison to the dominant automobility regime. The *niche level* is used to describe radical novelties, which can challenge existing regime structures by providing alternatives better suited for changing conditions and thus eventually aiming at replacing former ways of doing. Finally, the *landscape level* of the MLP describes the wider societal context and encompasses non-tangible aspects like ideologies, broader economic developments as well as, for example, changing eco-system dynamics due to climate change. Developments on the landscape level can also destabilize regime structures and open up pathways to a transition, when the dominant regime is not capable of adapting to changing contextual factors.

In the mobility transition, landscape developments such as the accelerating climate crisis or changes to work life can challenge the stability of the car regime as it might have difficulties to adapt to these new developments. At the same time, however, there are processes upholding the car regime against all odds which reinforce lock-in mechanisms within the regime (see Geels, 2012). Preferences for the car as a time saving as well as status-signaling mode choice remain strong (Geels, 2012; Gössling, 2017). Other psychological processes upholding the car culture are concerns for personal safety (which is related to purchasing bigger vehicles) as well as the cultural significance of autonomy in Western societies or the signaling of affiliation to certain social groups through mode choice (Gössling, 2022; Steg, 2005). Furthermore, the built environment in many Western countries – from amenity distribution to job opportunities or the street design itself – is constructed for and around car travel needs, further entrenching car dependence (Mattioli et al., 2020). Sub-urbanization and urban sprawl are land use patterns manifesting car-dependent lifestyles in the street infrastructure and distribution of amenities (Mees, 2010). The interplay of socio-cultural as well as infrastructural factors upholding the car-centric regime has been summarized in urban planning as the 'cycle of automobile dependency', which underlines how these factors reinforce each other respectively and thereby making the car system relatively stable (Litman, 1995).

These overarching structures of the MLP should, however, not be understood as abstract entities but comprised of agentic individuals and groups shaping them. Scholarly work of recent years has adapted and refined the perspective on agency of (individual) actors within complex transition processes (Geels, 2020; Göpel, 2016; Upham et al., 2020). Agency in this context refers to 'the capacity to act' within a wider system (Geels, 2020). Göpel (2016) proposes expanding the MLP by another level to explicitly conceptualize how individuals contribute to either maintaining or destabilizing regime structures. Individuals can assume different roles in a society, engaging in activities which either foster or hinder a transition process. Bodenheimer and Dütschke (2021) provide a detailed proposition of how to define agency in transition,

disentangling relevant actors and activities across the different phases of transitions – from emerging critiques of the status quo to the replacement of old structures by niche innovations (see Figure 1). The authors illustrate how struggles for stabilization and destabilization play out through competing actors and actors' interests, which can form synergistic coalitions or antagonistic positions that fight over legitimacy and majority approval in the public opinion. Individuals can act in different roles throughout the transition process – be it through adopting and advocating for niche innovations, campaigning against unsustainable regime structures or voting for policy changes that institutionalize innovations. In the following section, I will illustrate the roles and activities individuals can adopt within the mobility transition, building on social psychological research on environmentally relevant action.

1.2 Individual behaviors driving pro-environmental social change

To understand the contribution of individuals to transformative change, it is essential to specify which behaviors are being investigated as they differ in impact as well as in aims targeted (Nielsen et al., 2021). One of the earliest frameworks to systematize environmentally significant individual action was developed by Stern (2000). Stern (2000) classified behaviors along their visibility as well as their radicality to reveal four key dimensions of sustainable action: environmental activism, nonactivist behaviors in the public sphere (such as policy acceptance), private-sphere environmentalism (consumer decisions) as well as other behaviors (such as workplace engagement or organizational efforts). Environmental psychology has traditionally focused on private-sphere behaviors, but research is increasingly shifting toward public sphere behaviors, which are considered more impactful in driving large-scale, structural changes (Nielsen et al., 2024; Schulte et al., 2020).

Nielsen et al. (2021), building on the work by Stern (2000), identified different roles through which individuals can contribute to transformative, environmental action: Individuals can shape the sustainability transition through their consumer behavior, their active citizenship,

as members of organizations, as investors in climate-friendly solutions or as role-models in their social networks. As consumers, people can influence the demand side of sustainable alternatives to the private car by purchasing electric vehicles or cargo-bikes (Becker & Rudolf, 2018). Individuals can also choose (or choose not) to use fuels with their mobility behavior, opting for a private car or switching to alternative modes (Javaid et al., 2020; Nielsen et al., 2021). However, especially behavior performed within other roles than primarily the consumer role hold potential for individual action leveraging systemic changes (Whitmarsh et al., 2021).

Through active citizenship individuals can be part of the political decision-making process and thereby evoke large-scale change (Andreouli, 2019). Citizenship encompasses both activist and non-activist behaviors in the public sphere, offering a rather accessible means of influence that is less contingent on social status or financial resources compared to other roles discussed. Examples for how individuals can enact their citizenship are creating a social mandate for change through policy support or by voting officials who campaign for pro-environmental social change, partaking in formal participation processes and engaging in grassroots activism to pressure for policy change or enact small local solutions (Rees & Bamberg, 2014; Werschmöller et al., 2024). While these behaviors are relevant throughout the different stages of the transition process, active citizens mobilizing for change can be particularly influential in raising problem awareness and challenging unjust and unsustainable regime structures (David, 2018).

Citizenship represents a social psychological concept to its core, that allows to investigate the interplay between individuals and societal and regulatory institutions (Andreouli, 2019). Differentiating between conventional and transformative citizenship helps to describe how citizens position themselves in regard to others and to established institutions: Conventional citizenship refers to enacting one’s status through established norms and rules (e.g., through voting), whereas transformative citizenship in contrast refers to the active challenging of the status quo and individuals claiming more rights as citizens (Andreouli, 2019).

In their role as active citizens, individuals therefore can raise problem awareness in conversations or organized publics, advocate for changes in policymaking as well as support emerging alternative solutions (Bodenheimer & Dütschke, 2021).

Furthermore, individuals can enact systemic changes as members of organizations, for example, when campaigning for corporate mobility solutions such as job tickets or ride shares for commutes. In their role as investors, they can buy shares of a car-sharing platform, although adopting this role in the realm of transport might seem less viable (compared to, for example, the role of prosumers in the energy transition who invest in and produce renewable energies). The fifth role Nielsen and colleagues (2021) define is individuals as role models in communities: By modelling behaviors, organizing in small groups or disseminating information on mitigation options, individuals can have informal social influence within their communities. With regard to the mobility transition, individuals could model alternative mobility behaviors, which positively influence peers or they could engage in community parklet campaigns (Bobeth & Matthies, 2018; Rollin et al., 2021). The power and influence people can exert through these roles vary based on their socio-economic status, with higher status individuals generally having greater capacity and thus also more responsibility to drive meaningful change (Nielsen et al., 2021; Westlake et al., 2024; Whitmarsh & Hampton, 2024).

Despite the path dependencies reinforcing the automobile regime, historical examples demonstrate that individuals can play a pivotal role in mobility transitions. In cities like Amsterdam and Copenhagen, citizens played a crucial role in pushing local governments for changes in policy making, that fostered the cycling friendly mobility cultures these cities are known for today (Henderson & Gulsrud, 2019). Another more recent example is the Berlin cycling referendum, where the results of a petition organized by a citizen initiative led to a new legislation prioritizing active travel in local transport planning (Becker et al., 2020). Ensuring a just and socially accepted transition in mobility thus requires recognizing and empowering citizens as key agents of change. In the following section, I will introduce how social

psychology theorizes societal change as well as the processes underlying individual and collective intentions to partake in transformative action.

1.3 Social identity processes and social norms in social change

The study of societal change processes has also been fundamental to psychology, particularly social psychology, since its early days. A key question that led to the development of Social Identity Theory (SIT) by Tajfel and Turner (1986) was understanding what motivates members of disadvantaged groups to challenge unjust social structures that disregard their rights and needs (Tajfel & Turner, 1986). At the core of SIT is the concept of social identity which refers to the part of the self-concept that is based on a meaningful affiliation to a social group. It encompasses shared values, norms and goals of a social group with which individuals self-identify and to which they feel invested in (Leach et al., 2008). Social identifications are dynamic and context-dependent, becoming particularly salient in certain intergroup constellations that emphasize differences in an "us" vs. "them" duality. As a theory of social change, SIT underscores the ability of people to act as collectives pursuing common goals, thus encompassing broader collective interests that challenge an established social order (Schulte et al., 2020).

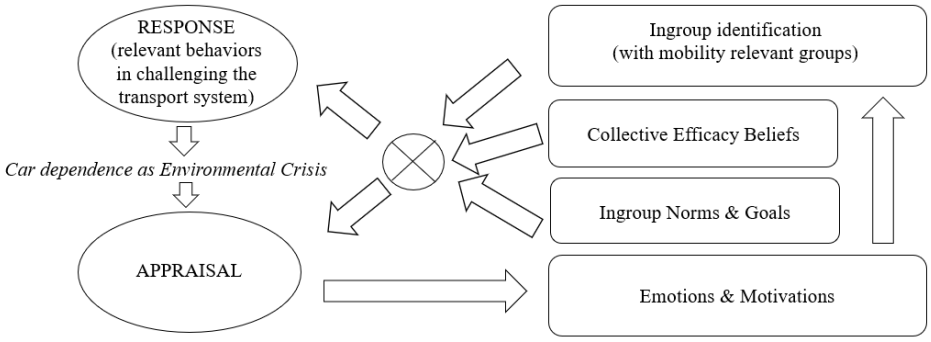
With regard to the climate crisis, the status quo can be considered unjust in numerous ways as current economic structures and practices fail to ensure livability and well-being for all. Concerns about intergenerational justice, with younger generations disproportionately affected by the climate crisis, but also environmental justice concerns in general about unequal distribution of the burdens, characterize the debate on the climate crisis (Trötschel et al., 2022; Willberg et al., 2024). SIT has thus been applied as an explanatory framework to analyze the engagement of people wanting to transform current unsustainable practices by engaging in activism, local citizen initiatives or by adopting niche innovations (King et al., 2019; Rees & Bamberg, 2014). Research has identified several key processes, which are relevant in

motivating collective action – defined as any action performed to pursue a common goal (Wright et al., 1990). Apart from the feeling of belonging to a group (social identification) and perceived injustice against one's group, collective efficacy beliefs are relevant in motivating action (van Zomeren et al., 2008). Efficacy beliefs refer to the conviction that as a group people can achieve the common goal of fighting the unjust status quo. These three variables, social identification, shared sense of injustice and collective efficacy beliefs, were summarized in the *Social Identity Model of Collective Action* (SIMCA) in a meta-analysis of van Zomeren and colleagues in 2008. Since then, the model has been applied and adapted numerous times, for example by investigating additional emotional pathways to collective action (Landmann & Rohmann, 2020), the role of preceding moral convictions relevant to the goal (van Zomeren et al., 2012) or through including the broader societal context in which the action occurs (see Thomas et al. (2022) for an overview of social-identity based collective action models).

For environmental action specifically, Fritsche et al. (2018) propose the *Social Identity Model of Pro-Environmental Action* (SIMPEA), which emphasizes similar social identity processes, albeit differing in some theoretical conceptualizations, such as less emphasis on intergroup conflicts as a driver of action. The model (see Figure 2) specifically focuses on a pro-environmental group identity and shared pro-environmental group norms fostering action, but is broader in its application to explain both private or public sphere and activist or non-activist behavior. Applying the social identity framework to the analysis of environmental action accounts for the collective threat of the climate crisis and allows to shift the focus for interventions away from an individualistic perspective to one more apt in fostering radical pro-environmental social change (Fritsche et al., 2018).

Figure 2

Social Identity Model of Pro-Environmental Action, figure based on Fritsche et al., 2018 and adapted to transport



Scholars focusing on agency in the transition process refer to social identity theory for the same reasons (Becker et al., 2020; Bögel et al., 2023; Bögel et al., 2019): Firstly, social identification bridges individuals with social structures and therefore accounts for the social embeddedness of the psychological, within-actor processes. Secondly, it helps understand involvement in transformative action and depicts ways how to promote such action effectively (e.g., getting more people involved in energy initiatives (Bögel et al., 2023; Sloot et al., 2019)).

Another way to make sense of social change processes is trying to understand how social norm shifts occur (Sparkman et al., 2020). The status quo (or what in transition terms is described as the dominant regime) is upheld by widespread ways of doing, which influence what people perceive as normal behavior in the given context. Social norms refer to the common behavior of a group as in what most people are doing (descriptive norms) as well as to what is perceived as behavior expected or approved by others of the group (injunctive norms) (Barth et al., 2016). In regard to pro-environmental social change, the difficulty is that the unsustainable behavior often is the dominant norm, and the environmentally friendly alternative represents a deviation from social norms (Sparkman et al., 2020). The influence of social norms on behavioral decisions is strong, even though people tend to underestimate to what degree they are orienting their own behavioral decisions to the behavior of others (Constantino et al., 2022).

Additionally, there often is a misconception of normative behavior, which is particularly relevant to climate change mitigation: The phenomenon of pluralistic ignorance describes people falsely believing that the majority of others holds a different opinion than themselves (Sparkman et al., 2022). This phenomenon is well documented in regard to climate policy support: People underestimate others' willingness to support ambitious climate policies, leading to hesitancy in pushing for policy change (Sparkman et al., 2022). Bamberg et al. (2020) found evidence for this also in regard to transport policy: Defining local mobility culture as injunctive normative beliefs concerning the priorities of the local transport policies, the authors found that people underestimate others' support for shifting priorities to sustainable transport modes.

Changing social norms thus is a difficult and lengthy process, as the social structures tend to be rather stable (Otto et al., 2020; Sparkman et al., 2020). However, these shifts are crucial in re-evaluating behaviors and making sustainable behavior desirable and thereby creating social structures that support pro-environmental change. Social norm changes are an important constituent of social tipping points dynamics (Otto et al., 2020), a positive counter concept to earth system tipping points, describing contagious processes of "self-reinforcing positive-feedback mechanisms" (Otto et al., 2020, p. 2355) for decarbonization. Given the relevance of social identity processes and social norms as determinants of environmental action, the next chapter briefly summarizes initial evidence for how these concepts influence decisions in the realm of transport and mobility.

1.4 Social norms and social identities in transport

Social identity theory emphasizes the influence of social norms and shared values within reference groups, highlighting the importance of social context as a key factor in shaping both travel behavior as well as purchasing alternative modes, such as electric vehicles (Barth et al., 2016; Gössling, 2022; Heinen, 2016; Murtagh et al., 2012). Heinen (2016) investigated how multiple social identities, such as identifying with other cyclists, can increase intentions to

choose more active travel in the future. Additionally, mode choices are shaped by social norms of specific communities, creating a distinct mobility culture that is tied to the local context (Bamberg et al., 2020). Evidence also suggests that social norms are influencing the adoption of electric vehicles (Bobeth & Matthies, 2018). This points to the social dimension which affects transport decisions, besides infrastructural circumstances and personal preferences (Javaid et al., 2020; Steg, 2005).

Furthermore, public space as a collective good often sparks intense debates over its shared use which cannot solely be explained by individual cost-benefit calculations (Gössling, 2020; Murtagh et al., 2012; Wild et al., 2018). The social identity perspective enables an examination of power dynamics between different user groups and their access to shared public space (Vitale Brovarone et al., 2023). For instance, efforts to reallocate public space may be driven by a shared sense of injustice or marginalization among cyclists and pedestrians (Bösehans & Walker, 2022; Creutzig et al., 2020). Conversely, resistance to pro-environmental social change is linked to threat perceptions, which can be shared by some groups more than others (see Avery et al., 2025 on gender differences in threat perception and attitudes towards pro-environmental social change). Murtagh et al. (2012) found initial evidence for identity threat as an explanation for motorists' reactance to changes in mobility behavior. Furthermore, active travel also relates to political orientation with left-wing individuals cycling more frequently (Rérat & Ravalet, 2025). This hints to the relevance of opinion-based groups in mobility shaping mode choice as well as debates on transport policies (Gössling, 2022).

Lastly, social identity theory can provide a framework for integrating spatial perspectives into mobility research. Certain social groups, influencing both travel behavior and attitudes toward transport policies, can be spatially anchored: Place-based social identities have the potential to bridge divides between transport user groups, fostering common goals such as enhancing traffic safety in the local community (Becker et al., 2020). Furthermore, research has established a link between the willingness to engage in place-based community action and the

use of active travel modes, suggesting a strong connection between community solidarity, social participation and active travel (Schuster et al., 2023; Stroope, 2021). This indicates a strong interconnection between social and environmental sustainability on a local level, which could help foster a just, citizen-led mobility transition process.

1.5 The current dissertation

This dissertation[1] aims to advance our understanding of the political role of citizens in the mobility transition. It focusses on the impact individuals can have on transforming systemic structures through an interdisciplinary lens. The overarching research questions are:

- What are leverage points for individuals to foster systemic changes in the transport system?
- How can social psychological theory (namely social norms and social identity theory) inform research on individual agency in the mobility transition?
- What are important processes fueling participation in transformative action, especially public sphere behavior challenging the car-centric regime?
- To what degree does social identity theory provide an apt theory for explaining (collective) action in the mobility transition?

In Chapter 2, I demonstrate how social norms can serve as a bridging concept to analyze the nexus between societal structures and individual mobility behavior in a socio-psychological approach to mobility behavior. Moving on to Chapter 3, I examine the underlying motivational processes of actively supporting transport policies. In Chapter 4, I provide an interdisciplinary perspective on challenges of mobility activism looking at the interplay of systemic characteristics of the car-dependent regime and processes motivating activism. In Chapter 5, I analyze the process and results of a citizen assembly creating a shared vision for a local mobility

[1] This dissertation has been part of an interdisciplinary research project on the mobility transition in the Hanover Region in Northern Germany. Research focus and data collection was shaped by the overall project agenda of the project „MoveMe – Sociospatial transformation to sustainable mobility behavior“, but the dissertation is a standalone project.

transition. Chapters 2 to 5 feature published manuscripts or manuscripts submitted for publication which potentially leads to some overlapping content in the respective introductions and discussions.

Finally, Chapter 6 provides a comprehensive summary of the findings across these chapters, outlines avenues for future research and discusses theoretical and practical implications of the findings.

Chapter 2: Conceptualizing the role of individual agency in mobility transitions: Avenues for the integration of sociological and psychological perspectives

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Abstract

With the release of the latest IPCC report, the urgency to steer the transport sector toward ecological sustainability has been recognized more and more broadly. To better understand, the prerequisites for a transition to sustainable mobility, we argue that interdisciplinary mobility research needs to revisit the interaction between social structures and individual agency by focusing on social norms. While critical sociological approaches stress the structural barriers to sustainable mobility, political discourse over sustainable mobility is still largely dominated by overly individualistic approaches, which focus on individual behavior change neglecting its social embeddedness. With discursive struggles over sustainable mobility intensifying, it becomes more urgent to better understand how structural contexts condition individual travel behavior, while at the same time showing how individuals engage in processes of social change. Against this backdrop, the article seeks to deepen the cooperation between sociological and psychological research in mobility transitions research. Building on a broad body of literature, we revisit recent theoretical approaches, which conceptualize the role of individual agency in sustainability transitions. On this basis, we highlight the role of social norms in mobility transitions as a key concept bridging individual behavior and social structures. Using Strong Structuration Theory as an integrative framework, we focus on the role of individual agency in processes of re-negotiation of social norms. The key outcome of our analysis suggests that individuals can contribute to mobility transitions by influencing and re-negotiating social norms, especially in the context of windows of opportunity. This includes the active re-shaping of social structures through changing their own travel behavior as well as through engaging in discourse on transport policies. We underline how focusing on the dynamic and conflicted nature of social norms can help to illustrate leverage points for a mobility transition as well as inspire future empirical research in the field.

Keywords: sustainable mobility, transition, agency, social norms, norm conflict, interdisciplinary

2.1 Introduction

With the release of the latest IPCC report and the first indications of climate change becoming visible in central Europe, the urgency to steer the transport sector to ecological sustainability has been recognized more and more broadly (Agora Verkehrswende, 2018). The German government has set itself the goal to reduce transport emissions by 40 percent by 2030 (BMU, 2020). As scenario studies have shown, this goal cannot be reached by switching to zero emissions vehicles alone; climate neutrality requires a modal shift from private cars to more efficient modes of transport and an overall reduction in travel demand (Zimmer et al., 2016). In this sense, a sustainability transition in the transport sector equals a disruption of current trends: for decades, the number of cars as well as overall travel demand in Germany have been growing continually (Nobis & Kuhnimhof, 2018).

To better understand the prerequisites for a large-scale modal shift to more sustainable transport modes, we argue that interdisciplinary mobility research needs to revisit the interaction between social structures and individual agency. With discursive struggles over sustainable mobility intensifying, it becomes more urgent to better understand how structural contexts influence and condition individual travel behavior, while at the same time showing how individuals engage in processes of social change. A promising way to achieve this is to deepen the cooperation between sociological and psychological research (Upham et al., 2020). Recently, critical sociological approaches have stressed the structural barriers to sustainable mobility in the context of a capitalist system of production and consumption (Dörre, 2019, 2020; Mattioli et al., 2020). Yet this perspective can obscure the role, which individuals might play in fostering a transition to sustainable mobility. By contrast, the political discourse over sustainable mobility is still dominated by overly individualistic approaches, which focus on individual behavior change, while neglecting its social embeddedness. While this perspective has been criticized extensively (Barr, 2015; Göpel, 2016; Shove, 2010), there is an ongoing tendency of mainstream political strategy to locate responsibility for a mobility transition

mainly on consumer decisions. Psychological research has developed a broad array of theoretical concepts, which account for the social embeddedness of individual behavior change (section “The role of the individual in sustainability transitions”; Göpel (2016)). In this paper, we revisit some of these and look at the potential intersections with systemic accounts of socio technical change found in sociological research. In this approach, we can build on a substantial body of literature, which has explored different avenues of cooperation between the two disciplines in the field of transition studies (Bögel et al., 2019; Upham et al., 2019; Upham et al., 2015). On this ground, we propose to focus on the role of competing social norms to better understand the mutual influence of individual agency and social structures in mobility transitions. While the concept of “sustainable mobility” includes multiple dimensions (Schwanen et al., 2011), the article focusses on the goal of reducing the modal share of trips made with resource intensive modes, especially driving and air travel. The remainder of this article is structured as follows: Section “Background and problem description: Stability and change in the socio-technical system of mobility in Germany” draws on the example of Germany to briefly show the lack of progress in achieving ecologically sustainable mobility, but also some “cracks” in the established socio-technical regime of mobility. Against this background, section “The role of the individual in sustainability transitions” presents theoretical approaches, which bridge the gap between structure and agency in sustainability transitions research (STR). In section “Connecting critical sociological theory and psychological perspectives: studying the contestation and re-negotiation of social norms,” we draw on these approaches to develop our main hypothesis: a key avenue for joint sociological and psychological research in mobility transitions lies in studying competing social norms. Section “Conclusion” points out the limitations of this article and proposes topics for further research.

2.2 Background and problem description: Stability and change in the socio-technical system of mobility in Germany

Reducing car-based mobility, and flying, is seen as an essential part of sustainability strategies in the transport sector (Agora Verkehrswende, 2018; Zimmer et al., 2016). Yet, while achieving a modal shift and encouraging the use of more sustainable modes has been a long-time goal, little progress has been made so far (Schwedes, 2011). In the example of Germany, both transport demand and the number of cars on the road are growing, with roughly 75 percent of miles being traveled by car (Nobis & Kuhnimhof, 2018). Safeguarding the growth of the automobile industry, which employs around 800.000 people, is a central goal of the German federal government (Canzler & Knie, 2018). Public transport as well as cycling and walking play a major role in everyday mobility too, but are far less dominant in terms of their corresponding economic structures and political representation. Despite these strong path dependencies, recently some "cracks" in the established structures have begun to appear (Ruhrort, 2020). In many larger cities, the modal share of car trips has stagnated or has been slightly reduced, the modal share of cycling has increased, public transport demand has been stabilized, and new mobility services have emerged (Gerike et al., 2020). Also, the "cultural hegemony" (Brand & Welzer, 2019) of the car seems to have become somewhat contested: since 2016, several cities saw successful initiatives for cycling referenda (Schneidemesser, 2021), and the years 2018 and 2019 were marked by a growing societal awareness for climate change (Gössling et al., 2020).

From the transition research perspective, the mobility sector in Germany, while being marked by strong path dependence, has thus begun to show some signs of destabilization. Especially in the years 2018/2019, potential pathways for substantial change became visible: with large numbers of people temporarily joining climate protests or advocating for the replacement of car infrastructures with cycling infrastructure in many cities, dominant concepts of "normality" in the transport sector temporarily appeared to be losing some ground. In the language of transition theory, this situation could be characterized as a *window of opportunity*

for change in the direction of sustainability. According to Geels et al. (2018), windows of opportunity can be seen as moments of intensified struggle between established structures and alternative options. In this context, the question of the interaction between social structures and individual agency for socio-technical transitions in mobility becomes particularly relevant: can individuals play a role in intensifying change dynamics? Or are the constraints posed by dominant social structures too strong to overcome? While previous research has already identified different ways in which social psychological perspectives can be integrated into mobility transitions research (Whittle et al., 2019), we will focus specifically on the role of social norms in a recursive relationship between structure and agency. As Whittle et al. (2019) point out, individual mobility related behavior often reproduces dominant social norms, but may also contribute to shifting social norms (Whitmarsh, 2012). We draw on Strong Structuration Theory to elaborate on the way in which individual agency can contribute to shifting social norms relating to travel behavior in the context of everyday life.

2.3 The role of the individual in sustainability transitions

2.3.1 Structural Barriers to Individual Behavior Change: Contributions from Critical Sociological Perspectives

As several critics have noted, mainstream political discourse tends to misconstrue the role of individuals by locating responsibility for a mobility transition mainly on the level of individual consumers' mode choice and vehicle purchase decisions (Agora Verkehrswende, 2019; Barr, 2015; Marsden et al., 2014; Shove, 2010). This perspective refers to economic concepts of individual choice and a selective consideration of psychological research exploring the intra-individual factors, which influence the willingness to switch from less to more sustainable options. Although psychological research and interdisciplinary approaches from transition studies have developed various approaches to study the role of individual-level action in the field of sustainable mobility (Whittle et al., 2019), the dominance of individualistic models of behavior change in mainstream political discourse still often obscures the

surrounding social structures like dominant societal norms and expectations, which set limits against ecological behavior (Schwanen et al., 2011). Göpel (2016) attributes this focus on an individualistic model of change to political convenience: trying to motivate individuals to make "better choices" allows political actors to avoid confrontation of powerful interests. In addition, this strategy can help to skirt conflicts between different political goals such as economic growth and ecological sustainability (Schwedes, 2011; Marsden et al., 2014; Göpel, 2016).

On the other hand, a rich body of literature from sociology and human geography, has highlighted the role of social structures, e.g., in the form of shared practices, institutional settings, and power relations to explain the persistence of ecologically unsustainable travel behavior (Götz et al., 2016; Manderscheid, 2020; Mattioli et al., 2020). Recently, critical approaches from different social sciences have doubled down on this by stressing the structural barriers to a sustainability transition in the transport sector. For example, Dörre (2020) argues that the ecological crisis caused by growing emissions in the transport sector needs to be seen in the context of multiple crises, which are triggered by the inherent tensions of capitalist market systems. From this perspective, growing transport demand is a symptom of a system of production and consumption, which is dependent on continuous economic growth and expansion (Schwedes, 2017). Ecologically conscious behavior, e.g., buying fewer cars, would directly challenge the foundation of this model of growth, especially in Germany, where the automobile industry is focused on building luxury cars (Canzler & Knie, 2018). From the perspective of cultural sociology, Rosa (2005) sees the continuous growth of consumption (and thus the ecological "footprint") in modern societies as the expression of a culture of *acceleration*. In his view, modern society is characterized by imperatives of growth, which, at the individual level, are experienced as social norms of constant self-optimization and self-expansion (Blättel-Mink, 2020). In this perspective, growing transport demand results from societal norms, which demand individual maximization of opportunities. Individuals feel the pressure to make the most of the opportunities presented to them: consuming as much of the

world as possible (Rosa, 2016). Deviating from this norm, e.g., by seeking slower modes of living or by renouncing opportunities to travel, faces high barriers (Paech, 2019).

