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Exploring Aspects of Relationality in Urban Mobility and Transport Contexts in Low-Income Countries

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PREFACE

Issues relating to mobility, access and transport are increasingly viewed as urgent to understand and address within both research and public policy. Within social science in particular, one important focus in recent years has been on understanding the everyday practices by which various individuals and groups move around – the journeys that are made (or not made) in various contexts, why they are made, and with what outcomes.

The work that is presented in this paper concerns "relationality" as a fruitful conceptual tool for understanding transport and mobility practices, particularly in low-income urban contexts in the Global South. Relationality emphasizes connections and relationships between people (family members, employers), between people and things (cars, digital technologes), and between people and places (schools, shops).

The authors, Gina Porter and Lanoi Maloiy, argue that "thinking relationally" by setting journeys into their wider contexts is a potentially powerful approach for studying mobility practices and outcomes within communities and cities, as well as possibly on wider, global scales. In addition to its potential for research, the authors also explore the implications of relationalities for public policy and the complex web of relationships that may impact on transport policy.

This work was commissioned by the Volvo Research and Educational Foundations (VREF). Established in 1985, VREF aims to inspire, initiate and support research and educational activities that can contribute to new approaches for developing sustainable mobility and equitable access in urban areas. An important goal is also to stimulate dialogue among university researchers, as well as between researchers and broad groups of stakeholders such as policy-makers, community groups, and NGOs.

Toward this aim, one VREF activity is to initiate, support and spread the results of "think pieces" such as the current work. By "think piece" is meant a research and writing format which gives the author(s) an opportunity to present state-of-the-art work on a specific topic, while also providing a lot of space for critical reflection, based on the author's own expertise, experiences and perspectives. In this way, by encouraging broader – and perhaps more tentative – reflections, a "think piece" can be viewed as a complement to the format of traditional scientific papers.

We hope that this work by Porter and Maloiy will be a resource for researchers, educators, policymakers, and other stakeholders in further developing their own concepts and approaches for understanding everyday practices in mobility, access and transport.

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INTRODUCTION

This reflective think piece is built around the concept of relationality. The importance of relationality – a focus on connections and connectedness - is now widely recognised in the social sciences, though the way it is approached and analysed varies considerably across and within disciplines. With reference to mobilities/transport research, relationality can be interpreted in a diversity of ways, from relations between people, to relationships between people and things (cars, digital technology, food), or between people and places.

The complexity of potential relationalities has been emphasised in a small set of conceptual papers addressing mobility and transport issues over the last two decades. Sheller and Urry (2006) argued in their seminal paper on the new mobilities paradigm against an ontology of distinct "places" and "people", emphasising instead the complex *relationality* of places and persons connected through performances. They refer to the co-constitution of embodiments, landscapes, and systems of local and global mobility: as people, capital, and things move, they form and re-form space itself. Travel itself brings different experiences, performances, and affordances to the fore. Sheller and Urry's point about the *"complex sensuous relationality between the means of travel and the traveller"* (2006: 216), is reiterated in a paper by Hannam, Sheller and Urry (2006:15). Both articles emphasise how this relationality is not only located within individual bodies, but extends to familial spaces, neighborhoods, regions (and beyond).

Manderscheid (2014) put application of the concept to work subsequently, in a paper concerned with the practice of researching relational mobilities and the value of reflection on mobile methods. She works from the same basic premise regarding the need to operationalise mobilities as relational practices, but in this case putting particular emphasis on the way *"social networks rather than solitary subjects are the origin of mobility decisions"* (Manderscheid, 2014: 188).

Over the last decade, the value of a relational lens has drawn growing interest across the social sciences, and we reference a wide range of relevant literature in the discussion that follows. Drawing on this literature and our own (Africa-focused) research experiences, we hope to show how thinking relationally has considerable potential when it comes to contextualizing and understanding transport and mobility practices with greater clarity, especially in low-income urban contexts in the Global South.

The purpose of this think-piece is to draw researchers' attention to the vital importance of setting and analysing journeys and journey practices in their wider contexts. Thinking relationally has considerable potential when it comes to contextualizing and understanding transport and mobility practices with greater clarity, by drawing specific attention to how linkages between people, between people and things, between people and places and wider linkages with public policy all contribute to travel practices on the ground. The think-piece could thus help build valuable new entry-points into understanding urban mobility practices in low-income countries, which is highly relevant to VREF's MAC programme, to the Walking as a Mode of Transport

programme, and to the ISM Informal and Shared Mobility in Low- and Middle-Income Countries programme. The research activity that a relationality approach would generate could be primarily qualitative or more quantitative/mixed method in approach[1].

The organisation of the discussion is as follows. The think-piece first works through specific themes that demonstrate the significance of relationalities thinking for transport and mobilities research, referencing literature that will have relevance to those studying urban transport and mobility practices in low-income urban contexts across the Global South. Following a brief review of the methodology employed in developing the paper, the discussion starts with a focus on 'moorings' – the relationalities that exist in the immobile material world, marking contingent relations between movements. This is a perspective that has rarely shaped transport studies, though work into the specific relationalities associated with care are now beginning to gain momentum. The discussion then moves to the impact of relationalities developed over time – in particular, the way an individual's prior personal life history experiences may contribute to shaping their current travel patterns and practices.