Similarly, Brand and Wissen (2018) describe the dominant lifestyle of Western societies as an *imperialistic lifestyle*, which "normalizes" resource intensive consumption such as car use in the form of dominant social representations of "the good life." They also stress that the structures of the dominant growth-oriented economic paradigm express themselves in the form of a *hegemonic discourse*, conceptualized as a coherent set of social representations and norms explaining why the current patterns of production and consumption should be preferable to possible alternatives. This hegemonic discourse is often influenced by the interests of those social groups who benefit most from the status quo (Feola, 2020). Göpel (2016) follows up on this by exploring the role of dominant paradigms, which have shaped societal discourse regarding the role of individuals in modern capitalist societies. According to Göpel (2016), the dominant discursive paradigm of the role of individual actors in society is shaped by neo-classical economic theories, which conceptualize individuals mainly as market participants focused on maximizing their individual self-interest. Driven by potentially insatiable desire for consumption (e.g., in the form of cars, holiday trips, etc.), this discursive representation of the *homo oeconomicus* is conceptualized as a perfect match to a system of production and accumulation, which depends on unlimited growth. As Göpel (2016) points out, this paradigm has not only dominated academic economic thinking, but has also been instrumentalized politically to become the dominant conceptual framework of understanding society and individual agency in many political fields. "Normal" behavior has thus been equated with an orientation toward ever-increasing consumption.

The critical social scientific perspectives presented here can give insights into the barriers to sustainable travel behavior. They stress that ecologically unsustainable mobility practices are deeply embedded in the fabric of "normal" consumption patterns. Instead of building on individual behavior change, these perspectives stress that a transition to sustainable

mobility needs to be achieved through political processes and struggles. Following this argumentation, it can be hard to see how individual behavior can play any part in contributing to sustainability transitions. In stressing the long-term stability of social structures these approaches also do not spell out how systemic dynamics in the form of windows of opportunity can change the conditions for individual level action. To bridge this gap, the following sections present recent theoretical approaches, which identify intersections between structuralist accounts and individual level agency and seek to apply these approaches to mobility transition research.

2.3.2 The Multi-Level Perspective as a Framework for Connecting Analytic Levels

One of the most prominent frameworks to study interactions between different societal levels in sustainability transitions is the Multi-Level-Perspective (MLP) on socio-technical transitions (Geels, 2002). The MLP has increasingly been used to study sustainability transitions, also in the transport sector (Geels, 2012; Whitmarsh, 2012). At the center of this concept is the idea that socio-technical systems, such as the automobile system, are stabilized in the form of a socio-technical regime, which is marked by high (dynamic) stability and strong path dependencies, meaning that radical changes are difficult to achieve. Despite this high stability, socio-technical regimes can come under pressure from two sides: on the one hand, the broader societal environment, called landscape, constantly changes and can threaten the stability of regime structures (Geels et al., 2018). On the other hand, niche actors can try to challenge the regime by introducing innovations. It is often difficult for the latter to break through into mass markets, because the institutional structures of the regime are designed to support the dominant technological solutions (Geels, 2014). Under certain circumstances, multi-level dynamics can open up windows of opportunity, which allow niche innovations to gain momentum and threaten the dominant regime, leading to changes in regime structures or to the establishment of a new socio-technical regime.

Recently, MLP-scholars have specifically explored the possibilities of using the framework to study interrelations of structure and agency in change processes (Bögel et al., 2019). Elaborating the micro-structures inherent in the MLP, Geels (2020) points out that, while the framework has often been applied with a macro-level perspective of socio-technical change, it is not *per se* a structuralist approach. Having its roots in the Social Construction of Technology (SCOT) framework, it lends itself to studies of the role of individual agency in innovation processes. As Geels (2020) points out, SCOT-approaches tend to "follow the actors" and try to understand how strategic action of social groups, firms, or individuals help to bring about the breakthrough of specific innovations. Yet, as Bögel and Upham (2018) show, in the application of the MLP, agency has often been analyzed with regard to meso-level actors such as firms or organizations, while the role of individuals as consumers or citizens has received less attention in this research tradition (Whitmarsh, 2012; Whittle et al., 2019). Recently, Göpel (2016) has proposed to expand the three levels described by the MLP by adding a dimension of individual level action highlighting how individuals can influence transition processes in multiple ways as they adopt different roles within society. She describes this "mini" level as a realm strongly structured by macro level cultural paradigms and dominant mindsets [e.g., in the form of dominant norms of consumption such as buying a sport utility vehicle (SUV) or taking overseas holidays], which influence individual level action. Yet, she also attributes the potential to individuals to become aware of and questions these dominant paradigms (ibd.).

2.3.3 Psychological Approaches to Conceptualizing the Role of Individual Agency in Mobility Transition

Alongside integration of individual agency of Göpel (2016) into the MLP, several scholars underlined the importance of a differentiated view of individuals in transition processes (Whitmarsh, 2012). Nielsen et al. (2021) distinguish five roles in which individuals can contribute to societal change: as consumers, as investors or producers, as participants in organizations, as members of communities and as citizens. Psychological research can explain

the intra-individual factors and group processes motivating agency associated with these different roles (Upham et al., 2020). Transition research can make use of these psychological theories to get a nuanced understanding of the actor perspective as Upham et al. (2020) have illustrated in their conceptual and empirical work (Bögel & Upham, 2018).

A key question in mobility research, focusing on the individual as a consumer, addresses mode choice. Environmental psychologists have explored the motives for choosing a particular mode of transport and potential barriers to changing it (Hoffmann et al., 2017; Taube et al., 2018). These studies draw on different approaches such as the Theory of Planned Behavior (Ajzen, 1991) describing mode choice mainly as an intentional decision process or conceive mode choice as a habitual behavior, to name only some of the prominent conceptualizations (Chng et al., 2018; Hunecke, 2015). The literature on mode choice will not be described here in further detail (see, e.g., Chng et al., 2018 or Javaid et al., 2020 for an overview), but it is important to note that some critique commonly used behavioral models of not sufficiently mirroring the context in which the individual action is embedded (Shove, 2010). However, in line with Bögel et al. (2019), we argue that there are social-psychological approaches explicitly addressing the influence of social and structural factors and thereby acknowledging the complexity of individual behavior. Through the concept of social norms, one can study the influence of social and structural factors, assuming that power structures, cultural characteristics, and shared mind-sets are manifested in normative beliefs. Social norms are "unspoken rules" (Barth et al., 2016), typically shared within a certain referent group. One can differentiate between *descriptive norms*, which refer to "what group members commonly do" and *injunctive norms*, which refer to what is commonly approved and disapproved of a particular group. The impact of social norms in environmental behavior is well documented for, e.g., recycling and water or energy conservation behavior (Cialdini & Goldstein, 2004; Fielding & Louis, 2020). In the context of mobility research focusing on the consumer role, there is evidence for the influence of social norms on, e.g., electric vehicle adoption (Barth et al., 2016)

as well as on self-reported travel behavior (Bamberg et al., 2020; Kormos et al., 2015). Whittle et al. (2019) combine these insights from social psychology with sociological approaches into a multi-level perspective, while investigating barriers and drivers of individual adoption of mobility innovations. They highlight how factors such as perceived trust in new technologies as well as social norms, but also infrastructures jointly influence user choices. At the same time, the authors point out that user can play a role as "social actors" who "embody and augment social norms around adoption and domestication of new vehicle technologies and modes" (Whittle et al., 2019, p. 313).

As stated above, social norms as a form of social influence are embedded in our social communities (Sparkman et al., 2020). Theories like the Social Identity Theory (Tajfel & Turner, 1986) help to explain normative influence and norm salience in a particular situation highlighting the importance of "behaviorally relevant ingroups" (Fielding & Louis, 2020). Fritsche et al. (2018) illustrate the significance of social norms in predicting environmental action in their Social Identity Model of Pro-Environmental Action (SIMPEA). Together with other social identity processes like ingroup identification, collective efficacy beliefs, and group-based emotions, ingroup norms and goals influence the appraisal of and the behavioral response to an environmental problem. These norms become salient in specific situations especially through social comparison, be it the comparison to another group, a temporal comparison within the in-group's behavior or a comparison of one group member to the average group behavior. Psychological mobility research also focuses on the individuals' roles as citizens or members of communities, e.g., when investigating the acceptability of transport policy measures as well as civic engagement for change (Besta et al., 2018; Gehlert, 2008; Schade & Schlag, 2003; Schuitema et al., 2010). Here too, social norms and a common social identity proved to be important factors in motivating action (Becker et al., 2020). The Social Identity Model of Collective Action (van Zomeren et al., 2008), which was adapted by Rees and Bamberg (2014) to study collective environmental action, focuses on civic engagement in initiatives as an

important driver to reach the necessary degree of societal change. In mobility research, social identities refer mostly to mode of transport-related identities, environmental identities, or local identities explaining mode

choice as well as acceptance of transport policy measures (Götting & Becker, 2020; Murtagh et al., 2012)

As Social Identity Theory states, individuals are simultaneously part of different social groups, which might lead to conflicting norms and goals of the different referent groups of one individual. McDonald et al. (2014) investigated how individuals react when facing conflicting norms between different social groups and found that this ambiguity can highlight the need for action for individuals (signaling: “In this ambiguous situation, my contribution might actually make a difference”). Whether this motivating effect of normative conflict translates to mode choice, support for relevant traffic policy measures or civic engagement in the context of mobility transitions, still needs to be tested. Normative conflict can not only appear in competing norms between different groups, but also as a discrepancy between a dominant descriptive norm and the injunctive norm. This is particularly common for environmental issues, where the injunctive norm often is the sustainable one competing with a dominant (unsustainable) descriptive one (Sparkman et al., 2020). In a study on local mobility culture, defined as injunctive norms concerning the design of the local transport system, Bamberg et al. (2020) observe conflicting norms in a perceived consensus to support both a multimodal mobility culture as well as perceived consensus to keep privileges of a car-oriented mobility culture. As these studies show, social norms are constantly competing as discrepancies between different normative beliefs can occur on multiple levels. As humans constantly seek to reduce ambiguity, the confrontation with conflicting norms opens up opportunities for an individual to choose to act in line with the marginal norm and thereby challenging the status quo. At the same time, normative conflict can also discourage behavior change, as individuals do not have to fear social sanctioning, if there is some disagreement about a certain norm (Fielding & Louis, 2020).

Evidence suggests that social influence is an important factor in both motivating different forms of agency (especially motivating collective action like, e.g., participation in a local mobility initiative) as well as hindering change (e.g., difficulties in challenging the dominant unsustainable norm of frequent car use). Focusing explicitly on how changing normative influence plays out in mobility transition processes seems crucial. Ultimately, investigating social norms allows highlighting interdependencies between individual behavior and social structures.

2.3.4 Strong Structuration Theory as a Bridge Between Individual Agency and Social Structure

Social scientific research on sustainable mobility transitions also has developed a range of approaches to studying the interconnections between individual travel behavior and social structures, e.g., in the concept of mobility cultures (Götz et al., 2016) as well as through the lens of mobility biographies (Rau & Manton, 2016). In transition research more broadly, Upham et al. (2015) have explored theoretical approaches bridging sociological and psychological research perspectives, including *via* Social Representations Theory as well as Social Identity Theory (Levidow & Upham, 2017). While acknowledging that interdisciplinary integration can come with tensions between underlying disciplinary paradigms, Upham et al. (2015, 2020) have stressed the fruitfulness of such integration. To highlight that individual agency can also influence social structure in a recursive relationship, Upham et al. (2018) build on structuration theory as developed by Giddens (1986) and elaborated in the form of "Strong Structuration Theory" by Stones (2006) as a bridge between sociological and psychological approaches (see also Upham et al., 2019). Focusing on individuals in their professional roles in institutional contexts, they study the role of individual agency in niche innovation trajectories. Upham et al. (2018) study how psychological factors such as beliefs and attitudes toward niche innovation are shaped by experiences in specific policy environments and how these "internal structures" shape the individuals' expectations and, ultimately, their actions in regard to the

innovation. Following Stones (2006), they conceptualize a dualistic relationship: individual action is conditioned by external social structures such as norms, value systems, and shared social practices. These are seen as the (intended or unintended) result of previous actions. Stones (2006) stresses that external social structures match internal structures in the form of "conjunctural knowledge" and general dispositional structures ("habitus"), which individuals draw on to participate in social practices. By drawing on these structures to guide and enable their actions, individuals are constantly engaged in reproducing these structures, ensuring their stability over space and time.

Importantly, social structures, just like material infrastructures, fulfill a double function of both constraining but also enabling specific paths of action. From a transition perspective, it is important to note that both Stones (2006) and Giddens (1986) stress the potential role of individual actors in bringing about social change. While social structures are powerful in shaping individual actions, humans always have the option of switching from the *practical consciousness* of everyday life, in which underlying structures are not questioned, to a state of reflexivity (Giddens, 1986). In this state, individuals can act in different ways and also challenge social norms or practices (see Archer (1995)). In addition, Stones (2006) stresses that the relation between internal and external structures but also between different elements of internal structures such as normative beliefs, can be marked by substantial tensions. Individuals are constantly challenged to manage a "plurality of concerns" (Stones, 2006, p. 103), which necessitate flexible prioritization. In each situation "choice [e.g., between different norm prioritizations] is possible, even mandatory, because more than one course of action has systemic legitimacy" (Stones, 2006, p. 105). Individuals are thus not conceived as "cultural dopes" who reproduce normative expectations and rules, but as skillful actors who constantly negotiate between conflicting orientations. From the perspective of mobility transitions this concept highlights the constraints to more sustainable travel behavior in the form of dominant descriptive norms, but also points out how already existing tensions between different internal

normative orientations might harbor the potential for change. In this way, Strong Structuration Theory highlights that individual level action can contribute to changes in social structures by influencing social norms.

As this section has shown, there is a substantial body of literature, which explores intersections between sociological and psychological perspectives in transition research. In line with that research, we argue that social structures in the form of collectively shared concepts of "normality" strongly condition individual mobility-related behavior and pose substantial barriers against behavior change. At the same time, we argue that individuals have the capacity to challenge social norms and contribute to social change. In this context, we want to highlight an aspect of social norms, which may be of particular importance in the context of beginning change dynamics, namely struggles between conflicting social norms.

2.4 Connecting critical sociological theory and psychological perspectives: Studying the contestation and re-negotiation of social norms

2.4.1 Re-Negotiations of Social Norms of Travel Behavior in the Context of Windows of Opportunity

The analysis above has shown that one intersection between sociological and psychological approaches lies in the concept of social norms, which guide and influence both individual (travel) behavior and civic engagement in transition processes. Building on the differentiation between descriptive and injunctive norms (Barth et al., 2016; Kallgren et al., 2000), we suggest that joint research in the transport sector should focus more explicitly on social norms as conflicting and contested. In the course of transition dynamics, tension can increase between injunctive and descriptive norms as well as between descriptive norms in different social groups or between different spatial settings such as urban and rural settings. For example, recent years have seen shifts toward increased use of alternatives to the car in cities (e.g., descriptive norms relating to cycling and PT-use), while daily travel behavior in suburban communities have remained strongly car-dependent (descriptive norm of monomodal car-use; Nobis (2019)). On the level of political discourse this is expressed in intensifying political

debates over the role of the car in local transport policy in many cities (Becker et al., 2020) and increasing tensions with the interests of car-users in the suburbs (Henderson & Gulsrud, 2019).

Such tensions are not unusual. Individuals in modern western societies are constantly confronted with competing norms resulting from different frames or groups of reference (Beck & Beck-Gernsheim, 1994; McDonald et al., 2014; Stones, 2006). This may especially be true for those norms, which are central to sustainability transitions. As the sociological approaches above have shown, ecological behavior is currently not the (dominant) social norm in our society. Brand and Wissen (2018) point to an *imperialistic lifestyle*, which normalizes the consumption of energy intensive products and services such as cars or flying. Gössling (2019) shows how flying is traditionally highly charged with symbolic meaning as an expression of high social status. Against this backdrop, ecological behavior, if it goes beyond "low cost" behavior such as recycling, represents a deviation from dominant descriptive norms, while constituting support for a set of competing niche norms. Not buying an SUV can be deviant behavior – if all neighbors own one; not taking a flight to go on holiday can be deviant behavior – if most friends and family members regularly take overseas holidays (Gössling et al., 2020).

Especially when problems such as climate change come to the forefront in public and media discourse, individuals are increasingly confronted with tensions between contradictory norms. This has recently been the case in the transport sector in Germany. The rise of debates around climate change and the need to adapt more sustainable lifestyles (injunctive norms; Hessenschau (2019)), combined with growing levels of cycling and public transport use in some cities (descriptive norms) have strengthened alternative descriptive and injunctive transport-related norms in societal discourse (Bamberg et al., 2020; Dörre et al., 2020). From a sociological perspective, we can conceptualize these systemic dynamics as struggles between dominant norms and alternative niche norms in the context of a socio-technical transition process. As was visible in Germany in 2018/2019 key elements of a "hegemonic discourse" in mobility such as the role of the car in socially dominant concepts of "the good life" were

beginning to be debated. Policy measures such as car-free city centers or congestion charges, which used to appear unacceptable for a majority, were suddenly being debated in media discourse and private settings (Andor et al., 2020). In this situation, contradictions between competing norms, such as the descriptive as well as injunctive norms of environmentally conscious lifestyles and unsustainable travel behavior (e.g., taking long distance flights) became more salient.

From a systemic perspective, this situation can be seen as an example of a window of opportunity for change. Systemic models of socio-technical transitions suggest that the odds to achieve change are dependent on the historical and systemic context, in the form of windows of opportunity, but also positive feedback loops and tipping points (Ruhrort, 2020; Urry, 2004; Watson, 2012). With reference to the extended version of the MLP as proposed by Göpel (2016), we suggest that for individual level agency to effectively support sustainability transition processes may strongly depend on system dynamics. In a window of opportunity, norms and routines of prioritization become destabilized and contested. This effect is often mirrored in political discourse (e.g., parties scrambling to readjust their agenda to what might be changes in public opinion); but also in personal social contexts, e.g., in the interaction with work colleagues, friends, or family members. Some ideas or concepts of normality become open for re-negotiation (Nash et al., 2020; Whitmarsh, 2012).

In a window of opportunity, we argue that individuals in their role as consumers and citizens can contribute to change by engaging in the re-negotiation of social norms, both in their everyday practices as well as in the political realm. Individuals can influence social norms by engaging in a specific behavior, especially when this behavior is visible in social context. Choosing to cycle to work once a week can influence the normative beliefs held by work colleagues regarding cycling and its acceptability as a mode choice for a commute. Choosing to bring the children to school by bike instead of by car, even though this is not the dominant norm, can initiate changes about the perceived normality of this mobility practice. When norm-

conflict becomes salient, individuals can contribute to the already ongoing change dynamics by becoming vocal and active, e.g., by performing symbolic acts of consumption, which are shared in private interaction or on social media in the context of organized platforms (e.g., by stating: "I decided I will not fly to go on holiday for the next 3 years"; Gössling et al., 2020).

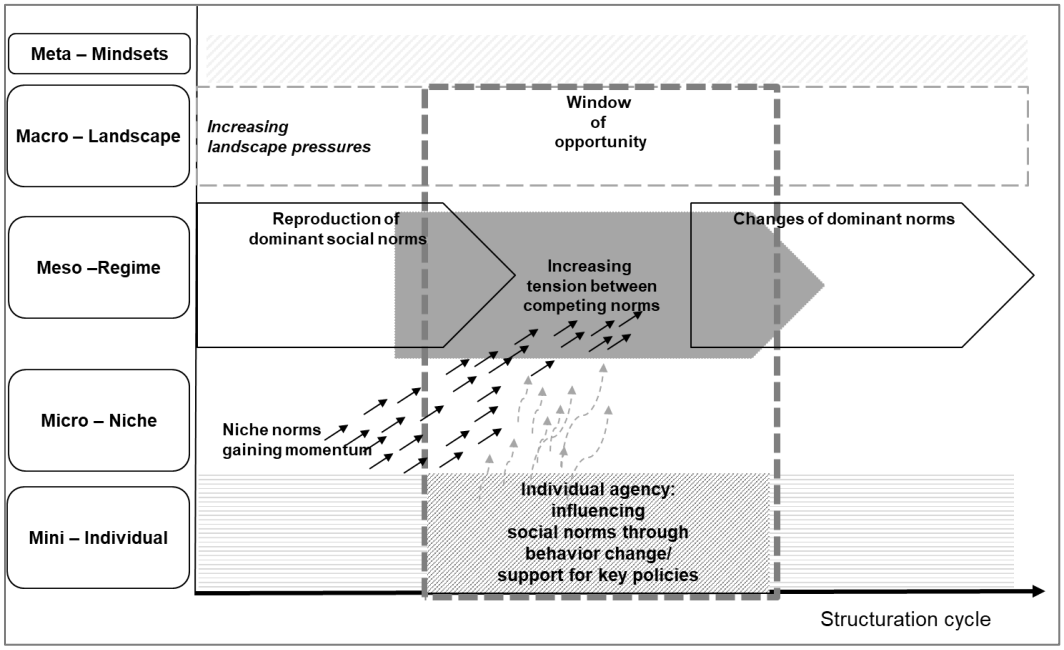
2.4.2 Conceptualizing the Recursive Relationship Between Social Norms and Agency as a Process of Structuration

Sociologically speaking, in a window of opportunity there is a heightened chance that such actions will have a cumulated effect on changing social norms or opening up pathways for the implementation of decisive policy measures. Gössling et al. (2020) find evidence that social movements, especially Fridays for Future, successfully influenced social norms regarding flying, re-defining air travel as a morally problematic social practice. While their study focuses on the role of social movements in shifting social norms, other recent examples also show how individuals as consumers can participate in reinforcing and stabilizing such ongoing shifts. For example, in 2019 thousands of individual scientists joined an international initiative by signing a public pledge to renounce air travel on academic trips below 1,000 km (Nietfeld, 2019). This type of symbolic action can help to de-legitimize a dominant social practice and re-negotiate the underlying social norms through their own behavior change (Gössling et al., 2020). It can be seen as an example of how individuals can choose to forego the reproduction of descriptive norms (flying) and thus can contribute to changing these norms themselves. Beyond air travel, similar tapes of symbolic action could be possible in the realm of every-day mobility: e.g., when car-users decide to cycle to work at least once a week even though this practice is deemed unusual among colleagues or neighbors; or when a resident in suburban community decides to express dissent about car-related norms (e.g., by stating "My child struggles navigating his way to school, when there are so many parents parking their cars in front of the school entrance") in a conversation among neighbors.

On a theoretical level, this opportunity for re-negotiation of norms can be understood as an element of a cycle of structuration. Following Upham et al. (2018, 2020), Strong Structuration Theory can explain the reproduction of social structures through individual action, while also pointing out the often contradictory nature of social norms and highlighting opportunities for change (Stones, 2006). Concerning beginning change dynamics in the mobility sector, we suggest to focus on the temporal dynamics of contradictory norms: individuals are regularly confronted with multiple norms and need to take decisions (reflexively or unconsciously) to prioritize some norms and expectations over others (Stones ibd.). The more ambiguous the normative context becomes, the more individuals may become aware of multiple courses of "normal" or "legitimate" action. Following the cycle of structuration conceptualized by Strong Structuration Theory also highlights the (intended or unintended) outcomes of the courses of action chosen by agents. Individual deviance from dominant norms can interrupt the reproduction of "normal" practices and can thereby initiate changes in social norms (see Figure 3). In the language of Strong Structuration Theory, individuals can decide to act in line with alternative norms.

Figure 3

Individual agency in the context of multi-level system dynamics (based on Göpel, 2016 and Geels et al., 2018).



The examples mentioned above illustrate how individual behavior change can influence social norms. The main contribution individuals can make thus might not be in its direct effects (e.g., CO_2-emissions reduced) but in its indirect effect on changing descriptive norms (Whitmarsh, 2012). As we will illustrate in section "Studying contested norms and processes of re-negotiation: Open questions for empirical research," to better understand the concrete processes of re-negotiation in the mobility sector psychological and sociological research could be integrated in the form of local case studies. Sociology can study different practices and varying contexts (i.e., social media, private conversations, symbolic acts of consumption etc.) of re-negotiation (Gössling et al., 2020). Psychology can study the determinants for individuals' willingness to deviate from unsustainable norms as well as the individual perception of norms and their situational salience.

2.4.3 Studying Individual Agency in the Collective Re-Negotiation of Social Norms

Even though individual behavior change in this way can make an important contribution by influencing social norms, it is important to note that this type of change alone will probably not suffice to bring about the level of systemic change needed. As stated earlier, for substantial changes in the mobility system, far reaching regulatory and institutional changes are also required. As Ruhrort (2020) argues, large-scale change of travel patterns can only become possible if infrastructures are re-designed to suit the needs of active travel modes, the regulatory framework is changed to roll back the privileges afforded to private cars and pricing modalities reflect external costs of different modes. Importantly, this means that sustainability transitions are not necessarily a win-win-process, but will raise the key political questions of "*who gets what, when, and how*" (Lasswell, 1936). Pull measures, which make transport alternatives more attractive will have to be accompanied by push measures, which are aimed at reducing the attractiveness of cars and other resource intensive travel modes (Ruhrort, 2019). When transport policy measures go beyond win-win-approaches formerly dominant injunctive norms guiding transport policy become acutely challenged (Bamberg et al., 2020).

On this level, individuals can support and initiate these change processes in their role as citizens (Whitmarsh, 2012; Nielsen et al., 2021). Policy discourse over push measures can be seen as a collective form of re-negotiation of what is to be considered normal in the realm of mobility in public space. In this context, individual citizens are confronted with competing sets of norms, either gradually or suddenly. As mentioned above, Bamberg et al. (2020) found substantial ambiguity in how study participants perceived the injunctive norms regarding prioritization of car mobility vs. multimodal mobility in local transport policy. This can be seen as an indication of beginning change dynamics, which could open windows of opportunity for substantial changes. Individuals have a chance to "tip the balance" toward change by actively or discursively supporting policy measures, which challenge the status quo (Ruhrort, 2019). With regard to air travel, Gössling et al. (2020) make this connection by studying not only

individuals' willingness to refrain from flying, but also their willingness to accept, or demand, policy measures, which help to reduce air travel on a larger scale. Becker et al. (2020) have highlighted the role of norms in political negotiation over transport policy push measures regarding the distribution of public space. They study a local NGO successfully building public support for a referendum for cycling infrastructure. The authors describe how the initiative countered the normative status quo by changing "normative associations": by representing cycling as normal and as equally important to car travel, the initiative did not address a narrow social identity of committed cyclists, but instead appealed to a more inclusive social identity. According to the authors, this strategy helped to elicit support from a broader public. As with other processes of re-negotiation of social norms, the effectiveness of changes will be strongly context dependent. Nevertheless, collective re-negotiations like discussions about the use of public space and the elaboration of new traffic policies represent an important way how individuals can make use of their role as citizens to impact the mobility transition.

2.4.4 Studying Contested Norms and Processes of Re-Negotiation: Open Questions for Empirical Research

An open question regards the empirical study of the role of contested norms in enabling individual engagement in change processes. A fruitful arena for interdisciplinary research could be found in local case studies of mobility discourses and policies. As suggested by Upham et al. (2020), a sequence of disciplinary studies could trace the interactions between system dynamics and individual level action in a local context. To study how dynamics of re-negotiations of social norms play out in a local context, we suggest focusing on spaces where conflicting social norms can be expected to "clash." Building on previous work (Bamberg et al., 2020), we propose to shift the focus to conflicting norms in a specific type of spatial setting, namely local communities at the intersection between urban and suburban spaces. Especially urban centers in Germany have seen shifts in modal shares as well as mobility related discourses, which have been identified as the emergence of a distinctive urban mobility culture

(Ruhrort, 2019; Bamberg et al., 2020). In this context, it can be assumed that *suburban* communities, which surround the city increasingly become the locus of competing normative orientations regarding travel behavior and policy. While, we expect that in these communities, descriptive norms regarding car driving will be stronger than in the city, these communities will also be exposed to competing norms originating in the regional urban center regarding the use of other transport modes and transport policy programs. With many people commuting, individuals are exposed to different social groups potentially sharing different sets of mobility-related norms.

In local case studies, sociological analysis of system dynamics can re-construct the locally specific discourses relating to dominant and niche mobility practices and transport policy measures. Qualitative interviews could identify specific local issues in which competing mobility related concepts of normal practice may be clashing: examples could be the local school run and whether or not it is deemed normal to bring children to school in cars or on a bike. In this context, local examples of re-negotiations of mobility related norms could be reconstructed (e.g., if neighbors are debating over SUVs and their contribution to climate change or over the possibility to cycle to work). Psychological approaches could study how competing descriptive norms are perceived by individuals in this community and how they influence individual willingness to support (or reject) niche norms through behavior change. Following McDonald et al. (2014), a case study could measure tensions between conflicting norms as perceived by individuals. An example would be to study to which extent individuals in a suburban community perceive the dominant descriptive norm of car ownership and driving (or, more specifically, owning and driving resource intensive cars such as SUVs) as increasingly contested: do they perceive that competing descriptive norms (such as using less resource-intensive forms of mobility such as cycling) are gaining in relevance? How does the affiliation to different social groups (e.g., neighbors in the suburban community vs. work colleagues living in the city) and the potentially conflicting norms between them influence

individual mobility-related decisions, e.g., the readiness to take the children to school by bike even if this is not the locally dominant norm? To encompass the political dimension of mobility transitions, the analysis should also study the support for relevant (local) transport policy measures: how are discourses over conflicting injunctive norms, e.g., regarding the redesign of street spaces, perceived by individuals in a given local or social context? How do these perceptions influence the willingness to support or accept policy measures, which aim at reducing currently dominant unsustainable travel patterns? In combining both disciplinary approaches, local case studies could show how individual motivation to participate in re-negotiation of mobility-related (local) norms through mode choice changes or political engagement may be influenced by societal discourses and practices, which de-stabilize dominant norms. Even if such multi-disciplinary research design may entail tensions between underlying disciplinary paradigms (Upham et al., 2015), we suggest it can be fruitful to better understand interactions between different societal levels in mobility transitions.

2.5 Conclusion

In this article, we presented intersections between sociological and psychological research, which could help to differentiate the role of individual agency in mobility transitions. The role of social norms is proposed as an integrative concept to study the interplay between structure and agency in mobility transitions. The socio-psychological approaches highlighted here have the potential to shed light on barriers to sustainable travel behavior but also on the ways in which individuals can contribute to social change in the direction of sustainability. We also highlighted that the efficacy of such individual engagement to trigger large scale change may depend on dynamics on the system level: individual agency can play a key role especially when a window of opportunity opens up and social norms become increasingly contentious. In these situations, “social norms can spark collective action and move the needle on policy” (Hackel & Sparkman, 2018). Ultimately, socio-technical change can be stabilized if political

actors and social movements can seize the opportunity to institutionalize alternative social norms by making lasting changes in mobility infrastructures and regulations.

We propose that future research should study the role of social norms in overarching models of socio-technical change more systematically. Social norms have been an element of MLP-models from the start (Geels et al., 2018), but their role has not always been at the forefront of MLP-analyses. As was shown in section "Structural barriers to individual behavior change: Contributions from critical sociological perspectives," we propose to conceptualize social norms as conflicting and contested. In the language of the MLP, this translates into tensions between dominant sets of norms on the regime level and alternatives sets of norms, especially ecological norms, on the niche level. On the landscape level, we can identify sets of norms of a more general character, which change slowly and are not necessarily directly linked to the field of mobility (Göpel, 2016). Reformulating our analysis in the language of the MLP, we can now see that individuals, with their own behavior, have the opportunity to engage in struggles between competing social norms on the regime and niche level. Future research should explore if and how individuals can also challenge the overarching discursive paradigms, which form the normative "landscape" level of socio-technical transitions.

Beyond the academic interest, we see implications of our proposed perspective in supporting different social actors in initiating sustainability transitions. Individuals could learn to see themselves as carriers of social norms and practices, which they actively reproduce, but can also challenge. This understanding can encourage individuals (and potentially increase self-efficacy beliefs) to actively engage in challenging and re-negotiating social norms in their own social context. The perspective developed here may encourage individuals to look out for signs of accelerating social dynamics (e.g., in media discourse), which could become windows of opportunity for systemic change. Motivation to participate in changing social norms may be higher when individuals see themselves as effectively "pushing" a change process, which is already ongoing (Sparkman et al., 2020). At the moment, individuals in Western societies will

often not be aware of these notions, a fact which can be seen as an effect of the dominance of individualistic paradigms described by Göpel (2016). Challenging these paradigms could have significant potential for triggering individual motivations to contribute to change. Ideally, socio psychological models describing the role of the individual in sustainability transitions will become a staple in political and media discourses on climate change and mitigation strategies. There are encouraging examples of how interdisciplinary research can illustrate the role of the individual in sustainability transitions in a comprehensible way, acknowledging the interplay between individual agency and societal structures (Capstick et al., 2020). Following up on this, socio-psychological approaches could help to challenge the dominance of overly individualistic paradigms, which are in themselves a substantial barrier to social-ecological transition dynamics in the transport sector.

The article focused on the role of social norms as a concept integrating sociological and psychological approaches in mobility transitions research. One limitation of this article is that we do not spell out the empirical applications in detail, leaving this work as a task for future research. Also, our proposed research agenda strongly focuses on potential ways in which individuals can make a difference for societal and political change. Further research needs to address how these alternative sustainable “normalities” need to be supported and stabilized by changes to the institutional setting. Focusing on social norms presents an opportunity to overcome the structure-agency dualism by highlighting how individual behavior and social structure are deeply intertwined.

Chapter 3: Social identity based motivation to engage in collective action supporting the redistribution of street space

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Abstract

Reallocation of street space to active travel modes remains contested, despite the need for a sustainable mobility transition. Citizen engagement plays a crucial role in pushing city councils to take action and provide safe infrastructure for cyclists and pedestrians. In this study, we assess what drives active support for policies redistributing street space, focusing on transport user groups and their social identities that may influence active engagement in favor (or in opposition) to these transport policies. We draw on the Social Identity Model of Collective Action to investigate processes influencing active policy support as a form of collective action. Based on a representative sample of German citizens (N = 615), we observe a medium–low willingness to get actively engaged. Findings suggest that people identifying with minority groups (e.g., cyclists) profiting from changes to the status quo are most willing to support policies redistributing street space. A sense of collective efficacy and perceived social pressure within the group through social norms seem particularly important. As social identity processes appear to influence people's policy support more so than their mode choice itself, there are widespread implications for the mobility transition. We discuss the benefits of considering social identities from the perspective of policy makers as well as citizen initiatives.

Keywords: Active policy support, social identity, collective action, transport policies, street space, citizen engagement

3.1 Introduction

The transport sector is one of the sectors most difficult to decarbonize as both travel demand and travel distances continue to rise. In order to change the highly car-dependent mobility system, ambitious transport policies are necessary to incentivize the use of alternative travel modes, whilst making car use inconvenient (Kuss & Nicholas, 2022). One important leverage point, especially on the municipal level, is the reallocation of street space to alternative modes of travel (Javaid et al., 2020). Albeit very effective, policy measures redistributing street space are contested (Lewis, 2020). The present research examines active support of transport policies redistributing street space in Germany. We investigate how an individual's motivation to engage in active policy support interacts with their identification with particular transport mode user groups. We draw on social identity models of collective action to examine active support of as well as active opposition to changes to street space use. This analysis allows to inspect the role of individuals as citizens in the mobility transition. Active policy support (e.g., signing petitions) and citizen engagement link individual behaviors to systemic change processes as individuals can exert their political power not only by putting the topic at the forefront of societal debates, but also by shaping the political landscape through voting representatives pushing sustainable transport policies on a local, regional and national level (Göpel, 2016; Whitmarsh, 2012).

3.2 Theoretical background

3.2.1 Citizen engagement and active policy support in the mobility transition

With the automotive industry being a major force in the German economy (Statistisches Bundesamt, 2022), the ties between politics and the car industry have been (and in many aspects still remain) very strong. This poses two main problems for national and regional transport politics: a) Often, mobility is equated with automotive mobility and hence b) transport policies serve to maintain a car-dependent mobility system rather than providing alternatives (Gössling & Cohen, 2014; Mattioli et al., 2020). Consequently, there is a considerable lack of policy

propositions for avoiding trips and shifting to other transport modes and an overemphasis on the potentials of improving current transport options through, for example, electrification and automation (Gössling & Cohen, 2014). As the lobbyism of the automotive industry influences transport policies so heavily (Gössling & Cohen, 2014), countering these influences can seem quite difficult from an individual's perspective. Nevertheless, individuals can contribute to complex transition processes, like the mobility transition, as actors incorporating different roles such as being an investor or an active citizen (Nielsen et al., 2021). As historic examples show, individuals as citizens can influence transitions away from car-centered mobility quite significantly: Amsterdam and Copenhagen are two prominent cities, where citizen engagement played a crucial part in pushing the cities' transformation away from car traffic (Henderson & Gulsrud, 2019). Amsterdam in particular owes its cycle-friendly streets to the efforts of a citizen initiative called "Stop de kindermoord", fighting for safe streets for children in the 70s (van der Zee, 2015). A more recent example is the mobility campaign in Berlin, uniting a broad range of people using different travel modes behind the goal of creating safe streets for everyone (Becker et al., 2020). What initially started as a petition turned out to be overwhelmingly successful, so that local policy makers had to respond to the societal pressure by adopting a 'mobility law' legally fixing the priority of active travel modes over cars.

While these change processes were initiated by public sphere behavior of citizens (like street protests and petitions (Stern, 2000)), a citizen's influence on transformation processes can – in well-functioning democratic systems – also be through voting representatives and political parties stepping up to change current policies (Nielsen et al., 2021). Recent years have shown a rising number of mayors running their campaign for election on the subject of mobility, accessibility and quality of life in cities through promoting active travel modes (Sadik-Kahn & Solomonow, 2021). Bamberg et al. (2020) describe local injunctive norms of attitudes of citizens to different transport policies as one key component of a local mobility culture (additionally to the descriptive norms of mode choice). Hence, the views of citizens on transport

policies as well as their voting behavior in local as well as regional elections become increasingly important in shaping debates on the mobility transition. Policy support can thus take on different forms ranging from a mere cognitive evaluation to voting based on proposed policies or, most effectively, getting actively engaged in citizen initiatives to fight for specific political agendas (Huijts et al., 2012). Active forms of policy support therefore are important to kick-start or back-up changes in policies, especially when it comes to contested topics like the mobility transition (Thiri et al., 2022). In the following section, we delineate the underlying processes of engaging in such behaviors.

3.2.2 Social identity processes as motivational factors to engage in collective action

Civic engagement or an individual's motivation to partake in collective action is subject to social structures and groups (Bögel et al., 2019). One prominent approach to study (participation in) social change is *Social Identity Theory* (SIT; Tajfel & Turner, 1986), conceptualizing the identification with different social groups as an integrated part of the self. Originally aiming to understand the willingness of members of a disadvantaged group to collectively challenge the unjust status quo, SIT defines the ability of individuals to think as a 'we' as decisive to bring about social change in the interest of their social identity (Schulte et al., 2020; Tajfel & Turner, 1986). One of the main tenets of SIT is that the more an individual identifies with a certain group, the more likely it is that they choose to act in the group's interest. Both the perception of a given situation as well as the behavioral response to it is shaped by the norms, beliefs, goals and emotions shared within the social group, the individual self-identifies with (Fritsche et al., 2018). Hence, in situations, where an affiliation to a social category is salient (often due to a comparison to a present group of 'others'), individuals adopt the group's motives and goals as their own (Tajfel, 1982). As a theory of social change, SIT has been applied to various areas of research, including (collective) environmental behavior and citizen engagement in, for example, grassroots movements (Fritsche et al., 2018; Schulte et al., 2020).

Van Zomeren et al. (2008) propose an integrative *Social Identity Model of Collective Action* (SIMCA) highlighting social identification with a particular social category, the shared feeling of an unjust status-quo as well as collective efficacy beliefs as key determinants for the intention to participate in collective action. This model has been applied, adopted and extended over the years, notably by adding constructs such as the relevance of social norms shared in the group, different group-based emotions and a more nuanced analysis of interactions between the determinants (Thomas et al., 2022). Within the model, social identification refers to self-definition as well as self-investment as a member of a social category with the latter being particularly important for collective action motivation (Chayinska et al., 2017; Roth & Mazziotta, 2015). Collective efficacy beliefs refer to the conviction that if people act together as a collective to fight for a common goal, they will achieve it (Hamann & Reese, 2020). This is particularly important in areas, where individuals can feel overwhelmed and helpless to bring about change on their own (Fritsche et al., 2018). Whereas in the original model, group-based emotions referred to a shared feeling of injustice, recent research shows, how other shared emotions can influence collective action intention, like anger (Brügger et al., 2020), guilt (Rees & Bamberg, 2014) or positive emotions like being proud of or moved by achievements of the group (Brügger et al., 2020; Landmann & Rohmann, 2020). Adding social norms as a determinant of collective action helps to account for perceived social pressure within the group to be actively involved in fighting for a common goal. Social norms describe whether individuals perceive other members of the group to participate in collective action (descriptive norms) or perceive that other members of the group expect them to engage in collective action (injunctive norms) (Brügger et al., 2020; Rees & Bamberg, 2014). Taken together, the SIMCA proposes that the stronger these mechanisms are, the more likely it is that people engage in collective action in the interest of their social group (see Figure 4 for proposed model).

Social identity theory accommodates vast definitions and operationalizations of types of collective actions as well as of what defines relevant social categories (Thomas et al., 2022).

Whereas this is a theoretical advantage allowing flexible adaptation to different contexts, empirically it can be difficult to analyze and compare the influence of social identity mechanisms on collective action (Schulte et al., 2020). Most social psychological research agrees on Wright et al. (1990) definition stating that "a group member engages in collective action any time she or he acts as a representative of the group and where that action is directed at improving the conditions of the group as a whole" (p. 995). Whereas this definition includes a variety of behaviors, we focus on active policy support (through e.g., voting, signing petitions) as a form of collective action, particularly relevant to a citizen's role in the mobility transition (see section 3.2.1). As we are interested in transport policies specifically, we chose to focus on transport identities as a context-specific social category. Mode of transport user groups represent a social category that is very prominent in the societal debate on transport politics with some even referring to a "culture war" (Lewis, 2020) around street space allocation between different transport user groups.

3.2.3 Social identities in transport

Research on the psychological factors of travel mode choice shows that the mode of transport fulfills not only the instrumental function of providing a vehicle to get from one place to another, but also affective and symbolic functions serving to signal identities and social affiliations (Gössling, 2017; Steg, 2005). In order to account for these symbolic functions, the integration of the mode of transport into the conceptualization of the self has been studied through mode of transport identities like car driver or cyclist identities (e.g., Murtagh et al. (2012), see also Javaid et al. (2020)). Mode of transport related identities have proven to influence mode choice, more so than past travel behavior alone (Murtagh et al., 2012). They also seem to influence the intention to change one's future mobility behavior (Heinen, 2016). Whereas transport identities have been conceptualized as both personal and social identities in the past, we argue for a social identity perspective (especially in the realm of transport politics) for four reasons: First, mode choices serve (additionally to their instrumental function) to signal

social affiliation communicated via the type of transport mode someone uses (Gössling, 2017). Mode of transport related social identities account for that social embeddedness of mobility behavior through self-definition as member of a social group, in this case the specific user group. Second, the current transport infrastructure in most German cities creates an accessibility and hence a power imbalance between different user groups, which is what we consider to constitute feelings of (un)fairness and (in)justice. Current street space allocation, especially in suburban and rural areas, is convenient for car drivers while neglecting the mobility needs of other users in infrastructure design. Creutzig et al. (2020) apply different ethical conceptualizations of justice to road space allocation and conclude that, no matter what definition of justice is applied, the amount of space used up by cars is too high, compared to other vehicles. Hence, the debate on a redistribution of street space thus also is a debate on the redistribution of intergroup power of different user groups in the public space (Creutzig et al., 2020). Third, when it comes to transport politics, policy measures are designed in a way that they affect groups of people for example in the case of car-restricted areas, which is why we argue people act in the interest of the user group when confronted with policy measures rather than making individual cost-benefit assessments of the consequences of proposed policies. Finally, as explained in the previous section, social identities are decisive in determining collective action in the interest of a particular group, which is the focus of this study.

3.2.4 Current study

Based on these considerations, we set out to analyze support of transport policies redistributing street space through a social identity lens by applying the Social Identity Model of Collective Action (Rees & Bamberg, 2014; van Zomeren et al., 2008) to the field of citizen engagement for sustainable transport politics. We assess the willingness to engage in collective action supporting policies that combine a Pull-effect for active travel modes (incentivizing) with a Push-effect for car travel (restricting) in order to emphasize the resulting change in intergroup power. We analyze social identification with cyclists, pedestrians and public

transport users as user groups potentially profiting from a redistribution of street space and social identification with car users in contrast as a group profiting from the status quo. To do so, we tested the following hypotheses:

H1. Higher social identification with cyclists, group-based emotions, shared social norms and perceived collective efficacy predict stronger intention to participate in action supporting sustainable transport policies.

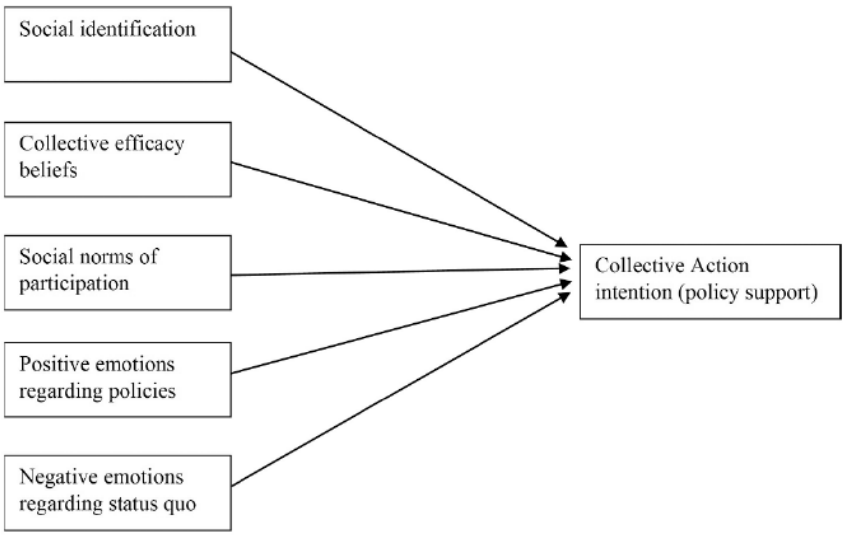
H2. Higher social identification with pedestrians, group-based emotions, shared social norms and perceived collective efficacy predict stronger intention to participate in action supporting sustainable transport policies.

H3. Higher social identification with public transport users, group-based emotions, shared social norms and perceived collective efficacy predict stronger intention to participate in action supporting sustainable transport policies.

H4. Higher social identification with car drivers, group-based emotions, shared social norms and perceived collective efficacy predict stronger intention to participate in action protesting against sustainable transport policies.

Figure 4

Hypothesized model for active policy support intention for social identification with cyclists, public transport users and pedestrians.



Two hypotheses addressed assumed relationships between transport social identities and emotional reactions to the transport policies as well as to the status quo of street design:

H5. Higher social identification with car drivers is associated with feelings of anger, injustice and identity threat regarding the proposed sustainable transport policies.

H6. Higher social identification with cyclists, pedestrians or public transport users is associated with feelings of anger, injustice and identity threat regarding the status quo of street space distribution.

3.3 Methods

3.3.1 Participants and procedure

A total of 661 adults residing in Germany completed the online questionnaire. Out of this initial sample, we excluded n = 46 participants as speeders (completion time < m/2; Callegaro et al. (2014)) due to low data quality. The final sample consisted of N = 615 individuals between the ages of 18 and 69 (M = 46.3, SD = 15.3) and 51.4% of the participants were female. Data were collected via the panel provider Respondi, to obtain a sample with quotas on age and gender mirroring the German population (See Table A1/ A2 in the Appendix for detailed description of the sample). Participants received a compensation for their participation in the survey from the panel provider. We pre-registered our materials and hypotheses (see https://aspredicted.org/pi45z).

The participants‘ mobility patterns were comparable to those documented in a nationwide mobility survey of the general German population, last conducted in 2017 (Nobis & Kuhnimhof, 2018). Driving by car and walking are the predominant modes of transport when it comes to everyday travel (see Figure A1 in Appendix for mobility patterns). The sample included people across the political spectrum (in terms of a left-right continuum), which is important to interpret the results in this debate on transport policies (Haustein et al., 2022).

3.3.2 Survey design and measures

The survey aimed at testing the sociopsychological mechanisms underlying intentions to participate in collective action supporting (or hindering) transport policies favoring active travel modes. Participants first indicated their social identification with different mode of transport user groups as well as with residents of their community. Afterwards they were asked to imagine the implementation of three transport policies redistributing street space in their place of residence, which the city council allegedly decided to put in place. They answered questions on their collective action intention to support or oppose the measures as well as items on the other SIMCA predictors, mobility behavior and sociodemographics in the following. All items were assessed in German using 7-point Likert scales.

Social identification. Social identification with car drivers, cyclists, public transport users, pedestrians as well as with other residents of the participants' town was assessed adapting the six items of the self-investment dimension of Roth and Mazziotta (2015) to each of the investigated identities (e.g., "*Being part of the group of car drivers is important to how I see myself*.", 1 = *do not agree at all* to 7 = *completely agree*). Internal consistency was good with a Cronbach's alpha of $\alpha > .93$ for the respective social identities.

Transport policies. The self-constructed scenario describing the sustainable transport policies read like the following: "In your municipality, the administration has decided on various traffic measures that are to be implemented in the coming months. The focus is on the use of public space. Please read the following three policy measures of the municipal council:

1) In your municipality, so called environmental lanes [lanes dedicated to public transport and cyclists] are to be introduced on multi-lane roads. With environmental lanes, public transport users and cyclists share the lane, while motorists have to use another lane.

2) In your municipality, car parking spaces in the community center as well as in residential areas are to be converted into bicycle parking spaces and greenspaced waiting areas for public transport over time.

3) In your municipality, a speed limit of 30 km/h is to be introduced in all inner-city streets."

Afterwards participants indicated how much the proposed policies would change the street design in their municipality when implemented compared to the status quo (1 = *very little change* to 7 = *a significant change*).

Collective action intention. Four items by McDonald et al. (2014) adapted to the transport policy context, assessed collective action intention. Participants rated how likely it is, that they will a) Distribute information regarding the planned policies via email/ social media, b) Sign petitions to support the planned policies, c) participate in protests to support the planned policies or d) Consider transport policy as a relevant topic when voting in communal elections (1 = *not at all likely* to 7 = *very likely*).

Participants rated the same four items for their intention to participate in collective action opposing the transport policies to assess active opposition to the proposed policy measures. Internal consistency for the scale was satisfying with a Cronbach's alpha of $\alpha = .84$ for collective action intention in support of the policies and $\alpha = .87$ for collective action intention against the policies.

As an additional self-constructed behavioral measure of the dependent variable, participants could indicate how much of their compensation (indicated in percent) they wanted to donate to a citizen initiative fighting for the mobility transition at the end of the survey. The citizen initiative "Changing Cities" engages to put similar policy measures in place as described in the hypothetical scenario of the study. The donation was made to the initiative through the panel provider after the completion of the study.

Social norms. Two self-constructed items assessed the descriptive and injunctive social norms of collective action participation among each of the four mode of transport social identities: "Other car drivers/ … are engaged in fighting for their interest in transport policies." and "Other car drivers/ … expect me to get engaged in regard to transport policies." (1 = *do not*

agree at all to 7 = *completely agree*). Reliability was acceptable with Spearman-Brown ranging from .67 to .79.

Collective efficacy beliefs. One self-constructed item assessed collective efficacy beliefs for each of the four mode of transport related social identities respectively: "Through joint actions, we car drivers/ … can assert our interests in transport policy" (1 = *do not agree at all* to 7 = *completely agree*).

Emotions and feelings of identity threat. Five self-constructed items assessed participants' feelings regarding the transport policies: "Think about the policy measures your city council wants to implement and how it feels reading about those planned policies. Which emotions describe best, how you feel as a car driver/ …?"- "content; hopeful; treated unfairly; angry; scared". Three items focusing on feelings of social identity threat were adapted from Dalton and Huang (2014): "Maligned; challenged; impugned". The same emotions and feelings of identity threat were assessed regarding the status quo of street design: "Think about the current street design and how it feels to move around your town at the moment. Which emotions describe best, how you feel as a car driver/ …?" (Cronbach's $\alpha > .91$ for negative emotions and Spearman-Brown from .81 to .94 for positive emotions).

System justification beliefs. Participants answered the items of the system justification scale by Kay and Jost (2003), adapted to German by Ullrich and Cohrs (2007): E.g. "Most policies serve the greater good." (1 = *do not agree at all* to 7 = *completely agree*; Cronbach's $\alpha = .82$).

Travel behavior. Participants answered questions on their mode choice adapted from the nationwide mobility survey (Nobis & Kuhnimhof, 2018): "How often do you normally use the following modes of transport? Private car, (e-) bike, walking, public transport, long-distance trains, taxi, car-sharing" (1 = (*almost) never*, 2 = *less than once a month*, 3 = *1-3 days per month*, 4 = *1-3 days per week*, 5 = *(almost) daily)*. They also indicated availability of travel options including questions on ownership of a driver's license, car, bike and public transport

subscription. They also indicated whether they have a bus/ train stop in walking distance as well as their commuting distance to their work place.

Sociodemographics. Participants indicated their gender, age, employment status, educational level, household size and number of children under 18 living in the household. They also indicated what type of spatial setting they are currently living in (urban, suburban or rural), their political orientation on a left-right continuum and party preference ("Which party would you vote for if there were elections this Sunday?").

3.3.3 Statistical analyses

To test the hypotheses 1 - 4, we conducted a series of multiple linear regression analyses to predict collective action intention. We analyzed the extended SIMCA for the four different mode of transport related social identities (social identification with car drivers, cyclists, public transport users and pedestrians). In the first block of predictors, we analyzed the explanatory power of political orientation on a left-wing to right-wing continuum and the respective mode choice corresponding to the investigated social identity. In the second block, we included the SIMCA variables social identification, social norms, collective efficacy beliefs and positive and negative group-based emotions. Hypotheses 5 and 6 concerning group-based emotions were correlational, so we looked at bivariate relationships using Pearson's correlation.

For constructs assessed with several items, we used the arithmetic mean of all relevant items. To conduct the analyses, we used IBM Statistics version 26.

3.4 Results

3.4.1 Descriptive analyses

Descriptive statistics and bivariate correlations are provided in Table 1. Most participants reported medium-low levels of collective action intention both to support as well as to oppose the proposed policy measures. Among the assessed collective action behaviors, intentions were strongest for considering the proposed policy measures in a voting decision

(support: M = 4.25, SD = 2.07; opposition: M = 3.74, SD = 2.23). Self-reported intention to engage in collective action supporting policy measures redistributing street space correlated most strongly with social identification with other public transport users (r = .45, p < .001) and social identification with other cyclists (r = .44, p < .001). Donation behavior also correlated most strongly with social identification with public transport users (r = .16, p < .001). Self-reported collective action intention to support the measures correlated weakly with the donation behavior (r = .22, p < .001). Collective action intention to oppose the measures correlated most strongly with social identification with other car drivers (r = .27, p < .001).