The relationalities involved in interactions at city street and neighbourhood level form a subsequent major section, firstly focusing on relationalities between people as pedestrians and transport passengers, then reflecting on the relationalities between people and non-human objects, such as dogs, traffic, technology and physical infrastructure. This discussion is followed by a consideration of the specific relationalities peculiar to the transport sector itself, focusing on vehicle operators and their interactions with one another, with passengers, unions, machines etc.

Looking beyond the neighbourhood and city scale, two short sections then consider the role of urban-rural interactions shaping mobility outcomes and the potential for upscaling to wider, possibly global relationalities. A final set of reflections firstly explores the direct implications of relationalities for public policy and the potentially complex web of relationships that may impact on the transport policy arena, then moves to some thoughts regarding how relationalities are involved in research practice. Case studies are presented, where appropriate, that demonstrate the utility of the concept with respect to each of these themes.

Following this review of diverse potential elements implicated in a relationalities approach, we move to a short review of two established concepts and theories utilised in the social sciences – time-geography and assemblages – both of which have some resonance with and can usefully be considered alongside the relationalities approach. Examples where research opportunities using a relational lens could be particularly productive are then identified, setting these out with reference firstly to each of VREF's current programmes and secondly with reference to one specific regional/spatial context, East Africa. Although the paper has not been designed as a policy brief, in the discussion of relational policy analysis, examples are also offered as to how the concept can make visible new insights that may be potentially useful to policy.

METHODOLOGY

Preparation for this paper was centred firstly round identification of relevant published and grey literature through searches on Web of Science and Scholar Google, followed by review and in-depth analysis of content in the key material identified. Key words/phrases in the initial searches include relationality/relationalities; relational space; moorings; social practices; social networks (of/in travel); gender and relationalities; mobilities of care/disability; relational policy analysis; transport and everyday life; everyday mobilities; materiality; reflexivity/reflexive research practice (all also in conjunction with urban, mobility, transport, and travel). All key material consulted is included in the reference list.

Moving beyond reference to state-of-the-art research that has been published to date, we offer our own research-grounded interpretations and perspectives, drawing on personal research experience and expertise. Attention to relationalities, we argue, requires cross-disciplinary perspectives. In the case of the first author (whose inter-disciplinary focus extends from a base in anthropology and geography to incorporate transport studies, political economy and economic history), reflections are drawn from mobilities-focused research in African contexts, urban and rural, conducted over a 40+ year period. This includes intensive field-based studies (in mostly anglophone contexts) in Nigeria, Ghana, Tanzania, Malawi, South Africa and Tunisia, as well as shorter field observations in Cameroon, Liberia and Kenya.

In the case of the second author, whose disciplinary focus is gender studies, with a particular emphasis on how gender intersects with transport and mobilities, reflections are built from a gender intersectional lens established over the last 10 years. This work includes academic fieldwork and consulting across East Africa, specifically in Kenya, Uganda, Tanzania, and the Democratic Republic of Congo (DRC), plus some remote research work in Mozambique and Bangladesh conducted during the COVID-19 period.

Our concern to explore relationality in part reflects our disciplinary backgrounds and research interests, but also our field research focus on and in Africa, since in African understandings of the human person, the individual exists only as a part of the community: within the precepts of Ubuntu, the person is relational and personhood can only be understood in relational terms (Ibhakewanlan and McGrath, 2015; Keikalame and Swartz, 2019). However, we extend our focus beyond the individual and the [from local to global] community to incorporate other, non-human, material elements, such as animals, viruses, motorised transport, physical infrastructure, weather, mobile phones and electric lights.

THE RELATIONALITIES EMBEDDED IN MOORINGS

We start the review of relevant themes with a consideration of the relationalities embedded in "moorings", a particularly useful concept but one rarely applied in transport studies. Adey (2006:75) draws attention to John Urry's mobility/moorings dialectic, arguing that "*for mobility to be analytically useful as a term we must focus on the contingent relations between movements*". Hannam et al. (2006:3) are also concerned that more attention be given to moorings: "*Mobilities cannot be described without attention to the necessary spatial, infrastructural and institutional moorings that configure and enable mobilities*". Here we consider "moorings" in its narrowest spatial interpretation, suggesting that a greater focus on moorings in the first place can involve referencing and investigating the origin and destination points of journeys or places where time is spent (homes, schools, workplaces, clinics, markets and other retail outlets, bars and other leisure places etc.) and the societal norms and power relationships that prevail there.

This chimes with reflections from Hannam et al. (2006:3) about the interdependent systems of "immobile" material worlds, including "*exceptionally immobile platforms, transmitters, roads, garages, stations, aerials, airports, docks, factories through which mobilizations of locality are performed and re-arrangements of place and scale materialized*". They point to the complex relationality of places and people, connected through both performances and performativities, such that activities are not separate from the places that happen contingently to be visited: "*Indeed the places travelled to depend in part upon what is practised within them*" and are thus implicated in complex networks (Hannam et al., 2006:13).