Table 1

Means, standard deviations and correlations between the dependent variables and the social identities.

	n	*M*	*SD*	1	2	3	4	5	6
1 CA support	615	3.27	1.69						
2 CA oppose	615	3.04	1.82	.16*					
3 Donation	189	9.85	18.35	.22*	-.18*				
4 SI car drivers	613	3.86	1.91	.03	.27*	-.14*			
5 SI cyclists	612	3.42	1.89	.44*	.13*	.13*	.30*		
6 SI PT users	612	3.06	1.76	.45*	.09*	.16*	.11*	.54*	
7 SI pedestrians	611	4.31	1.79	.38*	.12*	.12*	.37*	.63*	.60*

Note. CA = Collective Action Intention. SI = Social identification. Displayed are statistics of cases with listwise exclusion of missing values. *= p < .05

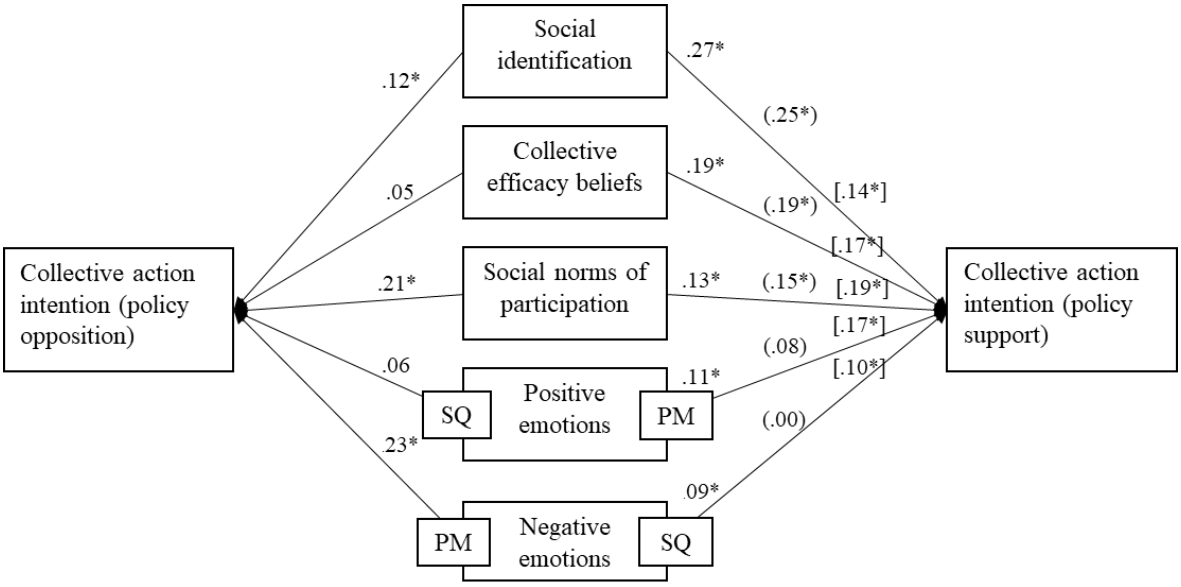
3.4.2 Regression analyses

We conducted four linear multiple regression analyses to investigate determinants of collective action intention for the four transport social identities (see Figure 5 for an overview of the standardized coefficients of all regression analyses). We used hierarchical regression integrating political orientation and respective mode choice in the first model and adding the

SIMCA variables in the second model. As items assessing emotions correlated highly, we performed maximum-likelihood-based exploratory factor analysis and consequently combined negative emotions and feelings of identity threat for each social identity respectively. The variance inflation factors (VIF) were all below four indicating no multicollinearity among the independent variables in the regression models.

Figure 5

Overview of the four regression models with respective standardized estimates for direct effects.



Note. * = $p < .05$; SQ = regarding status quo of street design; PM = regarding policy measures; left part of the figure: SIMCA for car drivers; right part: SIMCA for cyclists, public transport users (in brackets), pedestrians [in brackets]. Effects were controlled for political orientation and respective mode choice.

Supporting hypothesis 1, we found that social identification with cyclists, positive emotions regarding the planned policies, negative emotions regarding the status quo of street design, social norms of engaging with transport politics, collective efficacy beliefs as well as political orientation significantly predicted intention to participate in collective action supporting the policy measures ($F(7, 555) = 37.460$, $R^2 = .312$, $p < .001$). Political orientation and cycling uniquely explained 9.2% of the variance in collective action intention. Including the SIMCA variables increased explained variance by 21.7% with social identification with cyclists ($\beta = .269$, $p < .001$) being the strongest predictor (see Table 2 below).

Table 2

Linear model of predictors (SI cyclists) of Collective Action Intention. 95% Confidence intervals (in parentheses) and standard errors based on 1000 bootstrap samples

	B	*SE B*	β	*p*
Step 1				
Political spectrum	-.016 [-.023, -.009]	.004	-.179	<.001
Bike use	.295 [.193, .386]	.049	.242	<.001
Step 2				
Political spectrum	-.013 [-.019,-.006]	.003	-.143	<.001
Bike use	-.058 [-.160, .042]	.053	-.048	.284
SI cyclists	.243 [.150, .337]	.047	.269	<.001
Efficacy	.181 [.097, .267]	.043	.187	<.001
Norms	.131 [.036, .231]	.049	.132	.002
Pos. Emo PM	.097 [.020, .174]	.039	.112	.007
Neg. Emo SQ	.098 [.011, .186]	.045	.089	.018

Note. $R^2 = .092$ for Step 1; $\Delta R^2 = .217$ for Step 2

Supporting hypothesis 2, we found that social identification with public transport users, social norms of engaging with transport politics, collective efficacy beliefs as well as political orientation significantly predicted intention to participate in collective action supporting the policy measures ($R^2 = .265$; $F(7, 562) = 30.320$, $p < .001$). However, negative emotions regarding the status quo of street design and positive emotions regarding the policy measures did not predict collective action intention in the final model. Political orientation and public transport use uniquely explained 7.9% of the variance in collective action intention. Including the SIMCA variables increased explained variance by 18.6% with social identification with other public transport users being the strongest predictor (see Table 3 below).

Table 3

Linear model of predictors (SI public transport users) of Collective Action Intention. 95% Confidence intervals (in parentheses) and standard errors based on 1000 bootstrap samples

	B	*SE B*	β	*p*
Step 1				
Political spectrum	-.014 [-.022, -.006]	.004	-.157	<.001
Public transport use	.274 [.180, .375]	.050	.221	<.001
Step 2				
Political spectrum	-.012 [-.018, -.005]	.004	-.133	<.001
Public transport use	-.032 [-.144, .070]	.055	-.026	.558
SI PT users	.241 [.140, .344]	.051	.251	<.001
Efficacy	.173 [.090, .255]	.041	.186	<.001
Norms	.145 [.054, .241]	.048	.149	.001
Pos. Emo PM	.069 [-.014, .144]	.041	.079	.059
Neg. Emo SQ	-.004 [-.093, .082]	.045	-.003	.929

Note. $R^2 = .079$ for Step 1; $\Delta R^2 = .186$ for Step 2

Supporting hypothesis 3, we found that social identification with pedestrians, positive emotions regarding the planned policies, negative emotions regarding the status quo of street design, social norms of engaging with transport politics, collective efficacy beliefs as well as political orientation significantly predicted intention to participate in collective action supporting the policy measures (R^2 = .301; $F(7, 571) = 36.624$, $p < .001$). Political orientation and walking uniquely explained 5.2% of the variance in collective action intention. Including the SIMCA variables increased explained variance by 24.9% with social norms of participation being the strongest predictor (see Table 4 below).

Table 4

Linear model of predictors (SI pedestrians) of Collective Action Intention. 95% Confidence intervals (in parentheses) and standard errors based on 1000 bootstrap samples

	B	*SE B*	β	*p*
Step 1				
Political spectrum	-.015 [-.023, -.008]	.004	-.173	<.001
Walking	.203 [.102, .309]	.054	.147	<.001
Step 2				
Political spectrum	-.014 [-.020,-.007]	.003	-.155	<.001
walking	.023 [-.078,.118]	.049	.017	.654
SI pedestrians	.134 [.058, .209]	.039	.140	.001
Efficacy	.163 [.080, .247]	.043	.174	<.001
Norms	.191 [.092, .278]	.048	.192	<.001
Pos. Emo PM	.167 [.082, .244]	.040	.172	<.001
Neg. Emo SQ	.112 [.021, .203]	.046	.095	.010

Note. R^2 = .052 for Step 1; ΔR^2 = .249 for Step 2

Partially supporting hypothesis 4, we found that social identification with the group of car drivers, negative emotions regarding the planned policies as well as social norms significantly predicted intention to participate in collective action opposing the policy measures (R^2 = .187; $F(7, 586)$ = 20.507). However, group efficacy (β = .049, p = .272) and positive emotions regarding the status quo (β = .057, p = .170) did not predict collective action intention in the final model. Political orientation and car use uniquely explained 2.1% of the variance in collective action intention. Including the SIMCA variables increased explained variance by 13.1% with negative emotions regarding the policy measures being the strongest predictor (see Table 5 below).

Table 5

Linear model of predictors (SI car drivers) of Collective Action Intention. 95% Confidence intervals (in parentheses) and standard errors based on 1000 bootstrap samples

	B	*SE B*	β	*p*
Step 1				
Political spectrum	.013 [.004, .021]	.004	.130	.002
driving	.101 [-.017, .215]	.059	.072	.080
Step 2				
Political spectrum	.008 [.002, .016]	.004	.087	.022
driving	-.068 [-.195, .048]	.062	-.048	.258
SI car drivers	.110 [.013, .206]	.048	.115	.016
Efficacy	.048 [-.044, .147]	.048	.049	.272
Norms	.248 [.141, .358]	.056	.210	<.001
Pos. Emo SQ	.063 [-.037, .157]	.050	.057	.170
Neg. Emo PM	.252 [.168, .351]	.046	.231	<.001

Note. R^2 = .021 for Step 1; ΔR^2 = .166 for Step 2

For hypothesis 5 and 6, we looked at bivariate correlations between the social identities and positive and negative emotions regarding the sketched policy measures and the status quo of street design. We found small to moderate correlations between the constructs (see Table 6).

Table 6

Bivariate correlations between social identification and group-based emotions regarding the policy measures and current street design.

Social identification	Positive emotions PM	Negative emotions PM	Positive emotions status quo	Negative emotions status quo
Car drivers	.25*	.21*	.40*	.16*
cyclists	.49*	.20*	.44*	.18*
PT users	.50*	.19*	.50*	.24*
pedestrians	.47*	.10*	.43*	.12*

Note.* $p < .05$. PM = policy measures

As the correlations per se are difficult to interpret, we calculated paired t-tests within each social identity: Comparing the means between group-based emotions regarding the status quo and regarding the proposed policy measures, we observe significant differences for all social identities except for social identification with pedestrians. Positive emotions when thinking about the status quo of street design are higher for people identifying with car drivers than the positive emotions felt regarding the policy measures ($t(555) = -7.68$, $p < .001$). Group-based emotions of cyclists ($t(555) = 6.56$, $p < .001$) and public transport users ($t(555) = 4.02$, $p < .001$) show higher positive emotions regarding the policy measures than regarding the status quo of street design. Participants identifying with cyclists or public transport users reported significantly more negative emotions regarding the status quo of street design than regarding the proposed policy measures (cyclists: $t(555) = -4.79$, $p < .001$ and PT users: $t(555) = -3.02$, $p = .003$) Participants identifying with other car drivers reported higher negative emotions regarding the policy measures ($t(555) = 9.71$, $p < .001$).

3.5 Discussion

This study examined potential drivers of active policy support as a form of collective action adapting the SIMCA to the transport policy context. The results provide evidence that mode of transport related social identities are relevant social categories determining active policy support of or opposition to policy measures redistributing street space. This seems to be particularly true for minority groups, like cyclists and pedestrians, and collective action intention in favor of the proposed policies. Moreover, social identification mechanisms seem to be more important than mode choice itself when it comes to engaging in collective action in the interest of the user group one identifies with. Hence, for active engagement in transport politics, especially regarding contested policies regulating the use of street space, socio-psychological processes seem to matter and differ between people.

Our findings on the group of cyclists, public transport users and pedestrians suggest that collective efficacy beliefs and the social norms of engaging in collective action are particularly relevant factors in determining collective action intention. This is in line with previous research on collective climate action showing how important efficacy beliefs (Brügger et al., 2020) and participation of others (Wallis & Loy, 2021) are in motivating engagement in collective action. The explanatory power of the SIMCA determinants especially for minority groups like cyclists and pedestrians is also in line with previous research on intergroup relations and minority groups. The willingness to engage in collective action has its roots in minority groups stepping up to change the status quo, which puts them in a position perceived as unjust and with less power. Prominent slogans of movements demanding a redesign of street spaces is to create “streets for all” and “streets for people, not cars” (Fuchs, 2022) – indicating how access is perceived to be disproportionately reserved to car drivers. Surprisingly, participants identifying with cyclists, pedestrians and public transport users did not report strong negative emotions regarding the status quo of street design, even though a majority stated the proposed policy measures would change current street design in their municipality a lot. This is in contrast to

previous studies, where, for example, cyclists express negative emotions as they often feel unsafe in regular street designs (Willis et al., 2015). Possibly the current street design was not salient enough throughout the survey to evoke emotions or people may even be accustomed to street space mainly being devoted to car driving and therefore not showing strong emotional reactions. Whether current street design or changes to street design can impose feelings of identity threat as a reaction to perceived (changing) power structures thus needs further investigation, for example, through experimental designs.

Concerning active protest against policy measures, as hypothesized, social identification with car drivers and associated social identity mechanisms explained the willingness to engage in collective behaviors opposing policy measures redistributing street space. This is in line with previous research showing how social identity mechanisms can motivate not only collective action aiming at bringing about social change but also aiming at preserving the status quo (Osborne et al., 2019). However, contrarily to Osborne et al. (2019) we did not find a relationship between active opposition to the policy measures and system justification orientation.

Most importantly, our finding that across all transport user groups social identification was more important in predicting collective action intention than mode choice itself, resonates with road user segmentation analyses and previous research on affective and symbolic functions of transport modes (Haustein et al., 2022; Murtagh et al., 2012; Wolf & Schröder, 2019). The relevance of being part of a particular user group to the conceptualization of the self seems to influence the appraisal and behavioral response to proposed policies, as our data suggests. These differences in the social and symbolic dimension of the mode choice are important to consider, when discussing support of and potential backlash against sustainable transport policies. Accounting for these differences means acknowledging that e.g., not every car driver will protest against proposed policy measures favoring active travel modes, as it is often assumed or feared by politicians, but rather that it depends on the level of these social identity

mechanisms. Furthermore, our results show a relation between political orientation and collective action intention in the context of transport policies. This is in line with previous research on attitudes towards transport or other environmental policies and its link to political preferences (Haustein et al., 2022; Wild et al. 2018). For the implementation of transport policies and environmental policies however, it is problematic, when the topic is perceived as a partisan topic. Building inclusive transport identities or addressing a place identity could help forego partisan conflicts, especially on a local level (Becker et al., 2020).

Finally, collective action intention, and even more so donation behavior, in the sample was rather low. Out of the different behaviors assessed for collective action intention, participants were most likely to consider transport politics when voting in local elections. These results indicate firstly that among the general German public engaging with transport politics still seems to be more of a niche behavior and therefore secondly stress the need to differentiate different kinds of collective action behaviors to allow detailed interpretations of results. The role of individuals as citizens is very important in transition processes, but there is a need for more research looking precisely at different areas of influence, connecting political, social and environmental psychology approaches (Schulte et al., 2020; Upham et al., 2020). As a low effort, private sphere collective action, voting is one of the most important behaviors an individual can do to influence societal debates and change processes (Wynes & Nicholas, 2017). Participating in protests on the other hand is an example of a high effort collective action and thus one that might not appeal to everyone and one that might need different or additional preconditions. Conceptualizing active policy support as a type of collective action and looking at the different forms of action this policy support can take, offers an opportunity to take a closer look on the political role of citizens in transition processes.

3.5.1 Limitations

There are some limitations to this study worth discussing: First, the paper presents the results of a correlational survey study, which prevents us from deducing any causal effects.

Further studies are needed to check replicability of the findings in different contexts and transferability to a variety of transport policies. Another methodological constraint is that the implementation of the proposed policy measures was merely fictional. Although we chose policy measures currently debated in many cities and municipalities across Germany, the scenario may have been perceived as artificial and hence lead to low personal concern and perceived relevance. Future research would benefit from using real world examples as case studies to investigate social identity mechanisms in transport politics. Concerning measures, we mainly relied on self-reported behavioral intentions, which had a low correlation with the behavioral measure of making a donation to a sustainable mobility initiative. This might also be due to a broad conceptualization of collective action behaviors and donation behavior not being the behavioral equivalent to the items measured in the questionnaire. Further research should distinguish more clearly between the different kinds of collective behaviors to get a better understanding of the determinants of these behaviors and how they might differ depending on the type of action (referring e.g., to Stern (2000) differentiation).

3.5.2 Future research

These findings point to different interesting avenues for future research. Most research on environmental collective action has looked at some kind of an environmentalist social identity (Udall et al., 2020). While that is a highly relevant opinion-based group for e.g., participation in climate protests, it is interesting to look at the transformative potential of other context-specific social identities. Becker et al. (2020) highlight that in the case of transport policies prioritizing active travel modes, focusing on safety and inclusivity of street design helps to generate wide spread support through appealing to an inclusive social identity. If we want to study the influence of multiple social identities on active policy support, the question of salience of identities and the interplay of multiple identities should be investigated further (see e.g., Randers and Thøgersen (2022) for interplay of identities related to meat consumption). Which conditions do render which social identities relevant to action? This is especially relevant for

civic behaviors in the realm of the mobility transition, where political identities, gender identities or local identities all potentially influence an individual's motivation to engage in active policy support or opposition (Heinen, 2016).

Most importantly, future research is needed to investigate whether transport social identities can be subsumed under some superordinate identity potentially bridging conflicts between different transport social identities when it comes to usage of street space. On a city and community level, focusing on local social identities presents a fruitful avenue of research for transport politics (Becker et al., 2020). Previous research has shown that e.g., Low Traffic Neighborhoods are associated with higher levels of well-being, social interaction and perceived safety (Stroope, 2021) - direct co-benefits for local communities resulting from the implementation of sustainable transport policies. Using vignette studies, future research could investigate whether explicitly addressing a local social identity and local co-benefits could help motivating more people to actively support changes to transport infrastructure.

3.5.3 Implications for citizen engagement in transport politics

These results along with previous research highlight the need to consider identities and emotions when designing and communicating policy measures. Most communication of transport policies in municipalities is focused on facts and figures so far, often because of a lack of resources to curve out time for co-design or participatory approaches or a lack of knowledge to do it otherwise. Acknowledging that the assessment of and the behavioral response to proposed policy measures is influenced by social identity mechanisms and emotions could inform communication strategies. Additionally, municipalities as well as citizen initiatives could use social identity mechanisms to foster their success, for example, by appealing to shared goals or by setting and emphasizing social norms of active engagement of other residents in the mobility transition. This could help to form a broad collective showing continuous support, which has the back of local change makers facing pushback of the vocal opposition often dominating public discourse (Wild et al., 2018). In transdisciplinary cooperations,

psychologists could help to develop social-identity-informed communication strategies for policy makers and citizen initiatives alike.

Another implication is to take negative emotions against transport policies, especially shared amongst people identifying with car drivers, seriously, but acknowledging them in a proactive way. As Gössling (2022) states, car industries use feelings of anger, threat or fear to keep people car-dependent. The challenge is to provide alternative visions and values, upon which people identifying with car-drivers can agree on and try to satisfy the need for safety and protection through, for example, a safe and inclusive street design rather than through increasingly large cars.

3.6 Conclusion

This study investigated active policy support as a form of collective action, testing whether transport user groups represent relevant social groups in determining active support of or opposition to transport policies. We found that social identity mechanisms explained collective action intention more so than mode choice itself, highlighting the importance of affective and symbolic dimensions in transport politics. Our results show that it is important to address superordinate goals and identities when communicating policy measures in order to overcome conflicts and establish broad societal support (and engagement) for a mobility transition.

Chapter 4: On the challenges of civic engagement in the mobility transition: A conceptual analysis of the linkages between car dependence and collective action

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Abstract

In complex transition processes, such as the mobility transition, active citizens have the power to change and to demand change of the incumbent mobility system. For individuals, a substantial challenge lies in breaking up and transforming dominant, unsustainable practices and structures in place. Shifting consumption patterns and routines can contribute to changing such practices, but in democratic societies in particular, stronger levers lie in collective, political participation processes: Individuals can partake by electing representatives who can challenge the car-centric mobility system, or by engaging in citizen initiatives and protests to back up niche innovations and demand policy changes. However, citizen engagement for a sustainable mobility transition faces several structural challenges rooted in the characteristics of the car-centric mobility system.

In this paper, we theorize how these characteristics of the car-centric regime influence psychological processes underlying motivation for collective action participation. Based on the Social Identity Model of Pro-Environmental Action (Fritsche et al., 2018), we highlight how motivational factors like a common social identity, collective efficacy beliefs and ingroup norms and goals develop in relation to the specificities of the context the collective action occurs in. We exemplify how the systemic level interacts with individual, within-actor processes and thereby provide a critical perspective on collective action research in transport. The main point this paper makes is that lock-in mechanisms of the car-centric system can translate into obstacles to motivating collective action, which is why a contextual analysis of relevant psychological processes is necessary. This paper thus explores and delineates intersections between transition studies and collective action research and sketches an interdisciplinary research agenda to advance our understanding of engagement of citizens in mobility activism.

Keywords: Collective action, mobility activism, car dependence, transition process, exnovation, interdisciplinary

4.1 Introduction

With the climate crisis accelerating, the urgency of a transformation away from carbon-intensive practices is becoming more and more apparent. The transport sector is a key contributor to global emissions (Sims et al., 2014). Due to a continuing rise in travel demand, it remains a sector with increasing emissions – a development that is in contrast to the trajectories fixed in national and international agreements (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit [BMU], 2021). In affluent countries in particular, the transport sector accounts for a large share of emissions (Sims et al., 2014). While freight and logistics are also facing difficulties in their emission reduction efforts, road passenger transport represents the largest source for emissions within the transport sector (Ritchie, 2020). Hence, this paper focuses on a significant shift in travel behavior to more sustainable options as a potential leverage point. Cities such as Amsterdam or Copenhagen provide examples of organizing mobility in a way that is less reliant on private car use. In both cities, an active civil society has been crucial in fostering systemic changes and demanding new planning practices, which put active travel at the center of transport policy making (Henderson & Gulsrud, 2019).

In this paper, we explore the specific role of citizen-led collective action in the mobility transition and examine how systemic conditions of the current car-dependent regime interact with the motivation to get actively engaged in collective action. We illustrate how the individual and systemic level are interdependent, particularly within the realm of transportation, to elucidate the factors influencing civic (in)action. We thereby provide a critical perspective on collective action research in transport and build on a growing body of literature integrating psychological research in transition studies (Bögel et al., 2022; Bögel & Upham, 2018). Specifically, we first analyze the role of citizen-led collective action as a driver of change processes, reviewing perspectives from transition literature. We then look at (social identity) processes deemed crucial for an individual's motivation to participate in collective action identified in social psychological research. In a synthesis, we integrate the systemic perspective

on regime characteristics with psychological research on collective action motivation, drawing on examples from the German context. By outlining an integrated research agenda, we aim to provide an interdisciplinary approach for understanding the dynamics at play in citizen-led collective action, which we consider to be important in order to design interventions to get more people involved in advocating for a mobility transition.

4.2 Civil Society as an actor in the mobility transition

An active civil society can play an important part in shaping and advancing transition processes, not only by adopting new behaviors and advocating for change but also by critiquing existing structures (Hess, 2018). Hence, individuals and collectives can not only partake in transitions through changing their consumption patterns, but they also represent an important political actor in the governance of transition processes (Hess, 2018; Nielsen et al., 2021). Yet it is evident that they act within the boundaries of a path-dependent transport system that is at odds with reduced car use.

Transport scholars have highlighted path dependencies of the sector making decarbonization efforts particularly difficult and politically contested. Particularly in suburban and rural areas, need satisfaction and social participation is dependent on high levels of car use (Lucas, 2009; Mattioli et al., 2020). From a political economy perspective, Mattioli et al. (2020) illustrate key features of the current car-dependent transport system. They describe five dimensions of the car-centric regime that impede systemic change: the functioning of the automotive industry, the provision of car infrastructure, car-dependent land use patterns, the (non) provision of public transport and dominant cultures of consumption. When it comes to infrastructure provision, for example, regional development often serves as a justification for expanding car infrastructure, rendering a critique and shift in policy making difficult (Mattioli et al., 2020). Acknowledging these political-economic factors underpinning the current car-dependent transport system allows to understand lock-in mechanisms, which can contribute to a "policy inertia" when it comes to mitigation efforts (Unruh, 2000, p. 817). Due to its economic

importance and strong interrelations to parameters of well-being, policy makers might be hesitant to challenge the car-centric regime and/ or actively contribute to its maintenance (Mattioli et al., 2020). The discontinuation of unsustainable mobility and planning practices therefore is at the core of the transformation towards sustainable mobility (Urry, 2004). However, given these political and economic lock-in mechanisms, the question of how these change processes can unfold is even more pressing.

The Multi-Level-Perspective by Geels and Schot (2007) differentiates between three levels of analysis to describe the development of such transition processes. The regime level encompasses the dominant structures and configurations (e.g., institutions maintaining the status quo), the landscape level refers to broader societal factors and trends and the niches represent spaces for emerging (socio) technical innovations. Both developments on the landscape level as well as growing niches can put pressure on regime structures, pushing for structural change. In transition studies there is an emphasis on change processes catalyzed by a (technological) innovation challenging the current regime by creating demand for the proposed new solution (Geels & Schot, 2007; Heyen et al., 2017; Hoffmann et al., 2017). However, this perspective is limited when it comes to the mobility transition: Whereas the electrification of vehicle fleets, for example, challenges the way the automotive industry operates and gains profit, it doesn't necessarily challenge other pillars of the car-dependent system such as land use patterns or infrastructure provision (Haas, 2020; Henderson, 2020). Other technological innovations, such as new mobility services (e.g., e-scooters) may prompt debates on changes in land use patterns (through e.g., the reassessment of parking regulations), but cannot single-handedly provide an alternative transport solution (Ruhrort, 2020).

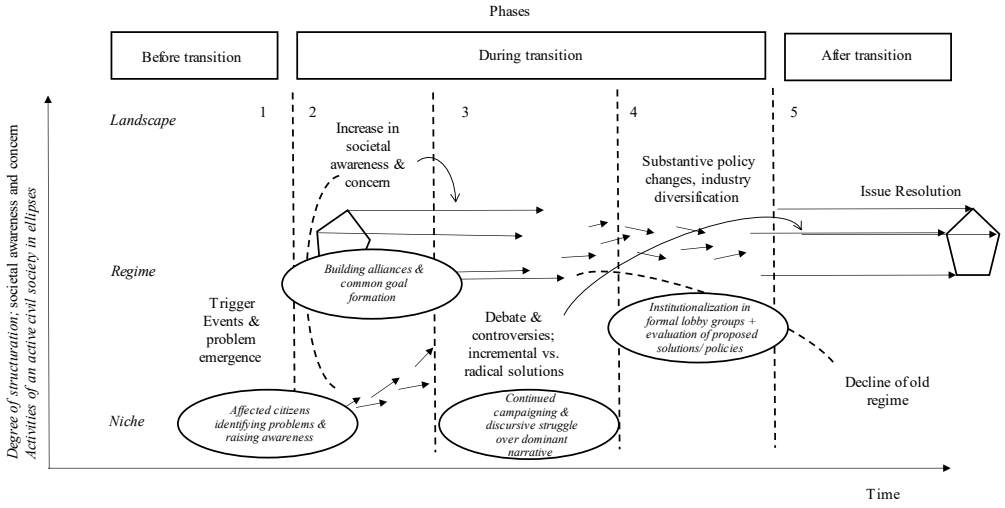
These examples illustrate why the pattern of change processes (originating in a technological niche innovation, which is challenging the incumbent regime) often depicted in multi-level approaches, are insufficient to conceptualize necessary changes in the mobility system (Hoffmann et al., 2017). Rather, transport scholars advocate for a mobility system

characterized by less travel demand, met through a multimodal mix of active travel modes (such as cycling and walking) and public transport. Wherever possible, the paradigm ‘avoid, shift, improve' (Bongardt et al., 2019) implies a hierarchy of desired policies, eventually reducing unsustainable practices such as a reliance on private car use. This underlines the significance of exnovation processes in transport, as merely a shift to alternative travel modes is not enough to achieve emission reduction targets (Hoffmann et al., 2017; Wetzchewald, 2023). Exnovation describes the process of ending unsustainable practices, in other words, the “deliberate discontinuation” (Hoffmann et al., 2017, p. 392) of certain practices and technologies, for example the reliance on private car travel.

The car-centric regime however proves to be rather stable with limited interest of industry players as well as policymakers to challenge the status quo (Haas, 2020; Urry, 2004). With these economic and political barriers to change, an active civil society pressing for exnovation policies comes into play (Graaf et al., 2021). In the energy sector, for example, comparable actor constellations and change processes occurred that underscore the importance of social movements in demanding the phase-out of fossil-fuel based structures and practices (Krüger, 2021; Scherhaufer et al., 2021). Within transition studies, several approaches model the dynamics of transition processes by specifically examining different actors and actor constellations shaping these processes (Fuenfschilling & Truffer, 2016; Steg et al., 2021; Upham et al., 2018). Building on the Multi-Level-Perspective (MLP) from Geels and Schot (2007), Bodenheimer and Dütschke (2021) differentiate five phases in the transition process and illustrate how relevant actors take on different roles through their activities within that process (see Figure 6). In the following we give examples of how citizens can shape the transition process through collective action, especially with regard to critiquing incumbent regime structures.

Figure 6

Integrated model of transition phases. Figure adapted from Bodenheimer and Dütschke (2021)



Identifying problems. In the beginning of the transition, citizens facing negative externalities of a car-dependent transport system start identifying car traffic as the root cause for problems they are affected by. For example, initiatives advocate for changes in road infrastructure through Low Emission Zones and bike lanes, highlighting the health risks posed by car-induced air pollution, especially to children and residents (Käthner, 2024; VCD, 2016). Similarly, cycling initiatives criticize the lack of safety of current road infrastructure and the risk that it poses for them. Through campaign work, these initiatives raise attention for car-centric transport systems as an issue, and help change perspectives and norms among society. Thus, citizens contribute to identifying problematic land use patterns and generate attention for the issue. Challenging existing assumptions and highlighting problems in the mobility sector is laying the ground for further regime destabilization.

Raising problem awareness. In the subsequent phase, citizen initiatives continue to raise awareness for the problems linked to car-dependent mobility practices. Furthermore, people involved in these initiatives serve as innovators as they test alternative solutions and thereby challenge predominant cultures of consumption through their own behavior. Firstly, they are themselves pioneers of a more sustainable mobility behavior, for example when using self-

organized cargo bike sharing for trips that were predominantly made by car (Becker & Rudolf, 2018). Another example for trying to change cultures of consumption in mobility, are self-organized so called “bike busses” for children’s school trips, accompanied by parents or teachers to ensure safety of the kids (Surico, 2023). Additionally, cycling initiatives might test “homemade solutions” (Bodenheimer & Dütschke, 2021, p. 12) by organizing temporary pop-up bike lanes as a form of protest to illustrate potential changes in land use patterns.

Creating alliances. In later stages of the transition, citizen initiatives are actively shaping narratives of change (Becker et al., 2020). They are creating a vision of an alternative mobility system in order to make their claims resonate with the broader public and create alliances with other actors in favor of transformative change. One example on the local level is the Changing Cities initiative (former “Volksentscheid Fahrrad”) in Berlin (Germany), which successfully advocated for better cycling infrastructure policies by initiating a referendum as a participatory legal instrument (Becker et al., 2020). They focused their campaign on an inclusive vision of a “livable city, open, safe and healthy for all” (Changing Cities, 2024). Citizen initiatives also take on the role of creating advocacy coalitions, especially on the national level to amplify voices and to gain more influence as a counterpoint to powerful regime actors like lobbyists of the car industry. One example in Germany is the “Union for a socially just mobility transition” (Bündnis sozialverträgliche Mobilitätswende, 2021), where several initiatives from civil society formed an alliance with labor unions to formulate a shared vision of a fair, sustainable mobility transition. The alliance outlined specific demands for policy makers, namely allocating more financial resources to actors willing to push the mobility transition and for policy makers to provide safe infrastructure for active travel modes. In their agenda setting and monitoring of proposed solutions, initiatives can stress the importance of exnovation policies in order to achieve substantial changes (Graaf et al., 2021).

These are some examples showing how an active civil society, and citizen initiatives in particular, assume multiple roles as innovators, early adopters and lobbyists in driving the

mobility transition. An active civil society is particularly important in changing cultures of consumption, criticizing land use patterns and demanding the implementation of exnovation policies (Frantzeskaki et al., 2018; Haas, 2020). Historical precedents in countries like the Netherlands and Denmark underscore the transformative impact of citizen-led collective action, as examples of citizen movements being crucial for a pushback against car culture in cities in the 1970s (Henderson & Gulsrud, 2019). In the following, we will delineate the psychological underpinnings of collective action participation. Understanding within-actor processes of the motivation to get engaged will in turn be helpful for fostering future action towards a sustainable mobility system.

4.3 Citizen engagement and collective action in social psychology

With its focus on individuals and groups, psychological research aims to explore within-actor processes shaping decisions and behavior. There has been a growing body of research within psychology on the political role of individuals, namely with regard to citizen engagement and collective action investigating which psychological processes predict whether people take up an active part in transformation processes (Bögel et al., 2023; Fritsche et al., 2018; Hampton & Whitmarsh, 2023; Rees & Bamberg, 2014; Sloot et al., 2019).

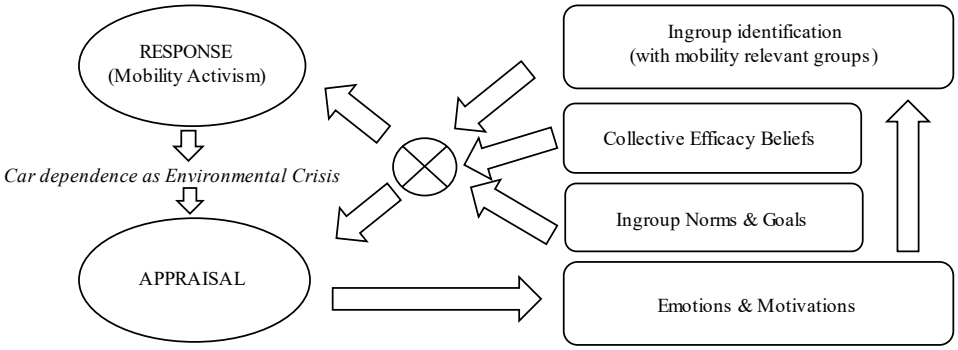
Social Identity Theory (SIT) is one prominent framework for studying social change and participation in collective action, conceptualizing the identification with various social groups as an integral part of the self (Tajfel & Turner, 1986). SIT emphasizes the importance of individuals thinking in terms of a 'we' to bring about social change aligned with the interest of their social identity (Schulte et al., 2020; Tajfel & Turner, 1986). Its origins lay in studying intergroup relations, specifically analyzing willingness of minority group members to collectively challenge an unjust status quo. According to SIT, an individual's likelihood to act in the interest of a group increases with their level of identification with that particular group. The appraisal of a given situation and the behavioral response to that situation are therefore not solely a personal assessment, but are shaped by shared norms, beliefs, goals, and emotions

within the relevant social group (Fritsche et al., 2018). In situations where affiliation to a social category is salient, individuals adopt the group's motives and goals as their own (Tajfel, 1982). SIT has informed various research areas, including work on collective environmental behavior and citizen engagement in grassroots movements (Fritsche et al., 2018; Schulte et al., 2020).

Several models have elaborated on the identity processes involved shaping the behavioral intention to partake in collective action (for an overview see Thomas et al. (2022)). One seminal model in the realm of pro-environmental (collective) action is the Social Identity Model of Pro-Environmental Action (SIMPEA) by Fritsche and colleagues (2018). It theorizes how the appraisal of and the behavioral response to an environmental crisis are shaped by social identity processes, namely identification with relevant groups, shared ingroup norms and goals and collective efficacy beliefs. Personal as well as shared emotions and motivations drive these social identity mechanisms. Ingroup identification involves self-definition as a member of a group and self-investment in that social category, relevant to one-self and the problem at hand (Leach et al., 2008). Ingroup norms and goals refer to shared rules of common behavior (descriptive norms) and expected behavior (injunctive norms) within a group as well as an agreement on what members of the group want to achieve together (Rees & Bamberg, 2014). Collective efficacy beliefs refer to the conviction that collective action can lead to the achievement of a common goal (Hamann & Reese, 2020), especially in areas where individuals may feel powerless to bring about change on their own (Fritsche et al., 2018). These processes are fueled by shared emotions (such as anger, a feeling of injustice or positive emotions such as pride in the group’s achievements; (Brügger et al., 2020; Landmann & Rohmann, 2020)), which arise from the appraisal of the crisis. Overall, the model suggests that stronger mechanisms of social identity lead to a higher likelihood of people engaging in collective action for the benefit of their social group (see Fig. 7).

Figure 7

Social Identity Model of Pro-Environmental Action (SIMPEA). Model applied to mobility activism. Figure adapted from Fritsche et al. (2018)



These social identity processes are well suited to analyze niche processes of early adopters or people engaged in grassroots initiatives, especially to investigate the within-actor behavioral antecedents. In the following chapter we take a systemic approach to these within-actor processes and illustrate how the two fields of transition studies and psychology could work together in order to gain a better understanding of the political role of citizens. In this synthesis, we highlight how characteristics of the car-dependent regime impact social identity processes and how jointly formulating research questions could help understand citizen involvement or the lack thereof.

4.4 Connecting the dots: interdependencies between collective action motivation and characteristics of the car-dependent regime

Seminal social psychological literature on collective action emphasizes the importance of social identity mechanisms for an individual's motivation to engage collectively. Whereas most models of collective action incorporate the social embeddedness of these kinds of behaviors by examining relevant in- and outgroups to understand collective action motivation, we argue for a broader systemic perspective (see Bou Zeineddine and Leach (2021) or Uluğ et al. (2022) for similar perspectives). This implies paying attention to the societal context the collective action is situated in and analyzing interactions between this systemic level and the

actions of the collective or the individuals forming the collective. The systemic level encompasses material, institutional and societal boundary conditions (Schmitt et al., 2020), as exemplified in the description of actor constellations and characteristics of the car-dependent regime in the second chapter. In the following, we exemplify some of these interdependencies that are relevant in explaining the (in-) action of civil society in the mobility transition, reflecting on how systemic characteristics of the car-centric regime potentially manifest in identity processes motivating collective action. We structure our arguments alongside key identity processes and present exemplary, interdisciplinary research questions at the end of each paragraph.

4.4.1 Complexity of car dependence as a crisis

Central to the complexity of the mobility transition lay the different spatial and temporal scales at which the issue unfolds, necessitating corresponding levels of problem solving. This echoes broader challenges inherent in sustainability transitions, where there is a discrepancy between the local impact of climate change and the global nature of this threat. Aron (2022) argues that for climate movements initiating action on a local level holds promise for two reasons: Firstly, a local, collective identity might be more salient and therefore motivate people to get involved in initiatives in their neighborhood. Secondly, change on a local level might be more tangible: the higher the governance level, the more difficult it gets for citizen engagement to have a direct impact because lobby ties and interest groups are often more pronounced on national levels (Aron, 2022). While the same could be argued for transport politics, the problem remains, that on these different spatial scales different administrative and governmental bodies are involved in the transport policy making and spatial planning processes. In Germany, local governments have limited authority to enact policy changes, as many of the legal regulations within whom changes can be made, are subject to decisions of federal or national ministries (Haas, 2020). Thus, while local engagement is arguably most promising from a motivational standpoint, the leverage points for significant changes might be at higher levels of decision

making and therefore requiring mobilization across municipalities and regions. This presents challenges especially for the strategic work of initiatives when thinking about whom they want to address as the responsible ‘opponent’ as well as for generating problem awareness in general. Whereas most citizen engagement happens locally (e.g., in cycling initiatives), the bulk of traffic volume stems from regional traffic (commuting distances) and rising CO2 emissions due to rising travel demand represent a global threat. Formulating a common agenda as an initiative can thus appear difficult, especially given the interconnected spatial scales and different temporalities of the transformation process.

Coming back to the phases of transition, outlined by Bodenheimer and Dütschke (2021), it becomes evident how communities across different spatial scales are at varying stages of the transition. While some urban centers, such as Berlin or Hanover for example, are actively implementing changes by redistributing street space to active travel modes, surrounding suburban and rural areas may lack awareness as to how and why a mobility transition should be of local relevance (Levin-Keitel & Ruhrort, 2022). This underscores the need for a highly context-sensitive form of mobilization, which again may conflict with efforts to coordinate action, even on a regional level, as initiatives would need to incorporate different roles depending on how far in the mobility transition process their community is.

4.4.2 Appraisal of the crisis and resulting group-based emotions

For individuals to decide to get involved in collective action, they have to evolve awareness of an issue, often spurred by a sense of personal affectedness. Given the decade-long manifestation of car dependence in infrastructure and mobility culture, it is difficult for citizens to isolate the damaging effects of cars and identify the linkages to policy making and economic decisions. To describe how car culture manifests in our thinking, Walker et al. (2023) introduce the concept of motornormativity and provide empirical evidence, how people are less strict regarding the violation of social norms when it comes to car driving than compared to other contexts such as smoking. Motornormativity poses a significant obstacle to advocating for

change to the mobility system, if, for example, health hazards originating from excessive car traffic are not recognized as consequences of the status quo of the mobility system. The negative externalities of car-dependent structures often materialize indirectly and result from a combination of different factors, which makes the attribution to car-dependent structures and practices as a root cause difficult. Miner et al. (2024) offer a systematic review of the different facets of car harm, delineating how the negative consequences of car travel range from direct harm (e.g., crashes and intentional violence) to forms of indirect violence like adverse health outcomes, heightened social injustice and long-term environmental damage. Urban dwellers may directly experience negative externalities of abundant car traffic such as air and noise pollution or scarcity of public space for recreational use. It is important to note that there are huge inequalities related to exposure to these externalities, highlighting the social justice dimension of a mobility transition (Miner et al., 2024; Sheller, 2018). In suburban and rural areas, the car-dependent land use patterns might, for example, lead to small, local businesses closing, unable to compete with cheaper malls in industrial zones in the outskirts of cities (Zibell et al., 2015). Nevertheless, some people choose to live in suburban areas accepting frequent car use as a part of a way of life that allows affordable housing and private green space (Wolday et al., 2018). Therefore, some residents, who can afford access to a private car, might not necessarily experience car dependence as problematic, as living in suburbia enables other needs (Pot et al., 2023).

According to Social Identity Theory, problem awareness emerges especially when a person's ingroup is affected. As Fritsche et al. (2018) propose in the SIMPEA, the appraisal of a crisis takes place against the backdrop of an individual's group membership. The emotional response to a given situation then is experienced as shared, group-based feelings of injustice or anger about how one's group is affected. Apart from the observation that due to entrenched car culture, people do not seem to react that strongly against injustices caused by the current mobility system, the question of arising group-based emotions also relates back to how groups

in the context of mobility tend to be loser or merely situationally salient. Mode of transport groups seem to be less central to an individual's self-concept (Allert & Reese, 2023; Murtagh et al., 2012). In order to foster group-based emotions of transport user groups some mobility initiatives highlight shared experiences of injustices, anger or sadness in their campaigns. The phenomenon of installing "ghost bikes" and performing vigils for victims of road accidents explicitly attempts to collectivize feelings of grief and underlines how some users (e.g., cyclists) are disproportionately at risk of road accidents (Balkmar & Summerton, 2017; Constantino et al., 2022). Likewise, online cycling activism commonly shares stories or video footage showcasing violation of traffic law by car drivers resulting in dangerous situations for cyclists, in order to illustrate how these instances are shared experiences of cyclists and therefore need to be addressed collectively. Research on cycling anger has however not explicitly addressed yet to what extent this anger is a collective experience and whether it relates to any action motivation in the group's interest (Oehl et al., 2019).

Moreover, eliciting group-based emotions is challenging, as the car industry heavily influences the emotional associations tied to transportation through marketing efforts (Gössling, 2017). For example, car manufacturers utilize fear to portray car travel as the only travel option allowing safety amidst an increasingly unstable world (Gössling, 2022). These emotions associated with different modes of transport permeate societal discourse (see Steg (2005) for car use; Spotswood et al. (2015) for cycling). Consequently, when cycling initiatives try to evoke an image of cycling as a fun mode of travel allowing flexibility and independence, they are competing with pre-existing shared emotions associated with other travel modes fueled by marketing efforts and media portrayals (Fevyer & Aldred, 2022). Additionally, cycling events by movements like Critical Mass or bicycle buses for children, often need protected spaces (e.g., police escort), thereby potentially re-evoking the emotional associations (safety concerns) they set out to change.

Building on this analysis, exemplary interdisciplinary research questions on the appraisal of car dependence as a problem and resulting emotional responses could include:

- How does motornormativity (e.g., in police reporting) affect emergence of problem awareness and group-based emotions vis-à-vis the status quo?
- How does perceived car dependence relate to transformative action and community participation? (e.g., relationship between automobility engagement (Gauer et al., 2022) and collective action intention?)
- What are the factors that make strategic campaigning of mobility initiatives appealing and (successful in) fostering group-based emotions?

4.4.3 Finding a common social identity

In both social psychological theory, such as Social Identity Theory, as well as in transition literature, exemplified by the Multi-Level-Perspective by Geels and Schot (2007), minority groups (niche actors) dissatisfied with the status quo initiate change by generating attention for an issue (Bögel et al., 2019; Bolderdijk & Jans, 2021; Newell et al., 2021). Whereas in some societal struggles it is more apparent who is negatively affected by the status quo, defining a minority group in the context of mobility is less straightforward. Various factors contribute to the challenge of establishing a shared social identity within transport protest movements. The pervasive nature of car dependence within our society can make it difficult for individuals to recognize their own exposure to the adverse consequences of car-centric infrastructure (Walker et al., 2023). Most obviously affected by a lack of safe infrastructure are cyclists, which is why many initiatives center on cyclists demanding changes to the mobility system and road infrastructure in particular. However, focusing exclusively on the group of cyclists may inadvertently exclude people not self-identifying with cyclists (Becker et al., 2020; Spotswood et al., 2015). Moreover, this focus on cyclists lends itself more to the urban context, as monomodal cyclists tend to be (even more) rare in rural areas and therefore identification

with the group tends to be lower there as well (Allert & Reese, 2023; Nobis & Kuhnimhof, 2018).

Although focusing on mode of transport-related social identities may seem intuitive, such identities are often only temporarily salient for most individuals and may not strongly correlate with behavioral motivations (Aron, 2022; Murtagh et al., 2012). In some cases, opposition to a distinct outgroup can foster a sense of community (Drury et al., 2003; Landmann & Rohmann, 2020). However, applying this approach to the context of mobility activism holds its difficulties as there is no clearly defined outgroup; A multitude of actors can be held responsible for the lack of safe alternatives to car driving so far, due to the path dependencies between politics and automotive industry highlighted earlier. Mobility initiatives therefore have to either try to juggle the complexity of actor constellations in their campaign work or focus their effort on one specific actor, such as their municipal leadership. The former approach risks being difficult to communicate in campaigns and therefore not necessarily a promising strategy to gain new allies, while the latter might limit effectiveness by neglecting other pertinent stakeholders involved in decision-making. So, the group conflict often deemed essential for stirring the debate on necessary changes is not as apparent. Aron (2022) argues, referring to climate activism in general, that movements need to link their issues to more salient collective identities in order to mobilize participation. Future research should thus explore the development of a salient superordinate identity for mobilizing efforts in mobility activism (see, for example, Becker et al. (2020) proposing a local identity as a promising avenue in the urban context of Berlin).

Building on this premise, we propose the following exemplary research questions on social identity formation within mobility activism:

- How does media depiction of actors involved in mobility and public resonance to mobility activism shape social identity formation?

- How does social identity formation work in a multi-actor problem like transport, where there is no apparent ingroup-outgroup division (as it is assumed for example in gender equality struggles)?
- How do initiatives navigate multiple group memberships when trying to get new members involved in mobility activism (e.g., especially in suburban areas, where people identify with different user groups)?
- What role does allyship between different movements and groups play in the context of mobility (see e.g., research on allies' participation in social change (Kutlaca et al., 2020))? What could a salient superordinate social identity facilitating these alliances be?

4.4.4 Developing ingroup norms and goals

Achieving a mobility transition necessitates widespread behavior change – both in the choices to travel less (avoid) as well as to switch to other modes of transport (shift) (Pawluk De-Toledo et al., 2022). While it is evident, that we need policy interventions to change land use patterns in order to enable individuals to change their mobility behavior, there has been a tendency to view travel behavior as a rational choice (see Javaid et al. (2020)), thereby individualizing mode choice and framing it as a matter of personal responsibility (Kębłowski et al., 2019; Reigner, 2016). This individualization of mode choice is mirrored in political discourse, particularly among liberal parties, who continue to argue for mode choice as an individual's choice not to be interfered with by political decisions (Henderson & Gulsrud, 2019). Consequently, regime actors have sought to sideline mobility and mobility behavior as an apolitical topic, thus not at heart of political struggles or subject to collective action demanding changes (Kębłowski et al., 2019; Mattioli et al., 2020). The rise of pop-up bike lanes and summer streets during the Covid pandemic thrust the topic at the forefront of political debates with conservative parties using car travel as a symbol of traditional values (Ortar, 2024; Wild et al., 2018). In Germany, established cycling initiatives like the German cycling

federation (ADFC) have predominantly functioned as political actors in urban areas, whereas in rural areas their focus has centered more on organizing biking tours, focusing on the recreational aspect of cycling (Schneidemesser, 2023). Building on the momentum generated by the cycling referendum in Berlin and strengthened by the growing climate movement, there has been a rise in civic action for a mobility transition, namely cycling referendums in cities across the country (Werschmöller et al., 2024). Nevertheless, there is considerable pushback against attempts to change the current mobility system precisely because mode choice is conceived as an individual choice, not to be interfered by others or political decisions (Wild et al., 2018). So on one hand, there is little normative pressure to get involved in activism concerning transport issues as it is predominantly seen as private sphere behavior. On the other hand, individuals experience strong injunctive norms of how they should travel or behave in order to align with activist movements' expectations (see Becker et al. (2020) on exclusionary norms and social representations of initiatives like ADFC or Spotswood et al. (2015) on social representations of cyclists). While these norms help reinforcing a sense of a common identity among members, it can feel exclusionary for others (which of course often is the case with strong ingroup norms).

When it comes to identifying common goals, the difficulty lies in breaking down the problem's complexity into tangible goals, which are easy to communicate within and beyond the group. The overarching goal of 'shifting away from a car-centric mobility system' remains vague, prompting movements to focus on specific actors (e.g., the initiative "Verkehrswendestadt" focusing on car manufacturer Volkswagen) or specific policies they want to see implemented. As highlighted above, this inevitably limits the scope of an initiative as it implies an emphasis on one level of engagement (e.g., locally or nationally). The path dependencies of the car-dependent mobility system therefore render the prioritizing in goal setting for initiatives very demanding (e.g., targeting car manufacturers to demand the electrification of their vehicle fleets, while legislation is still lagging behind, see debate on

combustion engine phase out). Additionally, while movements can advocate for new technologies or social-technical innovations (such as shared mobility services), the main imperative of the mobility transition lies in the discontinuation of unsustainable practices and dismantling privileges of the private car. This may pose challenges for initiatives in finding industry players as allies, as for the goals of avoiding trips and shifting to other transport modes, there are few industry players with a self-interest in these goals (Hoffmann et al., 2017). For comparison, in the energy transition providers of renewable energies join forces with civil society actors in order to campaign for a fossil fuel phase out as a common goal (Fuchs & Hinderer, 2014). As with transport, exnovation policies are key, a common goal formation might be more difficult.

Based on these analyses, we formulate the following exemplary research questions on goal-formation within mobility activism:

- In what way does exnovation as a goal in the mobility transition differ from innovation-driven movements when it comes to common goal formation?
- How does the stage of transition process and its specific actor constellation influence the common goal formation of a movement? To what extent is there a strategic temporality to targeting specific aspects of the car-dependent system in campaign work?
- How and to what extent is mobility and transport experienced as a politicized issue increasing normative pressure for citizen-led collective action?

4.4.5 Agency and collective efficacy beliefs

Furthermore, integrating the analysis of individuals' agency in their various roles with research on efficacy beliefs could enrich our comprehension of actors' reflexivity regarding their own agency. As highlighted in the second chapter, active members of the civil society can adopt a variety of different roles in the transition process. However, their willingness to partake in actions associated with these different roles, can be impeded by a lack of a sense of efficacy: For instance, early adopters of car sharing may feel a sense of powerlessness, if they have to

hold up their niche lifestyle ‘against all odds’, because the necessary institutionalization of the niche practice is not following behind. As in transition literature there has been an emphasis on technological innovations, less is known about the upscaling and institutionalization of niche behaviors from a user’s perspective (see Bögel et al. (2022), Bögel and Upham (2018) or Newell et al. (2021) on a more actor-centered perspective on upscaling).

Focusing on individuals as active citizens, their collective efficacy beliefs of bringing about change by engaging in mobility initiatives are also influenced by the broader political realm the initiative is advocating in. It can be challenging for initiatives to identify, where they can exert agency within the transport politics field with the different levels of decision-making involved. Many individuals refrain from engagement because they don’t know where to start and feel powerless vis-à-vis a complex problem (Bruckmann et al., 2022). Witnessing local authorities in Germany grappling with regulatory constraints imposed at the national level, such as limitations on setting inner-city speed limits, can be disheartening for citizen-led collective action and influence collective efficacy beliefs. The initiative of local municipalities “Livable cities through reasonable speeds” (“Lebenswerte Städte durch angemessene Geschwindigkeiten”) is an example of that: Close to a thousand local administrations have joined the initiative asking the national transport ministry to change the regulation so that local authorities would be allowed to decide on speed limits within their city (Lebenswerte Städte, 2024). Whereas some recent changes in national legislation are giving local authorities more possibilities to decide on infrastructure provision, cities still cannot decide on city-wide speed limits (Dienberg, 2024). This illustrates how the federal system can be an obstacle in the transition process, with the interdependence of decisions on municipal, federal and national level making legislative changes time-intensive (Bandelow & Schröder, 2023). Experiencing these lock-in mechanisms in transport policy underscores the difficulties when engaging with the mobility transition and possibly affects perceived efficacy of collective action, especially for local civic engagement (Carvacho et al., 2023). While SIT argues that it is precisely these

conditions, which may drive individuals to turn to collectives in order to regain a sense of control and power, we argue that it is important to integrate a systemic perspective to contextualize the development of (collective) efficacy beliefs (see Bou Zeineddine and Leach (2021) for a systems perspective on collective action). To better understand within-actor motivational processes, focusing on the influence of systemic boundary conditions on participatory efficacy beliefs (i.e., the sense of one's own contribution to the movement's success), would be most important (Hamann & Reese, 2020). One fruitful avenue for future research could be to explore how individuals engaged in mobility initiatives adapt their efficacy beliefs in response to changes in actor constellations or advances or set-backs by allies in different roles.

Bodenheimer and Dütschke (2021) define agency as a "combination of an actor's interest and resources" (Bodenheimer & Dütschke, 2021, p. 1). When reflecting on their own role and available resources, we argue individuals incorporate these reflections in their efficacy beliefs. We therefore propose the following questions to start an interdisciplinary analysis of efficacy beliefs in mobility activism:

- How and to what extent do people update their efficacy beliefs following changes in actor constellations?
- How and to what extent do efficacy beliefs differ on different levels of engagement (locally, regionally, and nationally)?
- How and to what extent do decisions in the different administrative bodies and on different spatial scales affect (participatory) efficacy beliefs and changes in group-based emotions?

4.5 Discussion

In this article, we have theorized how key features of the car-dependent regime influence individual cognition, motivation and behavior, focusing specifically on citizen activism in the mobility transition in Germany. We exemplified interdependencies, structuring our arguments

alongside the components of the SIMPEA as an established model of pro-environmental (collective) action. Our analysis explored how these social identity processes are shaped by actor constellations and material conditions of the car-dependent regime, which, in turn, might affect collective action motivation. Failing to consider these broader dynamics risks drawing misleading conclusions, particularly regarding interventions aimed at increasing engagement in collective action. By formulating exemplary research questions, we aimed to outline fruitful avenues for future, interdisciplinary research with the goal of achieving a more comprehensive understanding of civic (in-) action in the mobility transition. This paper contributes to an interdisciplinary discussion on the role of collective action in the mobility transition by conceptually analyzing linkages between intraindividual processes and systemic conditions.

However, we want to acknowledge some shortcomings of this paper: We propose ways in which characteristics of the car-dependent transport system impact motivational processes for collective action participation. However, strong empirical evidence for these proposed interactions is still missing as there is little empirical work on mobility activism to date, especially few studies combining a psychological perspective with a broader systems approach. Future research should delve deeper into this intersection to generate more robust findings. Overall, we view our analyses as a proposal to encourage interdisciplinary dialogue between social and environmental psychology, transition studies and sociological research on collective action as a driver of change in the mobility transition. Whereas this paper focuses on the specificities of the mobility system, future research should investigate to what extent there are lessons to be learnt from collective action in the energy transition, when it comes to, for example, navigating diverging responsibilities of different political authorities. Within the mobility sector we discussed road passenger transport exclusively; Future research could extend the analysis looking at the uptake of activism targeting air travel (for example, by activist groups such as Extinction Rebellion) to assess whether a broader critique of carbon-intensive travel practices is more successful in mobilizing people for action.

Furthermore, it is important to acknowledge epistemic differences between transition studies and psychological research, which may present challenges in jointly researching collective action within the mobility transition. Psychological research seeks to understand within-actor processes and their interaction in detail. Central to psychological research thus is a rigorous testing of theories of behavioral antecedents aiming to draw causal inferences about how these factors interact. This ultimately enables researchers to design interventions leading to a desired behavior change. This rigorous testing, especially when trying to identify causal links in experimental designs, requires a reduction of complexity through controlling confounding factors, a practice often criticized to lead to a de-contextualization of the studied behavior (for critical discussion see, for example, Adams et al. (2019), Uluğ et al. (2022), Shove (2010)).

So how does this approach align with the systemic perspective of transition studies, which stresses path dependencies inherent in the Multi-Level-Perspective? Recent years have shown an uptake of work proposing ways on how to incorporate this multi-level thinking in psychological theory and vice versa (Bögel & Upham, 2018; Hamann et al., 2023; Hofmann, 2023). A challenge for the integration from the point of view of behavioral science and psychology is to overcome seeing systemic factors merely as a boundary condition in empirical work (e.g., finding consideration through an individual's sense of low behavioral control). Acknowledging the embeddedness of behavior in material and social context is something sociological approaches such as practice theory are better suited to do, as it conceptualizes context (e.g., 'materials' in practice theory) as part of the occurring behavior (Shove, 2022). One potential step for the integration in psychological work could be to investigate how individuals perceive systemic factors like, for example, different regime actors and their role in order to see whether these actor constellations are mirrored in a subjective experience of interdependencies. This however assumes a high degree of conscious reflexivity, potentially overestimating the rationality of individual actors when assuming that this reflexivity then in

turn influences behavioral choices. Another methodological approach could entail collecting multi-level data in nested study designs, allowing to assess factors on individual as well as municipal or national level.

Transition research, on the other hand, might struggle with incorporating this small-scale unit of analysis and the relevance of within-actor processes in its transition models. Despite efforts to conceptualize individual agency and integrate an individual level into the Multi-Level-Perspective (Geels, 2020; Göpel, 2016; Upham et al., 2020), investigating motivational antecedents of behavior of individual actors in transition processes has received little attention in transition research so far (see, for example, Bögel et al. (2023) or Hornung et al. (2019) for exceptions). Methodologically, there is a need for more longitudinal studies to reflect on how within-actor processes and individual actions then influence actor constellations and the transition process in turn (Becker et al., 2020; Morselli et al., 2021). This empirical exploration can underscore how understanding the decisions and actions of individual and collective actors ultimately helps to understand turning points in transition processes.

Specifically focusing on the intersection between intraindividual processes of collective action motivation and the systemic conditions the behavior is embedded in opens up novel avenues for research. With this conceptual paper, we illustrate how an interdisciplinary approach provides a better understanding of blind spots in research on collective action in the mobility transition so far. We argue that this integrated perspective is well suited to explain obstacles to mobility activism or more broadly why the car-dependent regime has rarely been at the forefront of environmental protests so far. As highlighted above, an active civil society pressuring for exnovation policies on the local and national level is an important actor in destabilizing the current car-dependent regime. Understanding how intraindividual processes develop within the systemic boundary conditions of that car-dependent regime thus can inform research on citizens as political actors in the mobility transition. Especially when investigating transformative action of individuals, we argue that psychological approaches benefit from a

systemic approach to prevent pitfalls of simplistic conclusions often criticized by other disciplines (Shove, 2010).

4.6 Conclusion

In this paper, we argue that an improved understanding of the interplay of psychological processes of collective action motivation and socio-technical system features can improve our understanding of what hinders large-scale active engagement of citizens in the mobility transition so far. We analyzed how the characteristics of the car-dependent mobility regime influence social identity processes underlying collective action aiming at destabilizing the car-dependent regime. Through these conceptual considerations, we aimed to outline how psychological research can inform the study of within-actor processes by adopting a systems approach. Furthermore, this integrated approach allows tailoring relevant research questions, which could inform both future research on collective action motivation as well as the theorizing of exnovation processes in transport. The complexities of the mobility transition become more and more visible, with increasing backlash against transformative policies on all governance levels. Citizens represent an important actor pressuring for and supporting radical policy change, which allows society to transition from a car-centric mobility system to an environmentally sustainable and socially just one. Understanding why and when citizens take up an active part in the transition process therefore is crucial, however only possible by jointly researching the interplay of systemic conditions and individual motivation and cognition.

Chapter 5: Local citizen assemblies as a way to overcome resistance to the mobility transition? – Analyzing discourses in a municipality in rural Germany

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Abstract

Policy changes in the mobility transition will only be possible with public support for shifting mobility cultures and the necessary lifestyle changes. In order to involve citizens actively in the envisioning and design of transport policy, deliberative formats such as local citizen assemblies are considered a promising tool. In this article, I discuss the results of a deliberation and envisioning process for sustainable mobility in a rural community in Germany. Whereas the citizen assembly crafted an overall positive vision of a local mobility transition emphasizing co-benefits such as improved public spaces, the deliberative process was marked by discourses delaying concrete action that allows to achieve that vision at the same time. Specifically, discourses framing mode choice as an individual responsibility or the pursuit of a perfect alternative to private car use emerged as significant barriers to discussing sustainable mobility as a local issue. This suggests that public discourses of delaying climate action manifest in local debates and are referenced by citizens to argument against changes to the mobility system. We argue that disentangling popular discourses of delaying policy action from local concerns is a key task for meaningful citizen involvement in the mobility transition. Participants demonstrated strong interest in engaging with the topic and were proud to have their perspectives considered. These findings suggest that well-designed participatory processes can play a crucial role in fostering public support for mobility transitions by emphasizing local relevance and enabling discussions on context-specific mobility solutions.

Keywords: citizen assembly, rural mobility, collective envisioning, discourses of delay, public support

5.1 Introduction

Whereas the mobility transition gained momentum in urban areas in recent years, suburban and rural areas often remain highly car-dependent. With lower population density and dispersed spatial structures having access to a private car often is a precondition to social participation in remote areas (Vitale Brovarone & Cotella, 2020). Meeting the mobility needs of children, adolescents or elderly people without access to a private car is particularly challenging and requires different policy responses than classic public transport provision in urban areas (Ahlmeyer & Wittowsky, 2018). With regard to sustainable transport policies, residents of rural areas tend to perceive those as unfair and not compatible with their daily routines (Heiskanen et al., 2024). Already in transport debates in urban areas (for example, on expansion of cycling networks or the 15-minute-city-debate) backlash often stems from the surrounding suburbia expressing an anti-urban lifestyle sentiment (Marquet et al., 2025; Wild et al., 2018). As mobility practices are strongly embedded in social norms and lifestyle choices, changing mobility culture can be difficult and necessary policy changes contested (Bamberg et al., 2020; Mehdizadeh et al., 2024). This is not only regarding the attitudes of citizens to a mobility transition but also observable among elected officials, who tend to disagree on how to implement the mobility transition in a way that improves accessibility (Levin-Keitel & Ruhrort, 2022; Ortar et al., 2024). The question of how communities can improve rural accessibility while reducing reliance on private cars for most trips thus is crucial.

Deliberative formats allowing active participation of citizens are considered a promising tool to ensure socially just transition processes (Verfuerth et al., 2023). Citizen assemblies are one common form of deliberation, where a mini-public comes together to discuss in-depth an issue of public concern (Reuchamps et al., 2023). These mini-publics allow the representation of a range of different viewpoints and often include an educational aspect as well, as citizens get the opportunity to engage with different experts on the topic (Curato et al., 2021). We have seen an uptake of citizen assemblies in recent years, discussing the implications and policy

responses to climate change on different scales ranging from national assemblies, like in France and Ireland, to smaller local or regional ones. Whereas the widespread application of citizen assemblies still is a relatively recent phenomenon, initial results suggest positive experiences for participants of these formats: Deliberation seems to be especially effective in countering political alienation and increasing a sense of collective efficacy in face of complex problems such as the climate crisis (Kirby et al., 2021; Wappenhans et al., 2024). The increased sense of agency can furthermore lead to the experience of more positive emotions like hopefulness and optimism in regard to a collective response to the climate crisis (Andrews, 2022). Deliberative formats can differ with regard to the specific goals they aim to achieve – from engaging in the collective envisioning of the future to voting on concrete policy suggestions (Cherry et al., 2021). Imagining a collective future can also have implications for present-day attitudes and behaviors regarding social change (Bain et al., 2013) and can therefore help making required change seem more tangible. In regard to transition processes, these formats anchor transition agendas within a local public and can increase the acceptance of proposed ambitious policies (Muradova et al., 2020). Perceived fairness, including procedural fairness (i.e., the perception of the decision-making process as transparent and fair), is an important predictor of policy acceptance (Grelle & Hofmann, 2023), which is why participatory processes can be beneficial.

However, discussions in deliberative forums can be hindered by narratives rejecting an urgency to change the status quo (Cherry et al., 2024; Sonnberger et al., 2024). Whereas there is widespread consensus in the public on the increasing danger of manmade climate change, a new pattern of narratives delaying climate action has emerged. These narratives are put forward to justify unsustainable practices and to avoid transformative action by redirecting responsibility or rejecting the scale and urgency of the problem (Lamb et al., 2020). While these discourses of delay have mostly been analyzed within political discourse, they manifest within wider public discourse, impeding public support for climate action (Cherry et al., 2024). In the

realm of transport, different narratives emerge as opposition to expanding infrastructure for alternative travel modes, especially against transport policies redistributing street space and restricting car use. Criticisms include fear of increasing congestion, detrimental effects on local businesses, fear of gentrification dynamics or the loss of individual (automotive) freedom (Egan & Caulfield, 2024; Marquet et al., 2024; Wild et al., 2018). Using the example of the 15-minute-city debate, Marquet et al. (2025) illustrate how important it is to disentangle conspiracy theories opposing these projects from legitimate concerns of residents, which often get mixed up in the public debate. The dominance of extremist positions in the public debate, amplified by social media discussions, can have a negative impact on planning processes and on developing a joint future vision.

Most studies on discourse around sustainable mobility policies are centered on urban areas this far (Aldred, 2019; Marquet et al., 2025). The aim of the following study was to investigate debates on sustainable mobility in rural Germany and to analyze what topics and reoccurring narratives shape local discussions on the future of mobility in communities characterized by car-dependent lifestyles.

5.2 Methods

5.2.1 Project description

The citizen assembly was conducted as part of a two-year real-world laboratory "mobil ans #werk" in a suburban municipality[2] in the North of Germany. The project was a transdisciplinary cooperation between the municipal authorities, an urban planning agency and a team of researchers. Over the course of two years, different participatory approaches took place in the municipality with the aim of jointly developing solutions for a local mobility transition, tackling both local mobility culture as well as infrastructural problems. The project consisted of a myriad of events, targeting different stakeholders: There was a workshop series

[2] While the spatial structures and connectivity to the rail network and the next big urban center of Hanover could classify the municipality as suburban, we refer to it in the following as a rural community as the inhabitants self-identified strongly with rural life and the rural community.

with local businesses on corporate mobility management, interactive design of mobility hubs with citizens of the different districts, an excursion to the city of Utrecht to learn about best-practice examples for members of the local authorities and the ‘summer of mobility’, a two-month program of activities related to mobility.

The citizen assembly took place over the course of five months, January to May 2024 with the aim of allowing in-depth discussions with citizens of the municipality to create a joint vision of how they think sustainable mobility should look like on a local level. The registration office provided 200 addresses at random of the inhabitants of the municipality and citizens received an invitation to sign up for the citizen assembly three months prior to the first scheduled meeting. Fourteen participants out of the seven settlements of the municipality signed up to participate, aged from 17 to 72 years old. Additionally to the citizens, representatives of local civil society organizations or unions were invited to participate from the second session onwards to bring the perspective of their organizations to the table (“expert group”).

The municipality of Burgwedel is a small town (~ 20.000 inhabitants) located in the outskirts of the Hanover region in Northern Germany. It is located at about 20 km distance from Hanover in Lower Saxony and consists of seven settlements, differing considerably in size and available (transport) infrastructure. The municipality itself is a prosperous city with important agricultural activities as well as striving businesses, hosting the headquarters of medium-sized companies. Concerning transport infrastructure, the city profits from a good access to the regional road network but while it does have access to the rail network too, the train station is inconveniently located in between the two biggest settlements and it is only served hourly. The spatial structure and a considerable share of employees commuting into the city lead to a high percentage of car use in the municipality and car-dependent mobility patterns (Krasilnikova & Levin-Keitel, 2022).

5.2.2 Structure of the citizen assembly meetings

The urban planning agency set out the overall structure of the process based on the *appreciative inquiry* method by Cooperrider and Whitney (2005). Appreciative Inquiry is a collaborative, strength-based approach that focuses on positive potential and future visions and that had been used in previous participatory processes led by the urban planning agency. The method was applied across five structured sessions, with each session designed to foster participatory engagement and collective vision-building. The sessions were loosely based on the 5-D concept of appreciative inquiry: defining the topic, discovering aspects of it, dreaming about the vision, designing specific characteristics of the vision and delivering concrete ideas and pathways for implementation. The sessions were structured to progressively build upon each other, with participants engaging in various activities and group discussions aimed at co-creating a shared vision for the future of mobility in their community. Table A8 in the appendix outlines the structure of each session, including the topics covered, the inputs given and the participatory methods employed. Each session consisted of an introductory part, including short presentations by experts on different aspects of a local mobility transition, and a participatory part with different activities in the second half of the meeting. The sessions took place monthly from January 2024 to May 2024 in different districts of the municipality.

5.2.3 Data collection

The citizen assembly was conducted over a period of five months, involving monthly meetings. Each of the five session was audio-recorded after obtaining informed consent from all participants prior to recording. The recorded sessions were transcribed in verbatim using the NoScribe software. To ensure accuracy, each transcript was reviewed and cross-checked by the researchers against the original recordings. The recordings were supplemented by detailed observational notes taken during each session to contextualize non-verbal communication and group dynamics. Additionally, materials, which were created during the sessions such as, for example, individual written scenarios, were included in the analysis.

5.2.4 Methods applied

A thematic analysis was conducted using the MaxQDA software and thematic codes were generated inductively from the dataset. In an iterative process, codes were structured and grouped to identify thematic patterns. Codes differed in their level of abstraction, with some summarizing the content of the discussions, and some identifying the arguments used against changes to local transport politics as reoccurring discourses of delay.

5.3 Results

5.3.1 Shared vision for future of mobility in the community

Overarching topics and issues emerged over the course of the citizen assembly, which were summed up in a shared vision of the future of mobility in 2035 as a main result (see list of ten aspects characterizing the shared vision in Table 7). The shared vision was mainly developed based on individual scenarios written by the participants and the following joint discussions in the final two sessions. This section briefly summarizes the characteristics and recurring themes of the final shared vision as well as the individual scenarios. The shared vision was framed as a best-case scenario of “This is how mobility in our community looks like in 2035”. It entailed ten defining characteristics as a result of the citizen assembly, which were presented to local politicians after the conclusion of the process. Participants emphasized the critical role of a well-functioning and flexible public transport system (see point 4 & 5 of the future vision) and focused on the social aspects of mobility and change processes (points 1, 2, 8, 9). Additionally, they encouraged individuals and local authorities to challenge established habits (points 6,7) and called upon the responsibility of all citizens as well as local businesses to contribute to a shift in local mobility culture (points 3, 10).

Table 7

Shared vision of how mobility should look like in the municipality in 2035

	Goal	Description
1	Dialogue as key for change	In Burgwedel, there is a broad dialogue on changing mobility: we are initiating changes together and many new, flexible mobility options are being introduced.
2	Citizen assembly as important forum	The mobility forum provides a valuable framework in which all people from Burgwedel can express their opinions to politicians, make their voices heard and discuss issues with others.
3	Importance of daily behavior for making change happen	The participants told their friends and colleagues about changes they made and conveyed the message that everyone can make a contribution: More and more people have now become aware how everyone contributes with their everyday actions.
4	Flexible mobility options for all	The central aim of the mobility options in Burgwedel is to enable flexible mobility for all, and to communicate the different offers well with everyone in town. A wide range of digital tools are available for achieving this.
5	Public transport instead of private car	There are therefore no longer any situations in Burgwedel, where travelling by car is the only option. The railway station and public transport now form the backbone of local mobility.
6	Courage to try new options	The key for change lies in embracing alternatives and having the courage to try out new mobility options. Everyone in the community checks their mobility behavior from time to time. The main responsibility lies with each and every individual. Everyone is rethinking their behavior - all people in Burgwedel are called upon to help improve local mobility.
7	experiment/ try out pop-up solutions	Opportunities are offered and then used to experiment and try something different. This opens up new perspectives time and again. During temporary experiments, local developments were closely observed and documented as to how the situation changed for affected locations and groups.
8	listen to disadvantaged groups	When making infrastructural changes, special consideration was given to residential areas and vulnerable groups such as children, adolescents and the elderly: Their safety is very important. To ensure this, all local groups are listened to even more closely and people previously underrepresented are given a voice.
9	attractive public space for all	Everyone benefited from the changes: new public spaces were created for people to meet, which improved social cohesion and a sense of community.
10	commuting to Burgwedel is fun	Local businesses also continue to play a major role in mobility in Burgwedel: people get to and back from work easily and sustainably.

Public transport provision

With most distances travelled between the different municipal districts as well as to the closest urban center, a reliant and flexible public transport system was considered crucial in order to reduce car use in the municipality. The currently poor public transport provision came up most frequently as a source of dissatisfaction and explanation why residents felt they have no viable alternative to their car. In their future scenarios, participants expressed a desire for more frequent public transport services (especially for the commutes to the nearby urban center) as well as more flexible options. App-based, on-demand services that could offer tailored routes were seen as the most promising solution, with participants emphasizing the need to maintain non-smartphone booking options to include older adults. In the joint vision, a flexible public transport formed the backbone of a transformed local mobility system. Individual scenarios, even more so than the joint vision, emphasized a highly digitalized transport system, including autonomous vehicles and digitalized delivery systems.

Mobility transition as a joint project

Another reoccurring topic were the different social dimensions of the mobility transition. Participants expressed a strong desire for the process to be socially just, particularly with respect to elderly people. They underscored the importance of fostering dialogue among citizens and different transport users to promote perspective-taking and mutual respect, as the current discourse on mobility was perceived as contentious. In their shared vision, the participants emphasized dialogue as the most crucial element when redesigning mobility and discussing transport policies. They advocated for the citizen assembly to be established as a permanent platform of exchange between the local authorities and the citizens, providing space to express concerns or propose solutions. Emphasis was placed on ensuring social justice in mobility by integrating disadvantaged groups into the conversation and amplifying the voices of vulnerable road users, like elderly people, individuals with disabilities and children.

Interestingly, during the sessions, this argument was sometimes also used as an argument against change, fearing a restriction of car use could exclude elderly people. The future scenario also emphasized how a shift to more sustainable travel options could yield co-benefits, such as creating public spaces, where citizens could gather, relax and interact. This was put forward as the primary driver for change as it would enhance community involvement and revitalize empty public spaces into spaces of connection.

Courage for change

Participants emphasized the need to break entrenched habits and build courage to explore new options for a change in local mobility culture. They referred mostly to their own mode choice and those of their fellow citizens, stressing the individual responsibility to reflect on personal mobility behavior. Participants perceived a mistrust in alternatives (alternative modes seen as less reliant and less comfortable) as well as strong car use habits as main obstacles. In the individual scenarios being courageous was also formulated as a personal goal, for example, having the courage to get rid of the second car in the family. In order to facilitate the disruption of habits, participants called for the local authorities to be more courageous by experimenting with temporary solutions, which would allow a dynamic response to changing travel needs. This entailed also a critique of what participants perceived to be a rusty administration with long and bureaucratic decision-making processes leaving little room for experimentation.

Agents of change

Two characteristics of the shared vision addressed the question of who will and should help drive change. The participants emphasized how everyone can contribute to the changing local mobility patterns by adopting new behaviors. Being vocal about one's own decision to switch to other transport modes should also help shift social norms around mode choice within the municipality as well as increase citizens' sense of efficacy of playing an active part in the

transition. Local businesses, influential in shaping traffic patterns due to significant commuter flows, were specifically identified as key agents of change. Individual scenarios highlighted the importance of employer-supported mobility solutions, such as subsidized bus shuttles from the train station to the industrial areas or public transport ticket schemes.

Overall, what participants agreed upon in the shared vision for 2035, reflects an openness for change and a positive outlook on what a mobility transition entails. It encompasses social justice dimensions such as improved public spaces, the consideration of vulnerable road users as well as a call to establish long-term participatory formats like the citizen assembly. A flexible and frequent public transport system alongside the offer of different mobility options is central to the imagination of sustainable mobility in a rural setting. While safe and enhanced cycling infrastructure was consistently mentioned throughout the discussions and individual scenarios, it did not feature as a separate characteristic in the final shared vision.

5.3.2 Discourses delaying action

Whereas what the participants agreed upon in the shared vision, as illustrated in the previous section, points to an openness to changes in local mobility, participants consistently brought up obstacles for change throughout the assembly sessions. The arguments put forward, while at times specific to the local context, reflected broader societal discourses often brought forward against climate action in general (see Lamb et al. (2020) or Cherry et al. (2024)). We identified eight narratives (see Table 8 for overview), which were more or less overtly employed as justifications for a lack of action in transforming mobility. Their reoccurrence meant that conversations risked to divert away from solution-oriented discussions, thereby impacting the scope and focus of the assembly and highlighting an ambivalence towards the mobility transition. Table 8 provides an overview of the different narratives with short descriptions and illustrative quotes by participants drawn from the session transcripts.

Why change is impossible

Two main narratives emerged as reasonings why change in mobility in the municipality was not deemed possible. The first narrative, *change is impossible here*, mostly referred to how, both for infrastructural as well as for more implicit reasons like social norms around mode choice, rural areas are and always will be car-dependent. This was mostly mentioned in order to negate the mobility transition as an issue of local relevance. A similar narrative was identified by Lamb et al. (2020), where change is deemed impossible as it is perceived as being opposed to people's current lifestyles. Car use was perceived as part of rural life by participants and therefore not subject to change. Participants expressed mixed feelings regarding electric vehicles with some seeing them as a viable alternative and some critiquing them as expensive or unreliable.

The second narrative, *change is too expensive*, dismissed proposed solutions (such as a better public transport provision) as unrealistic due to expected high costs. This argument aimed at undermining the perceived feasibility of a local mobility transition. Especially in a setting aiming at creating a joint future vision, this emphasis on economic downsides interrupted a collective envisioning that put transport needs first. This discourse is also prevalent in debates among politicians, which is detrimental to transition processes, as it diminishes the social and financial costs of inaction and portrays policy measures for sustainability as something for an (urban) elite.

Why I won't change

This cluster of narratives was mostly brought up as individual justifications to a perceived call to individual behavior change by the participants of the assembly. The first one, *mode choice as a personal decision*, directly reflects the individualism discourse identified by Lamb et al. (2020), reflecting the neo-liberal definition of mobility as a personal choice and personal responsibility. Participants mostly highlighted the importance of having freedom to choose one's mode of transport to preserve the freedom to still use their car, perceiving the

provision of alternatives as a threat to that choice. This discourse undermines the legitimacy of mobility as a subject to public debate. Consequently, it circumvents the imagination of conditions under which individual behavior change would be easier, which was the premise of the citizen assembly.

The second, *there are no other options*, was presented to signal willingness to change, if only the right alternatives were available. This was a very prominent discourse to justify one's own and other inhabitant's reliance on the private car. While this is a sensible claim for some trips or situations, it turned into a delay strategy as it was used by some participants to end discussions on what alternatives would be desirable to fulfill local mobility needs. Arguments summarized with this code were similar to the 'policy perfectionism' discourse by Lamb et al. (2020), as participants felt like achieving a level of connectivity comparable to urban areas was a prerequisite for changing their mobility behavior.

The third narrative, *being too busy for change*, presented the lack of time and cognitive resources as a barrier to investigating (existing) alternative travel options. It also reflected social norms surrounding what is important in life and indicated a low prioritization of sustainable lifestyles for the participants. The phrase of 'time is money' therefore was used as a way to bypass considerations of the consequences of one's own mobility behavior.

The last narrative, *there has to be a mind shift first*, combined several reasonings to avoid change in own mobility patterns but also to delay policy changes in the municipality. It tried to evoke both temporal distance (in the sense of "unless there is change in the minds of people, nothing happens") as well as redirect the responsibility to others, who haven't understood the urgency so far in contrast to the participants present in the assembly. What exactly constitutes this mind shift was left undefined, making this an argument participants agreed upon easily, but which fell short of actually engaging with doubts or worries about what a mobility transition entails.

While these narratives were mostly used to defend own mobility habits, they were also mentioned as a justification for local mobility culture undermining personal as well as collective agency to move away from the reliance on car travel. This was in contrast to the importance of everyday behavior contributing to wider systemic change, which participants highlighted in the shared vision.

Why change is too risky

The first narrative, *it will exclude people from society*, mentioned concerns that challenging the status quo could lead to social exclusion of people. This was especially raised as a concern regarding people with disabilities or elderly people, who were seen as not being able to use app-based mobility options. In transport research however, these are precisely the groups considered to be at risk of transport poverty if no alternatives to the private car are provided (Lucas, 2009; Rozynek & Lanzendorf, 2023).

The second narrative, *cycling is too dangerous*, focused on both personal as well as practical barriers to picking up cycling. Participants noted that many people, especially children, lacked the necessary skills, portraying cycling as an especially risky mode of transport. This argument was used by participants to stress how it would be unethical to push for a shift to more cycling. Additionally, it served as a critique of recent infrastructure improvements by the municipality aimed at promoting cycling, reinforcing the "there are no other options" discourse by deeming existing alternatives unsafe.

These two narratives portrayed a change to the status quo as undesirable and with potentially dangerous or unforeseen consequences. This undermined the collective ability to view transitions as an opportunity to improve the status quo — an outlook that many participants initially expressed as their motivation for engaging in the citizen assembly on mobility.

Table 8

Summary of the nine narratives arguing against change with descriptors of each category and an illustrative quote from the discussions.

Narrative	Description	Illustrative Quote
Why change is impossible		
Change is impossible here	People rely on cars here, so a mobility transition is only something for urban areas.	"All of us sitting here, however, live in a more or less large village. [...] But we are supposed to discuss mobility concepts here that are based on completely different preconditions."
It's too expensive	We can't afford any infrastructural changes, so they are not worth talking about.	"And all the ideas here about strengthening public transport cannot be financed. I say that quite frankly. We also have to be realistic."
Why I won't change		
Mode choice is a personal decision	We don't want any restrictions on our choices and any policy undermines our autonomy.	"I don't want to lose my own mobility with such concepts. I want to be able to decide for myself, even in four, five, ten and maybe even 20 years' time, that I can and may still drive my own car."
There are no other options than the private car	The private car is the best of all transport modes. The alternatives are non-existent or not convenient for my lifestyle.	"Cycling is okay if you are well experienced. But if you rely on public transport, then you don't have a chance here in Burgwedel."
I'm too busy to change	I don't have time to think about other mobility options or risk disrupting my routines.	"I can't start two hours earlier from home or wait two hours somewhere. I absolutely understand the approach, I'm with you too, but to try it out and then stand somewhere for an hour or two, eats up my time too."
There has to be a cultural shift first	We have to wait for people to change their minds first.	"You can build the coolest cycle paths, you can offer the best connections, but if people don't make up their minds and don't rethink things a bit, then we don't need to try anything."

Why change is too risky		
It will exclude people from society	People, especially the elderly, won't be able to get around town anymore.	"Three days ago, a senior citizen, who is now 82 and lives in [district], is a neighbor of mine. Her car is broken, she still drives regularly. And she now had to go to [other district] for pedicure. And that wasn't possible without a car."
Cycling is too dangerous	We can't ask people to switch to bikes because it is unsafe.	"But I know, for example, that my sister says she doesn't send her child to [district] by bike, even though it's probably only 1500 meters to the primary school. You have to imagine that parents don't actually let their children cycle this short distance. And here, to come back to the roundabout, I already find it life-threatening as an adult cyclist."

5.4 Discussion

Using the example of a citizen assembly on mobility in a rural town, this paper highlights the ambivalence of citizens towards sustainable mobility and what necessary changes entail for the local community. In this case study, a general openness for changing local mobility culture was paralleled with different narratives delaying concrete mobility solutions. The contrast of the overall positive vision, which was fixed as a result of the process, and the occurrence of discourses of delay within the group discussions points to a common problem within the mobility transition: While people agree on the abstract notion of change, there is resistance when it comes to challenging privileges of the private car and required lifestyle changes (Mehdizadeh et al., 2024). In future participatory formats, explicitly addressing common discourses delaying transition processes (e.g., by addressing the common belief that a transition is possible without lifestyle changes) can thus be beneficial.

The local citizen assembly succeeded in drafting a shared vision for the future of mobility in their municipality, highlighting inclusivity, dialogue and a diverse and flexible offer of transport choices as key features. It paints an overall positive picture of change with co-benefits for the local community, like improved public spaces, and empowers citizens to jointly take action through engaging in conversations with friends or family and changing social norms of mobility through their own behavior. Referring to the final two steps outlined in the appreciative inquiry process (‘design’ and ‘deliver’), the shared vision reveals certain limitations, as there are few points on how to translate the characteristics of the vision into tangible action. The continuation of the citizen assembly as a forum for discussions on problems and proposed solutions and the call for more temporary pop-up solutions are the only concrete recommendations, that can be derived from the shared vision. This outcome can certainly be attributed to the design and set-up of the process itself. The assembly’s primary objective was not to produce specific policy recommendations for local authorities but rather to take a step back and foster a collective vision of local sustainable mobility. Nevertheless, throughout the

assembly, members proposed more specific ideas, such as redesigning certain street spaces, which then had been watered down to more general remarks for the final shared vision. As the analysis of the session transcripts showed, discussions were characterized by discourses trying to delay or forego concrete actions for a local mobility transition. This resistance to change contributed to a shared vision that, while cohesive, remained somewhat ambiguous. The final product reflects these underlying dynamics, even encapsulating discourses which can be used to delay action (e.g., strong emphasis on the individual responsibility to switch transport modes).

The presence of these discourses should however not question the validity of the shared vision itself, as these processes can and do exist in parallel (Cherry et al., 2024; Poortinga et al., 2023). Rather it points to what precisely should be the focus of participatory processes in the context of the mobility transition, which is addressing these discourses of delay so that a general openness for change translates into public support for necessary policy and infrastructure changes. Furthermore, such delay arguments can serve as self-protective strategies to avoid own behavior change (Wullenkord & Reese, 2021). As the analysis shows, while the narratives that came up in the group discussions mirror political discourses as those identified by Lamb et al. (2020), they are also rooted in concerns about the feasibility of a mobility transition in the local context. Perceived feasibility, effectiveness and fairness of proposed policies are important determinants of policy support (Grelle & Hofmann, 2023; Poortinga et al., 2023). Distinguishing narratives of delay from legitimate concerns about the implications of the transition process hence is a key challenge for deliberative forums on sustainable mobility. Participants mentioned, for example, the replacement of regular service busses with a new on-demand ride-pooling service risked excluding elderly public transport users. Local authorities thus have to carefully design policies in order not to exacerbate existing inequalities and make the implementation process transparent to citizens (Sovacool et al., 2023). However, the assumption underlying this narrative that the status quo was socially just

and allowing equal participation of all user groups, is misleading and thus falsely portraying any change to a presumably best-case status quo as undesirable (see e.g., Berg and Ihlström (2019) for mobility options of rural children and youth). Unpacking these arguments to see to what degree they address local concerns thus is crucial to make sure discussions within deliberative formats stay focused on the local level and maintain a certain solution-orientation.

As a format, the assembly provided a space for citizens of different ages and the different settlements of the municipality to jointly discuss how they wanted the future of mobility to look like in their community. Participants were proud to be part of the assembly and mentioned the desire to engage with local politics as one of the main reasons for their participation motivation. They also reported telling their friends about the assembly, thereby using their role as members of the community to spread conversations about the issue of sustainable mobility (Nielsen et al., 2021). Deliberative formats, such as the citizen assembly, can thus be promising in increasing a sense of agency among participants (Muradova et al., 2020). However, a crucial precondition is that the relation to local decision-making processes is transparent throughout the process so participants view the discussions as efficacious (Ruder & Woods, 2020). The integration of citizens in the political process is central to people-led transition processes and can increase legitimacy and general support of proposed changes (Verfuerth et al., 2023; Willis et al., 2015).

5.4.1 Reflections on the process itself and its limitations

In this section I want to reflect on the citizen assembly process itself and share key lessons learnt for future participatory projects on mobility. The following aspects may have impacted the result of the deliberative process and consider that for future formats like this, they are important to clarify beforehand.

Trusted communicators and legitimacy of the process

The citizen assembly was organized by an urban planning agency, based in the nearby metropolitan city and accompanied by the researchers. As a result, the main organizing team primarily comprised individuals from urban backgrounds. Despite the extensive experience of the urban planners working in the region, participants perceived a divide between themselves and the organizers. Many participants had grown up in the municipality or nearby areas and felt a strong connection to their town and to the rural community. Projects on climate communication (like e.g., Germany Talks Climate by the Climate Outreach Center (Melloh et al., 2022)) highlight the importance of trusted communicators, particularly in rural areas. To foster trust and bridge this gap, involving a member of the local community in the organizing team could be highly beneficial (Sleeth-Keppler et al., 2017).

Regarding the legitimacy of the assembly itself, it is important to clarify its connection to local politics from the start. The mayor of the municipality requested to emphasize the finite nature of the citizen assembly in order to avoid raising expectations, as the municipality itself lacked the resources to continue the dialogue process once the project ended. Representatives of the local authorities only attended one session to observe the assembly's work, which left participants feeling disappointed and diminished their sense of efficacy. This limited presence created uncertainty among participants about whether and how their discussions would be considered by local politicians. Although the assembly's findings were presented to the council on environment and transport during its official monthly meeting, only two assembly members were permitted to attend and witness the response of local politicians to their proposal.

Degree of structuration

Another aspect of the design of the assembly we want to discuss critically here, is the balance between fixed, top-down elements of the process and more open, bottom-up approaches to the discussions (Cherry et al., 2021). Drawing on their experience with participatory

processes in rural areas, the urban planning agency set a rather loose structure and overall framework for the process in order to adapt flexibly to what issues and knowledge the participants bring to the process. However, this proved to be demanding at times, as participants often found the tasks a bit vague, which might have contributed to a less specific shared vision (Cherry et al., 2021). Furthermore, expert presentations at the beginning of each session consumed significant time, resulting in a tight overall schedule. The resulting strict time management constrained sessions, leaving limited space for creative exploration and deeper, more controversial discussions among participants. Additionally, in an effort to document the process thoroughly, the urban planning agency had outcome-driven objectives, particularly toward the end of the assembly, which occasionally restricted open interaction and spontaneous dialogue among participants.

Goal-setting and efficacy of the format

Discussing mobility solutions at the local level in Germany is difficult because of the various administrative levels involved in transport policy decision-making. This is particularly pronounced in rural municipalities, where connecting roads fall under federal rather than local jurisdiction, making infrastructure changes complex. Similarly, public transport provision (especially the connection to long-distance rail) often lies beyond the municipality's control. Given that public transport is viewed as the most viable alternative to private car use, participants were frustrated when, for instance, the regional transport provider did not participate in one of the assembly sessions.

To foster a sense of efficacy, it is essential to clearly define a common goal (Hamann et al., 2023). The shared aim of envisioning the future of mobility in the municipality might have been too abstract at times, making it difficult for the participants to believe their discussions would lead to tangible changes. Discussing different policy proposals and allowing participants to cast informed votes on their preferred options in the final session, could enhance their sense

of efficacy as the result of the process would be more specific (Cherry et al., 2021). Participants cited making their voices heard and contributing to local discussions as key motivations for joining the assembly, so it is crucial for organizers to meet these expectations to avoid disillusionment.

Framing and different entry points for discussion

For climate communication in general and deliberative processes in particular, the question of how to best start the conversation depends on the topic and characteristics of the target audience (Cherry et al., 2021). Given the particular characteristics of the municipality (prosperous, conservative rural community) finding the right approach to the topic of mobility was challenging. Despite attempts to present different perspectives on the importance of rethinking mobility, many were met with resistance from participants. Two of the experts speaking emphasized the carbon intensity of private car travel, which was met by 'whataboutism' arguing how either other actors or other sectors were more important or by arguing they as a community were already doing their bit in other domains, for example, by installing solar panels. Attempts to frame the conversation through a lens of mobility justice also did not resonate, as car access was not perceived as a problem in the municipality; all assembly members had access to at least one, often several, private vehicles. The idea of enhancing livability was similarly met with skepticism, as participants already felt their quality of life was superior to that of urban areas due to their proximity to nature. This highlights the difficulty of fostering meaningful discussions when individuals do not feel personally affected by, or choose to dismiss, the problem—an issue particularly pronounced when addressing car use reduction (Walker et al., 2023). Throughout the citizen assembly, focusing on safe school trips for children and youth as well as creating spaces of encounter for residents in the municipality were co-benefits, that resonated well with participants.

5.4.2 Future research

This study highlights several avenues for future research on communicating sustainable mobility in rural areas. The mobility transition in rural areas entails specific challenges as mode shift often is less feasible and car use is entrenched in rural lifestyle, which is why residents might react particularly skeptical when it comes to discussing behavior change (Vitale Brovarone & Cotella, 2020). More research should investigate which co-benefits align with local values and priorities making a mobility transition desirable, also in rural areas (Prosser et al., 2022). For researchers, activists and local politicians alike, finding ways on how to successfully counter the narrative that lifestyle changes would merely be a costly burden presents one of the biggest challenges. Adapting policies that enable people to travel less and switch to other modes to local needs and conditions is thus crucial (Whitmarsh & Hampton, 2024). Furthermore, future research should explore ways on how to raise awareness of negative externalities of car traffic (Miner et al., 2024). As Walker et al. (2023) show, motornormativity (the shared assumption that travel is a primarily car-based activity) manifests in transport infrastructure, social norms around mobility as well as media reporting. Thus, people do not necessarily recognize the need for change, especially if they themselves are not experiencing social exclusion due to reliance on a private car first hand. One promising avenue could thus be to focus on road users like the elderly as well as children and youth, who are already reliant on alternatives to the private car to start local awareness-raising processes.

For future participatory processes it is important to find ways how to disentangle the conscious referring to narratives of delay from concrete worries about the feasibility and consequences of a mobility transition in a particular local context. Thus, research should investigate what fuels these narratives in relation to local projects as well as analyze whether and in what way they influence individual policy support or willingness to engage. This however requires finding adapted mobility solutions that work outside urban centers, which still get less attention to date (Poltimäe et al., 2022).

5.5 Conclusion

In this article, we illustrated how different narratives of inaction can influence the collective envisioning of a future sustainable mobility within a local citizen assembly. Participants were highly ambivalent vis-à-vis the mobility transition with an overall supportive attitude towards sustainable mobility while simultaneously being critical about the feasibility of necessary changes. Especially discourses about mode choice as an individual responsibility as well as the search for a perfect alternative to the private car proved to be the most difficult obstacles to discussing sustainable mobility as a local issue as well as to thinking about which policy changes would allow individuals to switch transport modes. Additionally, some of the solutions to local mobility problems (such as reliable and frequent public transport provision) fall outside the jurisdiction of local authorities, which made focusing on local change processes within the assembly difficult. Despite these challenges, participants showed significant interest in opportunities to engage in the local mobility transition and were proud to have their voices heard. This suggests that well-designed participatory processes could hold great potential in increasing public support for mobility transition, emphasizing local relevance of the topic and discussing tailored mobility solutions.

Chapter 6: General discussion

Citizens represent important agents of change in the mobility transition. To address the environmental and social challenges of the current car-dependent mobility system, widespread changes are necessary. Recognizing and engaging individuals in their role as active citizens is crucial for a socially just and accepted shift towards a mobility system centered around public transport and active travel modes. Throughout different stages of the transition process, individuals drive change through their active citizenship and social psychology can shed light on the within-actor, motivational processes.

This dissertation offers an interdisciplinary perspective on citizens as political actors for change. Its contribution therefore lies in investigating ways in which individuals can catalyze systemic changes in transport by examining exemplary behaviors such as shifting social norms through mobility behavior, actively supporting transport policies, engaging in mobility activism or participating in planning processes. Studying the interplay between individual agency and structural factors within transport necessitates both theoretical exploration of potential leverage points as well as empirical study of relevant behaviors and their antecedents – this thesis has contributed to both. A core achievement lies in the conceptual integration of psychological theory to assess within-actor processes with the systemic perspective of transitions literature, specifically focusing on citizen involvement in transport.

Chapters 2 and 4 present conceptual articles, connecting psychological theory with systemic perspectives from sociology and transition studies respectively. Chapter 2 explores how the spreading of social norms can contribute to changes in social structures, proposing social norms as a bridging concept to foster interdisciplinary research. Using Strong Structuration Theory as an integrative theoretical framework, it focuses on the role of individual mode choice in contesting and renegotiating social norms. Strong Structuration Theory posits that social structures are reproduced through individual actions (Stones, 2006). That means, if

individuals deviate from dominant mobility norms, they can highlight norm conflicts and thereby challenge hegemonic norms, creating opportunities for a renegotiation of structures of normality. Chapter 2 discusses how different types of norm conflict, such as the conflict between injunctive norms (normative expectations) and descriptive norms (dominant observable behaviors), can spur change processes. It suggests focusing on suburban communities as insightful case studies for investigating norm shifts in mobility, as norm conflicts regarding mode choice tend to manifest spatially in these areas situated between multi-modal urban centers and car-centric rural areas (Wikstrøm, 2024). Tensions arising from norm conflict can open up windows of opportunity for change, as they put pressure on renegotiation processes both regarding norms in travel behavior as well as in regard to transport policy support (Rollin & Bamberg, 2021). An interdisciplinary case study approach is proposed, combining psychological research on the perception of norm conflicts in travel behavior and transport policy support with a sociological analysis of mobility discourses.

Chapter 4 explores avenues for future research by examining how the systemic characteristics of the car-dependent regime interact with psychological, within-actor processes motivating collective action in mobility. The article presented situates the social identity processes of the SIMPEA within the context of the car-centric mobility system, reflecting on how their development is contingent on characteristics of the latter. The article argues that contextualizing the antecedents of citizen engagement in the mobility transition is essential to understanding the obstacles and challenges faced by initiatives advocating for sustainable mobility. The entrenched car culture and often hidden harms of car travel can impede problem recognition (Walker et al., 2023). Furthermore, even if a willingness to advocate for changes in mobility is given, psychological barriers such as feeling powerless vis-à-vis industry actors or the fear of impeding social costs if car traffic is restricted can hinder people from taking action (Bruckmann et al., 2022; Marquet et al., 2024). Drawing on different strands of literature, the chapter sketches exemplary research questions, which focus on the intersection between social

identity theory with transition theory and actor-network approaches to get a better understanding of civic (in-) action in mobility.

Chapter 3 provides an empirical investigation of antecedents of active policy support as an example of individual behavior contributing to systemic changes. The article presented shows how social identification with different transport mode user groups is an important determining factor for active policy support. Looking at controversial policies such as street space re-allocation, the study shows that willingness to actively support such policies through voting behavior, petitions or protests, is rather low amongst the general German public. However, there are differences depending on how costly the behavior is, with voting accordingly in local elections being the most favorable option. Regarding relevant influencing factors, a key finding was that active support (e.g., signing a petition) was not primarily determined by the choice of transportation mode, but rather by the degree of identification with other transport users. This result is significant for the mobility transition, as it demonstrates that one cannot simply infer political support from a person's transport habits. The stronger the identification with cyclists or public transport users, the higher the willingness to support the measures. In addition to social identification with specific transport user groups and collective efficacy beliefs, positive emotions towards street space redistribution measures were crucial in determining whether and to what extent individuals would actively support the implementation of these measures. A better understanding of the key factors influencing active policy support can inform communication strategies for policy plans as well as inform initiatives campaigning for sustainable mobility which goals or common identities could motivate new members to partake.

Chapter 5 presents a case study that investigates how members of a local citizen assembly in a rural community discuss and envision their future local transport system. It highlights the ambivalence citizens express regarding a mobility transition and how this ambivalence manifests in local participatory processes. While citizens crafted an overall

positive vision of sustainable mobility in their community over the next decade, narratives justifying the status quo of car-centric mobility persisted. Especially a strong emphasis on individual responsibility as well as policy perfectionism hindered a focused discussion on local solutions that would enable people to reduce car trips. Identifying co-benefits that resonate with rural communities proved to be crucial to ensuring public support for substantial policy changes. Participants emphasized their desire to play an active part in the policy process as a main motivation to partake, indicating that deliberative formats can be a promising tool to engage citizens in the sustainability transition and foster a sense of agency. However, the article also stresses how the design and integration of these deliberative formats in the political process matter for their success. Ensuring that the results of the assembly are transparently transferred into local decision-making is essential for maintaining a sustained sense of efficacy.

In summary, this dissertation enhances the understanding of the interplay between social structures and individual behavior in the mobility transition process, emphasizing the importance of active citizenship in driving systemic changes. Through an integrative approach, it investigates within-actor processes, such as social identification processes, that motivate transformative action while exploring their interdependencies with contextual factors such as social structures in normative mobility behavior, regime characteristics or societal narratives around change. By doing so, it positions individuals as active, political agents in the mobility transition and lays the groundwork for future interdisciplinary research.

6.1 Theoretical implications and avenues for future research

This dissertation entails implications for future research on active citizenship in the mobility transition. It emphasizes how individuals can challenge the car-centric regime through active citizenship in pushing for a socially just transition process in transport, which aims to improve accessibility and minimize the different aspects of car harm. By focusing on what Stern (2000) referred to as public sphere behavior, both activist and non-activist, this work aims to

enhance the relevance of psychological research in the analysis of the mobility transition and bridge the gap between individual action and structural changes. Individuals have agency in societal changes, but the leverage points of impactful behavior are not restricted to their mode choice in transport, which has been the predominant focus of past research (Bruno et al., 2021; Javaid et al., 2020; Nielsen et al., 2024). The chapters three to five of this dissertation present examples of behaviors relevant to advocating for and contributing to systemic changes. These include actively supporting changes in transport policy making, mobilizing against the car-centric status quo through collective action and envisioning alternative mobility futures in participatory formats. The second chapter suggests ways to study how individuals modeling different mobility behavior can shift social norms, thereby reshaping the social structures that influence individual decisions in return (see also Bamberg et al. (2020)). By emphasizing these aspects, this dissertation offers valuable insights for future research on what an active citizenship in the mobility transition entails and how it contributes to (radical) change processes.

Furthermore, this dissertation argues that in order to make the study of individual behavior more relevant to our understanding of transition processes, there has to be not only a shift in what we study but also in how we do it. Recognizing the complexity of behavioral determinants, particularly the impact of systemic conditions on behavioral decisions, is another crucial adjustment emphasized in this thesis (Hofmann, 2023; Nielsen et al., 2024; Uluğ et al., 2022). This ultimately allows to identify obstacles to climate action and ways to overcome them more effectively. Future research should thus continue to strengthen interdisciplinary collaborations with fields such as sociology (as suggested in Chapter 2) or transition studies (see Chapter 4) to synthesize knowledge and critically evaluate disciplinary methodologies and theories. The conceptual integration is building on work by Upham et al. (2020) and other scholars who demonstrate how social psychological theory can inform our understanding of agency in transition processes, similarly referring to social norms and social identity theory as well-suited bridging concepts (Bögel et al., 2019).

In the realm of mobility, there has been a notable increase in studies connecting psychological constructs to insights from other disciplines as well as a shift in the focus to investigating behavior that falls within the public sphere. For instance, Bamberg et al. (2020) compared their measurement of mobility culture, defined as (injunctive) social norms, with categorizations of mobility culture based on infrastructural characteristics in human geography. Their aim was to investigate whether people's perception of social norms aligns with the design of the physical transport environment. Furthermore, research on transport policy acceptance and support has grown, assessing the public backing of transformative measures (Andor et al., 2020; Götting & Becker, 2020; Marcheschi et al., 2022; Morton et al., 2021). There is also a rising interest in the impact and procedures of participatory formats in the mobility transition, examining key psychological variables such as perceived fairness, trust in policy makers and problem awareness (Klaever et al., 2024; Marcheschi et al., 2022) as well as a heightened interest in activism specific to mobility (Aldred, 2012). This dissertation argues that further investigating these behaviors is crucial to gaining insights for a citizen-led transformation process, ensuring public acceptability as well as a socially just transition (Whitmarsh 2024). In this context, future research could explore differences and parallels between citizen engagement in the mobility and the energy transition: Through concepts such as energy citizenship, the active involvement of citizens in transforming energy systems has already been investigated more thoroughly, in transition studies and psychological approaches alike (Bögel et al., 2023; Goedkoop et al., 2022; Hamann et al., 2023).

The article presented in Chapter 2 emphasized the importance of individual mode choice in reinforcing or challenging social structures of normality. The mechanisms discussed are in line with research on social tipping points and dynamic norms, which highlight how shifting social norms is key to mainstreaming sustainable behavior (Otto et al., 2020; Sparkman & Walton, 2019). The proposed connection of local discourses around mobility and perceived mobility-related social norms merits further empirical investigation in a variety of different

spatial structures. Rollin et al. (2021) found a correlation between changes in local mobility culture (defined as social norms around mobility) and the perception that mobility is becoming a more relevant topic. Future research could explore how the content of local debates on transport and dominant narratives align with the perception of mobility-related social norms. The analysis of prominent discourses within a citizen assembly in Chapter 5 showed how widespread narratives of delay can shape the envisioning of collective futures. However, the emergence and local manifestation of these discourses, as well as their relationship to the perception of local mobility culture and the willingness to change it, remain to be investigated in future research.

The study presented in Chapter 5 also emphasizes the importance of local co-benefits in making a mobility transition and entailed behavior change desirable. The participants of the citizen assembly integrated co-benefits such as gaining street space for social interactions in their vision of future local mobility, while sustainability and climate change mitigation were rarely mentioned by the citizens themselves. This is in line with research on policy acceptance, which shows that highlighting co-benefits can increase support for local climate action (Abildtrup et al., 2024). Identifying which narratives and common goals resonate with different groups, particularly in suburban and rural communities, should be subject to further research as making behavior change desirable is key (Whitmarsh, 2024).

Transdisciplinary research on participatory formats could benefit from integrating knowledge on future thinking into the design and setup of citizen assemblies. The ability to imagine low-carbon futures has been shown to influence current pro-environmental behavior as well as willingness to get politically engaged in the sustainability transition (Bain et al., 2013; Bosone et al., 2024; Lutz et al., 2025; Wright et al., 2021). Evaluating how participation in deliberative formats relates to concepts such as problem awareness, a sense of efficacy as well as willingness to engage politically could underline the benefits of citizen involvement empirically, especially in times of political disengagement (Parvin, 2015).

As emerging discourses of delay distracted from the focus on local mobility solutions, analyzing how these discourses enter and shape deliberation about climate mitigation is important (Cherry et al., 2024; Wullenkord & Reese, 2021). Critical social psychology argues that the ambiguity of citizens' knowledge is particularly insightful for understanding citizenship and democratic debates on social change (Andreouli, 2019). Future studies should investigate how these discourses relate to public support for transport policies, how they shape trust in government officials or affect efficacy beliefs related to behavior change and citizen engagement.

The results presented in Chapter 3 demonstrate how only few people consider engaging in costly policy support in the form of activism. Instead, they would rather engage in public non-activist behaviors, such as voting or signing petitions, to endorse or reject transport policies. This is in line with studies on citizen behavior in the energy transition, which indicates that environmental activism still remains rare (Vainio et al., 2020). Similarly, social identification with transport mode user groups was rather low with only few high-identifiers. Future studies should explore the interplay and salience of different identities and their relevance for the support of sustainable transport policies (see, for example, Heinen (2016) for multiple identities relating to mode choice). Vignette studies present a promising method to investigate how, for example, the framing of transport policies can highlight relevant social identities and thereby provide insights for successful policy communication. As the presented study did not measure the meaning respondents attributed to their self-categorization (i.e., what constitutes the social identity content), future studies would benefit from integrating qualitative measures, such as the associative task proposed by Turner-Zwinkels et al. (2015). This could be particularly interesting in determining whether the facets of identities and social norms relevant to active travel modes users are distinct from characteristics of an environmentalist identity fostering engagement in the climate movement in general.

Further research is also needed to understand active resistance against the mobility transition as the underlying motives of opposing climate mitigation remain understudied (Nielsen et al., 2024). Given that the share of transport emissions in total greenhouse gas emissions is expected to grow even further, understanding resistance to policies such as street space redistribution is crucial as transforming the mobility sector will become increasingly central to climate mitigation. While there has been some research on narratives opposing 15-minute-cities or low traffic neighborhoods (Aldred, 2019; Marquet et al., 2024; Wild et al., 2018), the psychological processes of why people oppose such policies have yet to be thoroughly investigated. Research suggests that opposition to radical pro-environmental social change is fueled by a perception of threat to current power dynamics, especially among men (Avery et al., 2025). Since cars and car driving are integral to hegemonic masculinity conceptions, future research should investigate opposition to sustainable transport policies from an intersectional perspective (Balkmar, 2019; Gössling, 2017).

The article presented in Chapter 4 argues in line with critical psychology scholars in advocating for the contextualization of social identity processes in the study of collective action (Aron, 2022; Uluğ et al., 2022). Future research should investigate the discussed interrelations between social identity processes motivating citizen engagement in the mobility transition and system dynamics. Of particular interest could be to study how the perception of actor constellations and power dynamics within the mobility system influence the emergence of efficacy beliefs as well as shape the formation of social identities. Longitudinal analyses examining how social identity processes of citizens already engaged in mobility initiatives evolve over time could further enhance our understanding of sustained activism in this sector particularly resistant to change. Such analyses would enable a more dynamic comprehension of social identity processes, acknowledging that sustained activism may differ from initial engagement (Lizzio-Wilson et al., 2021; Louis et al., 2020). Additionally, longitudinal analyses

could detect potential differences depending on the type of activism in different stages of the transition process.

To evaluate the extent to which social identity theory can inform our understanding of social change processes in the realm of mobility, future research should expand its focus beyond average citizens. For instance, investigating the influence of group norms and efficacy beliefs of urban planners working in local authorities could inform our understanding of decision-making processes of professionals involved in transport policy making. Hornung et al. (2019) discuss how different identities impact policy makers' decisions, highlighting areas of research that warrant further empirical investigation to better understand how radical change in the mobility transition can unfold.

6.2 Limitations

This thesis reveals some limitations that need to be mentioned. First, social identity processes as motivational drivers for engaging in transformative action have been tested empirically only in Chapter 3. Although participants of the citizen assembly, as discussed in Chapter 5, referenced social identity constructs (such as i.e., expressing a strong sense of belonging to their local community as motivation to partake), the explanatory power of social identity processes for different kinds of transformative action requires further examination. With regard to active citizenship in the mobility transition, it is particularly important to investigate how participation motivation differs between activist (i.e., protesting with a pro-cycling initiative) and non-activist (i.e., participating in formal planning processes) public sphere behavior. This distinction can be helpful to foster different kinds of engagement.

While Chapter 3 provides evidence for the relevance of social identification with transport user groups for active policy support, the specific identity content, meaning what participants associate with these social categories, remains unclear. Jugert et al. (2024) suggest extending quantitative scales of self-categorization to and self-investment in social identities

with qualitative tasks such as associations with presented categories to better understand the values and meanings attributed to these social categories. Analyzing the social identity content could also provide insights into the extent to which social categories, such as transport user groups, are experienced as politicized groups, as social identities advocating for change often are or whether other, more explicitly opinion-based groups are decisive in fueling active policy support (Mackay et al., 2021).

Furthermore, the analysis of interrelations between social structures and individual behavior presented in Chapter 2 and 4 remains on a theoretical level. Empirical testing of how within-actor processes develop in relation to dynamics in system features (such as changes in actor constellations or policy structures) remains pending. This is in line with Uluğ et al. (2022) calling for a contextualization of collective action research through, for example, multi-level approaches (see Corcoran et al. (2011) for an example of investigating the interaction between macro-level political institutions and micro-level efficacy beliefs). Such an approach could also help to assess whether transformative action regarding the mobility system differs from pro-environmental action in general in terms of relevant identities and required institutional work [3] (Fuenfschilling & Truffer, 2016). As we did not include environmentalist identities in the study presented in Chapter 3, we are not able to distinguish whether there is something particular about the motivation to engage in transport specifically. Future experimental studies should thus investigate the relevance of different social categories in motivating participation in transformative action targeting the transport system. As the share of emissions of the transport sector is expected to rise, climate mitigation effort will become increasingly about decarbonizing transport (Transport & Environment, 2024). Investigating the specificities of citizen engagement in the mobility transition thus is crucial for meeting future climate

[3] Fuenfschilling and Truffer (2016) use the concept of institutional work to define agency in transition processes, analyzing different behaviors that are relevant in creating, maintaining and disrupting institutions. Bridging this with social psychological studies on collective action studies can inform fruitful further research on agency.

mitigation challenges. Results could, for example, be applied to the development of interventions fostering citizen participation on different levels of transport policy making.

Chapter 3 investigated the same social identity processes among individuals actively opposing sustainable transport policies as for active support of the policies. However, a shared sense of injustice regarding the proposed policies amongst those identifying as car drivers and emotions related to identity threat were relatively low. Since the study only tested reactions to a hypothetical policy proposal, it remains uncertain whether the survey succeeded in capturing valid emotional responses to changes in street design. Future research should thus focus on field studies of real-world policy packages, especially in order to investigate opposition to sustainable transport policies more thoroughly. Whether social identity theory is a suitable framework for studying change processes (as well as the opposition to change) within mobility cannot be answered conclusively with this thesis as more detailed empirical research is still needed.

6.3 Practical implications

This thesis primarily advocates for a shift in the analytical perspective on individual action within research on the mobility transition but also entails learnings for practitioners working in or advocating for changes in the transport system. Although the lock-in mechanisms in the transport system and the sector's rising emissions might suggest citizens stirring change from within society is unlikely, this thesis aims to exemplify how individuals can indeed contribute to destabilizing the car-centric regime and improve accessibility for all transport users. In the following, I outline how local authorities and citizen initiatives working on mobility can facilitate citizen engagement and motivate people to actively shape their transport environment.

6.3.1 Implications for local authorities

Local authorities can encourage participation by supporting community initiatives and their involvement in local decision-making processes as well as offer diverse participative

formats for regular citizens. The inclusion of citizens in policy-making can contribute to the perception of procedural fairness, which is an important determinant of policy support (Whitmarsh & Frost, 2024). Citizen engagement is not only beneficial in reducing backlash against proposals, but can in a local, place-based setting also improve the quality of policy making when transport needs of residents are incorporated early on. As the analysis of the citizen assembly on mobility in Chapter 5 showed, people express many concerns in relation to required changes to local mobility solutions, especially in rural areas dominated by private car travel. Participatory formats provide a space to discuss concerns, disentangle them from discourses delaying efforts to find local solutions and accommodate different voices to the dialogue. With transport in particular, public discourse is dominated by extremist positions declaring any changes to the status quo as a "war on motorists" (Whitmarsh & Frost, 2024, p. 5), often portraying policy proposals as more controversial than they are evaluated by public majorities.

The results presented also offer insights for the effective communication of policy proposals. Leveraging psychological concepts such as social norms or social identity processes such as collective efficacy beliefs can enhance the design of targeted campaigns. Social norms play a powerful role in shaping behavior, making their strategic use in campaign design particularly effective (Constantino et al., 2022). Studies on energy use and local mobility culture suggest that highlighting existing sustainable behaviors within a community can foster and accelerate wider adoption (Bamberg et al., 2020; Bobeth & Matthies, 2018). Temporary infrastructure projects, such as pop-up cycling lanes, can also serve as visual indicators of shifting social norms (Rollin & Bamberg, 2021). Nobis et al. (2024) developed a communication campaign promoting sufficiency in transport behavior by utilizing social norms and the identification with specific milieus and social groups to tailor messages to citizens. Furthermore, identifying and highlighting local co-benefits can be particularly persuasive in gaining public support for policy proposals (Karlsson et al., 2020; Verfuerth et al., 2023).

Table 9

Summary of key learnings for local authorities

Strategies to engage citizens in the mobility transition
• Encourage active participation of citizens in policy processes in mobility • Facilitate deliberation to discuss local concerns about a fair and socially just mobility transition • Address social identity processes in transport policy communications • Develop social norm-based campaigns to foster changes in mobility culture • Identify and highlight local co-benefits to gain public support

6.3.2 Implications for citizen initiatives

For citizen initiatives engaged in the mobility transition, such as cycling collectives or low traffic neighborhood initiatives, the presented results provide some guidance for their advocacy work. As discussed in Chapter 4, identifying the right social identity to engage a diverse and inclusive group of people can be challenging. Becker et al. (2020) found that a local identity can serve as a promising superordinate identity which initiatives can address in their campaigns to emphasize common goals such as improved livability in the local community. Although their study focused on an urban community, the findings of Chapter 5 suggest that this approach could also be effective in rural communities: Participants in the citizen assembly were motivated by the desire to contribute to their local community and enhance local quality of life (see also Aron (2022) on the relevance of local collective identities for motivating action). This approach would also entail tailoring campaigns to the local context to motivate people to engage in initiatives as the question of which goals resonate with citizens can differ hugely depending on the spatial characteristics, demographics or the local political climate (Melloh et al., 2022). However, as discussed in Chapter 4, local street design and regulations are influenced not only by local but also regional and national policymaking. Therefore, it is crucial for initiatives to build alliances, for example, across municipalities of the same region

as well as with other societal actors in order to maximize their impact (Becker et al., 2020; Fuenfschilling & Truffer, 2016).

Another learning that can be derived based on this thesis is the importance of positive emotions in advocating for change. In the study presented in Chapter 3, positive emotions associated with a redistribution of street space in favor of active travel modes were positively associated with the willingness to actively support the necessary policies. Research on pro-environmental action in general has shown that having a positive vision of the future can lead to a higher sense of efficacy in achieving this future as well as intentions to act more pro-environmentally (Bosone et al., 2024).

Table 10

Summary of key learnings for citizen initiatives

Strategies to foster engagement based on the social identity approach
• Address superordinate identities, such as local identity, to build an inclusive collective group • Highlight co-benefits as common goals to engage people with different political orientations • Emphasize positive future visions and elicit emotions beyond anger to motivate (new) members • Highlight past achievements to foster collective efficacy beliefs • Build strategic alliances with other local and regional actors (see Fuenfschilling & Truffer (2016) on building institutions in institutional work)

6.4 Conclusion

Engaging citizens as political actors in the mobility transition is crucial in order to ensure a fair and socially just change process. However, a deeply entrenched car-culture and complex lock-in mechanisms in the transport system characterize mobility as a wicked problem, resistant to change. This dissertation identifies and discusses potential leverage points for individual

action to foster systemic changes by focusing on how active citizenship can shape and accelerate the mobility transition. A citizen-led transition ensures improved accessibility independent of the mode of transport and makes sure that new policies and technological innovations address negative externalities of car traffic. Bridging psychological theory with sociology and transition studies, the thesis contributes to our understanding of drivers and barriers of active citizen engagement in mobility. The dissertation proposes social norms and social identity processes as important driving factors of individual transformative action, while acknowledging the embeddedness of these within-actor processes in wider societal structures. By doing so, it paves the way for future interdisciplinary research on individual agency within complex transition processes, such as the mobility transition. As the transport sector will increasingly be at the forefront of climate mitigation, understanding how to make necessary policy changes and required behavior change desirable as well as socially accepted by the public is thus of utmost importance.

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Appendix

Table A1

Sample description

Variable	*n*	%
Gender		
Female	316	51.4
Male	299	48.6
Employment status		
Fulltime	307	49.9
Part-time	95	15.4
Not working	38	6.2
Formation/ studies	46	7.5
Retirement	119	19.3
other	10	1.6
Educational level		
Lower secondary education	74	12
Secondary education	194	31.5
Abitur	151	24.6
University degree	188	30.6
Other	8	1.3
Spatial setting		
Urban	274	44.6
Suburban	184	29.9
Rural	157	25.5

Note. $N = 615$. Participants were stratified on age and gender. Age ranged from 18-69 with an average of 46,3.

Table A2

Political preferences

Party preference	%	Results in % of national election in 2021
Social democrats (SPD)	18.2	25.7
Conservatives (CDU)	17.6	24.1
Greens (Bündnis 90, Grüne)	17.4	14.8
Lefts (Die Linke)	8.6	4.9
Liberals (FDP)	9.6	11.5
Nationalists (AfD)	9.3	10.3
Other	19	8.6

Note. $n = 607$. Participants indicated $M = 47.94$, $SD = 19.12$ on a left-wing-right-wing continuum.

Table A3

Availability of travel options

	n	%
Car		
License	550	89.6
Ownership		
0	92	15
1	313	51
2	168	27.4
>3	41	6.7
Public Transport		
Access to station	554	90.1
subscription	140	22.8
Bike ownership		
0	105	17.1
1	155	25.2
2	174	28.3
3	81	13.2
>4	99	16.1

Figure A1

Mode choice in sample and data from nationwide mobility survey (MiD) for comparison

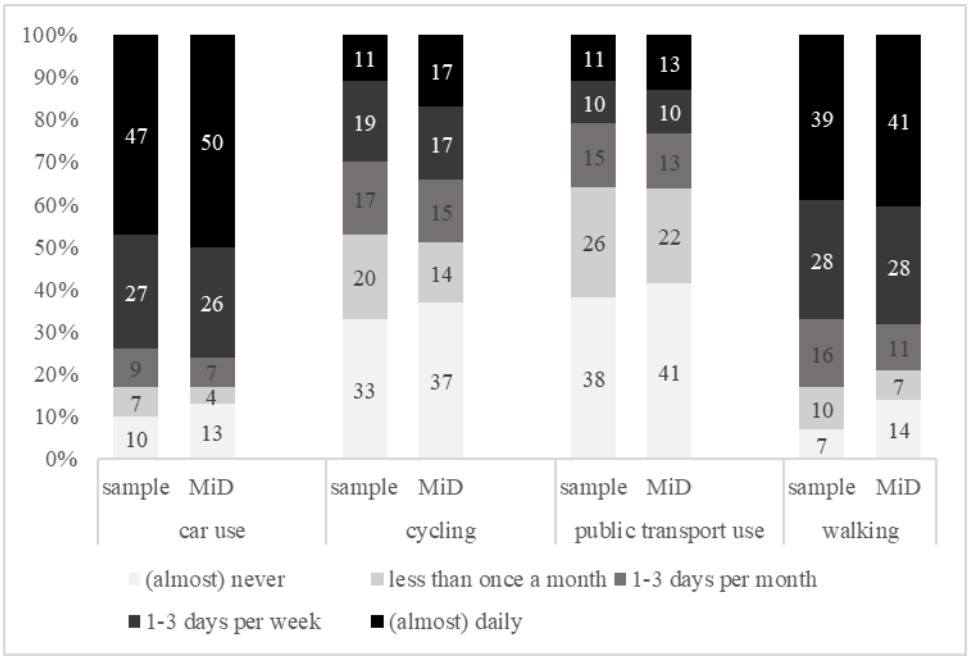

Table A4

Linear model of predictors (SI cyclists) of Collective Action Intention. 95% Confidence intervals (in parentheses) and standard errors based on 1000 bootstrap samples

	B	*SE B*	β	*p*
Step 1				
Political spectrum	-.014 [-.021, -.007]	.004	-.156	<.001
Bike use	.235 [.129, .342]	.053	.193	<.001
Public Transport use	.235 [.123, .354]	.057	.187	<.001
walking	.068 [-.042, .180]	.058	.049	.259
Car use	.054 [-.064, .170]	.059	.041	.347
Step 2				
Political spectrum	-.011 [-.018,-.005]	.004	-.124	<.001
Bike use	-.104 [-.202, .008]	.057	-.085	.063
Public Transport use	.139 [.041, .246]	.051	.111	.007
walking	.047 [-.054, .148]	.053	.034	.372
Car use	-.034 [-.132, .070]	.051	-.026	.503
SI cyclists	.254 [.161, .341]	.047	.281	<.001
Efficacy	.184 [.101, .273]	.045	.190	<.001
Norms	.110 [.010, .201]	.049	.111	.011
Pos. Emo PM	.095 [.012, .173]	.039	.109	.009
Neg. Emo SQ	.081 [.000, .173]	.045	.073	.051

Note. R^2 = .122 for Step 1; ΔR^2 = .204 for Step 2; PM = policy measures; SQ = Status Quo $F(10, 552) = 28.129$; R^2 = .326

Table A5

Linear model of predictors (SI public transport users) of Collective Action Intention. 95% Confidence intervals (in parentheses) and standard errors based on 1000 bootstrap samples

	B	*SE B*	β	*p*
Step 1				
Political spectrum	-.014 [-.021, -.007]	.004	-.157	<.001
Public transport use	.231 [.121, .341]	.060	.186	<.001
Bike use	.235 [.136, .334]	.052	.194	<.001
Walking	.062 [-.055, .180]	.060	.045	.299
car	.056 [-.056, .167]	.058	.043	.329
Step 2				
Political spectrum	-.012 [-.018, -.005]	.004	-.130	<.001
Public transport use	-.070 [-.185, .065]	.063	-.056	.245
Bike use	.126 [.028, .218]	.049	.104	.007
walking	.049 [-.058, .156]	.053	.035	.369
car	-.031 [-.142, .068]	.053	-.024	.555
SI PT users	.231 [.128, .334]	.051	.242	<.001
Efficacy	.163 [.079, .245]	.044	.175	<.001
Norms	.140 [.048, .235]	.048	.143	.002
Pos. Emo PM	.065 [-.012, .140]	.038	.075	.074
Neg. Emo SQ	-.008 [-.092, .082]	.044	-.007	.853

Note. R^2 = .118 for Step 1; ΔR^2 = .157 for Step 2

$F(10, 559)$ = 22.568; R^2 = .275

Table A6

Linear model of predictors (SI pedestrians) of Collective Action Intention. 95% Confidence intervals (in parentheses) and standard errors based on 1000 bootstrap samples

	B	*SE B*	β	*p*
Step 1				
Political spectrum	-.014 [-.021, -.006]	.004	-.154	<.001
Walking	.051 [-.060, .153]	.055	.037	.382
Bike use	.251 [.148, .363]	.052	.207	<.001
Public Transport Use	.245 [.137, .363]	.058	.198	<.001
Car use	.061 [-.060, .175]	059	.046	.284
Step 2				
Political spectrum	-.012 [-.020,-.007]	.003	-.139	<.001
walking	-.060 [-.078,.124]	.054	-.043	.268
Bike Use	.133 [.045, .221]	.048	.110	.003
Public Transport Use	.127 [.029, .225]	.051	.102	.011
Car use	-.036 [-.136, .063]	.050	-.028	.475
SI pedestrians	.120 [.041, .200]	.037	.125	.003
Efficacy	.163 [.087, .240]	.044	.175	<.001
Norms	.161 [.078, .244]	.046	.162	<.001
Pos. Emo PM	.166 [.089, .242]	.039	.170	<.001
Neg. Emo SQ	.094 [.010, .185]	.046	.080	.028

Note. R^2 = .127 for Step 1; ΔR^2 = .195 for Step 2

$F(10, 568) = 28.463$, R^2 = .322

Table A7

Linear model of predictors (SI car drivers) of Collective Action Intention. 95% Confidence intervals (in parentheses) and standard errors based on 1000 bootstrap samples

	B	*SE B*	β	*p*
Step 1				
Political spectrum	.013 [.005, .020]	.004	.133	.001
driving	.124 [-.012, .215]	.064	.088	.051
Bike use	-.016 [-.127, .095]	.056	-.013	.773
PT use	.107 [-.017, .231]	.063	.079	.090
walking	-.094 [-.221, .033]	.065	-.065	.147
Step 2				
Political spectrum	.008 [.001, .016]	.004	.085	.025
driving	-.080 [-.224, .049]	.070	-.056	.219
Bike use	-.053 [-.160, .062]	.057	-.041	.313
PT use	.029 [-.085, .136]	.057	.021	.625
walking	-.078 [-.194, .032]	.058	-.054	.189
SI car drivers	.107 [.010, .208]	.049	.112	.019
Efficacy	.057 [-.035, .151]	.047	.058	.197
Norms	.252 [.145, .370]	.055	.213	<.001
Pos. Emo SQ	.063 [-.037, .158]	.050	.057	.171
Neg. Emo PM	.246 [.157, .341]	.046	.225	<.001

Note. R^2 = .023 for Step 1; ΔR^2 = .165 for Step 2

$F(10, 583) = 14.747$; R^2 = .188

Table A8

Structure of the five sessions including participatory activities following steps of the appreciative inquiry method.

Session	Topics & Inputs	Participatory Method/ Activities
1	Define. Introduction to the project goal and of the participants	interviewing each other in pairs & presenting the other person to the group
2	Discover. Introduction expert group (members of local initiatives) and short input on best practice examples of sustainable mobility	Small group discussions to develop ideas for future mobility solutions based on best practice examples
3	Dream. Input on rural mobility by mobility researcher and on development of a local cycling network	silent work writing individual scenarios: "Envision your everyday life in 2035"
4	Design. input on policies in transport masterplan by regional planning authority	Joint group discussion on 2035 visions of previous session and organizing/ visualizing the visions
5	Delivery. Wrap-up and finalizing shared vision for 2035 as main result	discussing 10-point-list characterizing shared vision of the citizen assembly

Original Publications and Contribution Statement

Allert, V. (under review). Local citizen assemblies as a way to overcome resistance to the mobility transition? Analyzing discourses in a municipality in rural Germany. *Energy Research and Social Science.*

Allert, V. & Reese, G. (2024). On the challenges of civic engagement in the mobility transition - A conceptual analysis of the linkages between car dependence and collective action. *Journal of Cleaner Production,* 144533. https://doi.org/10.1016/j.jclepro.2024.144533

CRediT Role	Author 1: Viktoria Allert	Author 2: Gerhard Reese
1. Conceptualization	☒ lead	☒ supporting
2. Data curation	☐ --	☐ --
3. Formal analysis	☒ --	☐ --
4. Funding acquisition	☐ --	☐ --
5. Investigation	☒ lead	☒ supporting
6. Methodology	☐ --	☐ --
7. Project administration	☒ lead	☒ supporting
8. Resources	☐ --	☐ --
9. Software	☐ --	☐ --
10. Supervision	☐ --	☐ --
11. Validation	☐ --	☐ --
12. Visualization	☐ --	☐ --
13. Writing – original draft	☒ --	☐ --
14. Writing – review & editing	☒ lead	☒ supporting

Viktoria Allert Gerhard Reese

Allert, V. & Reese, G. (2023). Social identity based motivation to engage in collective action supporting the redistribution of street space. *Transportation Research Part F: Traffic Psychology and Behaviour, 94*, 9-24. https://doi.org/10.1016/j.trf.2023.01.009.

CRediT Role	Author 1: Viktoria Allert	Author 2: Gerhard Reese
1. Conceptualization	☒ lead	☒ supporting
2. Data curation	☒ --	☐ --
3. Formal analysis	☒ --	☐ --
4. Funding acquisition	☐ --	☐ --
5. Investigation	☒ --	☐ --
6. Methodology	☒ lead	☒ supporting
7. Project administration	☒ lead	☒ supporting
8. Resources	☒ --	☐ --
9. Software	☐ --	☐ --
10. Supervision	☐ --	☒ --
11. Validation	☐ --	☐ --
12. Visualization	☒ --	☐ --
13. Writing – original draft	☒ --	☐ --
14. Writing – review & editing	☒ lead	☒ supporting

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Ruhrort, L. & **Allert, V**. (2021). Conceptualizing the Role of Individual Agency in Mobility Transitions: Avenues for the Integration of Sociological and Psychological Perspectives. *Frontiers in Environmental Psychology, 12,* 623652. https://doi.org/10.3389/fpsyg.2021.623652

CRediT Role	Author 1: Lisa Ruhrort	Author 2: Viktoria Allert
1. Conceptualization	☒ equal	☒ equal
2. Data curation	☐ --	☐ --
3. Formal analysis	☐ --	☐ --
4. Funding acquisition	☒ --	☐ --
5. Investigation	☒ equal	☒ equal
6. Methodology	☐ --	☐ --
7. Project administration	☒ lead	☒ supporting
8. Resources	☐ --	☐ --
9. Software	☐ --	☐ --
10. Supervision	☐ --	☐ --
11. Validation	☐ --	☐ --
12. Visualization	☐ --	☐ --
13. Writing – original draft	☒ equal	☒ equal
14. Writing – review & editing	☒ equal	☒ equal

_____ _____

Lisa Ruhrort Viktoria Allert

Declaration

I declare that I have written the submitted dissertation independently and without unauthorized external assistance, that I have not used any literature other than that specified in the dissertation and that I have marked all completely or approximately adopted text passages as well as graphics and tables. Furthermore, I confirm that the dissertation has not already been submitted and assessed elsewhere in this or a similar form.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this work, I used LeChat Mistral and DeepL Translate to improve readability and language. After using these tools, I reviewed and edited the content as needed and take full responsibility for the content of this dissertation.

Dortmund, 01.04.2025

Curriculum Vitae

Viktoria Allert

EDUCATION

PhD Student 2021 - 2025	**Citizens as agents of change in the mobility transition: A social identity approach to understanding transformative action** Supervisors: Gerhard Reese, Meike Levin-Keitel University of Kaiserslautern-Landau (RPTU) **Germany**, Landau
Erasmus exchange Jan - Jul 2019	**MSc Social and Environmental Psychology** University of Bordeaux **France**, Bordeaux
Master's degree 2016 - 2019	**MSc Cognitive, Educational & Organizational Psychology** (grade: 1,3) Albert Ludwig University of Freiburg **Germany**, Freiburg im Breisgau
Bachelor's Degree 2012 - 2015	**BSc Psychology** (grade: 1,6) Albert Ludwig University of Freiburg **Germany**, Freiburg im Breisgau

WORKING EXPERIENCE

Graduate Assistant Oct 2019 – Dec 2024	**Interdisciplinary research project "MoveMe – A socio-spatial transformation to sustainable mobility behaviour"** Funded by the Federal Ministry for Education and Research (BMBF) University of Dortmund **Germany**, Dortmund
Research Assistant Jan 2023 - Dec 2024	**Transdisciplinary research project "mobil ans #werk"** Funded by Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) University of Dortmund **Germany**, Dortmund
Student Assistant May 2017 until August 2018	Project: **Muße (Otiose Leisure) in the context of illness** as part of the DFG Collaborative Research Centre 1015 "Otium/Leisure. Borders, Temporal and Spatial Character, Practices" Albert Ludwig University of Freiburg **Germany**, Freiburg im Breisgau
Teaching Assistant April 2016 May 2017	Department: **Psychosomatic medicine** Albert Ludwig University of Freiburg **Germany**, Freiburg im Breisgau
Student Assistant April 2015 until September 2015	Department: **Psychology of Rehabilitation and Psychotherapy** Assistant for Mr Michael Schönberger, Ph.D. Institute for Psychology, Albert Ludwig University of Freiburg **Germany**, Freiburg im Breisgau

COURSES & SUMMER SCHOOLS

June 2023	**Summer School on Environmental Psychology** University of Kaiserslautern-Landau (RPTU) and Federal Agency of Nature Conservation **Vilm,** Germany
July 2022	**Early Career Researcher Workshop** International Association of People-Environment Studies (iaps) Awarded **Best Paper Award.** **Lisbon,** Portugal (online)
June 2021	**Summer School on Environmental Psychology** University of Kaiserslautern-Landau (RPTU) and Federal Agency of Nature Conservation **Vilm,** Germany (online)
June 2019	Summer School: **Does Human Health and Wellbeing depend on a Healthy Ocean?** Azti Tecnalia, SOPHIE 2020 and Aquarium San Sebastian **San Sebastian**, Spain
August 2017	Summer School: **Transitions in Urban Living** – Focusing on global health challenges using Copenhagen as a case University of Copenhagen **Copenhagen**, Denmark

PEER-REVIEWED PUBLICATIONS

Allert, V. (under review). Local citizen assemblies as a way to overcome resistance to the mobility transition? Analyzing discourses in a municipality in rural Germany. *Energy Research and Social Science.*

Allert, V. & Reese, G. (2024). On the challenges of civic engagement in the mobility transition - A conceptual analysis of the linkages between car dependence and collective action. *Journal of Cleaner Production,* 144533.

Gödde, J., Ruhrort, L., Allert, V. & Scheiner, J. (2023). User characteristics and spatial correlates of ride-pooling demand – Evidence from Berlin and Munich. *Journal of Transport Geography, 109.* https://doi.org/10.1016/j.jtrangeo.2023.103596

Allert, V. & Reese, G. (2023). Social identity based motivation to engage in collective action supporting the redistribution of street space. *Transportation Research Part F: Traffic Psychology and Behaviour, 94,* 9-24. https://doi.org/10.1016/j.trf.2023.01.009.

Levin-Keitel, M., Allert, V., Gödde, J., & Krasilnikova, N. (2022). *Mobilitätswende in Stadt und Land – Über eine räumliche Perspektive der Transformation zu nachhaltiger Mobilität.* In: Schmidt-Lauber, B., Othengrafen, F., Pohlan, J., Wehrhahn, R. (eds), Jahrbuch StadtRegion 2021/2022. Jahrbuch StadtRegion. Springer VS, Wiesbaden. https://doi.org/10.1007/978-3-658-38941-3_8

Ruhrort, L. & Allert, V. (2021). Conceptualizing the Role of Individual Agency in Mobility Transitions: Avenues for the Integration of Sociological and Psychological Perspectives. *Frontiers in Environmental Psychology, 12,* 623652. https://doi.org/10.3389/fpsyg.2021.623652

NON-PEER-REVIEWED PUBLICATIONS

Allert, V., Böhme, U., Gödde, J., Krasilnikova, N., Nikscha, F., Ruhrort, L. & Scheiner, J. (2024). Ansatzpunkte für eine Mobilitätstransformation in Stadt und Umland. Arbeitspapiere des Fachgebiets Stadtentwicklung, 4. http://dx.doi.org/10.17877/DE290R-24423

Ruhrort, L., Levin-Keitel, M., Allert, V., Gödde, J. & Krasilnikova, N. (2021). Perspektiven einer sozio-räumlichen Transformation zu nachhaltiger Mobilität. Theoretische und konzeptionelle Grundlagen. Download via https://move-me.net/die-forschung/publikationen.html

Levin-Keitel, M., Ruhrort, L., Allert, V., Gödde, J. & Krasilnikova, N. (2020). Potentiale für nachhaltige Mobilität in der Region Hannover. Download via https://move-me.net/dieforschung/publikationen.html

TALKS AND PRESENTATIONS

Allert, V. & Reese, G. (2024): *On the challenges of civic engagement in the mobility transition - A conceptual analysis of the linkages of car dependence and collective action*. International Association of People-Environment-Studies Conference, Barcelona, 2.–5. July 2024.

Allert, V. & Reese, G. (2024): *On the challenges of civic engagement in the mobility transition - A conceptual analysis of the linkages of car dependence and collective action.* Change4Climate - Overcoming obstacles to climate change mitigation, Louvain-la-Neuve, 23.–24. May 2024.

Allert, V. & Reese, G. (2023): *Social identity-based motivation to engage in collective action supporting the redistribution of street space.* EASP Conference, Cracow, June 30th- July 4th 2023.

Allert, V. & Reese, G. (2023): *Social identity-based motivation to engage in collective action supporting the redistribution of street space.* EASP Small Group Meeting on Collective responses to global environmental challenges, Kloster Nimbschen, 25.–28. June 2023.

Allert, V. & Reese, G. (2023): *Social identity-based motivation to engage in collective action supporting the redistribution of street space*. 4th International Conference on Environmental Psychology, Aarhus, 20.–23. June 2023.

Allert, V. & Reese, G. (2021): *The 'culture war' around street space allocation - a question of social identities?* 3rd International Conference on Environmental Psychology, Siracusa, October 5th-8th 2021.