Taking this rather narrow interpretation of moorings offers a potentially very fertile approach to analysis of mobilities/transport practices and experiences in low-income country contexts. A focus on the implications of what happens in these origin and destination locations for the journeys that take place between them has rarely been adequately considered. However, one example of its application is in a diversity of African urban and rural contexts with reference to impacts of experiences of home and school moorings on children's (gendered) mobilities (Porter et al., 2017: 13-15). The heavy early morning domestic chores (fetching water, attending to younger siblings, sweeping the compound, washing dishes, carrying goods to market, etc) that are culturally assigned to young girls in coastal Ghana, for instance, almost inevitably impact on subsequent journeys to school. Having carried 12 kg of maize to market for her mother early in the morning, a ten-year-old girl is exhausted as she trudges along the dusty track to school, hurrying to avoid being late (and the beating from her teacher that is likely to follow). Unlike her brother (who will have been assigned fewer morning tasks) she is unlikely to be able to chat and divert from the road to play with friends along the way (ibid, pp. 70-79, 95-97). Eventually, the stress of heavy demands at home and punishments at school, especially if coupled with a long distance between these two moorings, results in many girls abandoning school altogether. At this point, their travel patterns may become refocused entirely around the domestic mooring.

Although it was qualitative data collected in coastal Ghana that first generated attention to the potential impacts of domestic chores on children's lives, this subsequently prompted a major mixed method study across 24 research sites (8 per country, 4 from each of two contrasting ecological zones) in three countries, Malawi, Ghana and South Africa. This incorporated extensive in-depth qualitative research in each site, followed by a quantitative survey of just under 3,000 children aged 7 to 18 years, exploring issues around children's travel, including the scale of load-carrying required of children in fulfilment of household demands on their labour. The survey data collected amply demonstrated the scale of children's load-carrying and its potentially negative impacts (notably with reference to reported pain). Load-carrying was a particular burden for children in the two remote rural sites reviewed in each country, but still significant even in most of the high-density urban study sites of Malawi and Ghana (Porter et al., 2014).

It is important to note that household composition, working in conjunction with the power relations at play within the household, has a potentially critical role in shaping the movement of *all* household members, not only children.[2] Households commonly act as social-material sites where different everyday mobility practices intersect (Rau and Sattleger, 2017). Manderscheid (2014) stresses this point that social networks, rather than solitary subjects, are ordinarily the origin of mobility decisions when she takes households rather than individuals as the basis for her [quantitative] analysis of residential movements and commuting patterns in Britain and Switzerland. This work, which demonstrates the potential of a relationalities approach in primarily quantitative studies, draws on secondary data from British and Swiss household panel surveys.

Manderscheid utilises multiple correspondence analysis of the two data sets to show the importance of type of household on commuting time by gender. If there are children in the household, the commuting time of women is drastically shortened in these country contexts, consequently reducing women's engagement in the labour market. Critical decisions as to who can move from home, who *must* move, who *can* stay at home, who must stay, have global application (Adey and Bissell, in interview with John Urry 2010). Motility – the capacity to stay or move under conditions of one's own choosing - is highly unequally distributed, both by age and gender. Moreover, any resulting relative mobility deprivations can generate resentments between family members - including inter-generational tensions.

The relationality between mobilities of youth and old age take on a special resonance in sub-Saharan Africa because so many young people are resident with older carers, often grandparents (especially grandmothers) and foster parents. Research in small town Tanzania (where many young adults have migrated to the city to find work, leaving their children with grandparents) demonstrates how the intersecting, symbiotic mobilities of the two generations reflect complex interdependencies, as older people care for grandchildren, while locally resident grandchildren assist, in turn, with older people's access to goods and services, including medicines and domestic needs. Care in this and many other circumstances is a highly relational endeavour.

As in the children's study reported above, preliminary qualitative research with older people in one small town, led by the INGO HelpAge, subsequently led to a wider mixed method study including a survey of 339 older people (extending across 9 additional, more rural settlements). This survey indicated that those living alone (women 12.1%, men 10.6%), or caring for orphaned grandchildren alone (albeit less easily quantified because adult children were sometimes visiting and listed as present in the same household), tended to be the most vulnerable (Porter, Tewodros et al., 2013).

That mobilities are relationally contingent is particularly evident with respect to care contexts. Over the last few years, research into the impact of relationalities on mobilities associated with care (along similar lines to the work in Tanzania) has been gaining momentum. As Balcom Raleigh et al. (2020) observe (drawing on mobility diaries in Finland), care underlies, effects, and contours the mobility practices of people in diverse ways. This includes relationalities associated with caring for young children, the sick and the elderly, through all of which activity much mobility between 'moorings' (homes, hospitals etc.) is generated, although usually without specific reference to the term moorings (de Madariaga and Zucchini, 2019; Rubin and Parker, 2023, for the Gauteng region, South Africa; Orjuela and Schwanen, 2023, for a low-income suburb of Medellin, Colombia).

Rubin and Parker's (2023) case study offers another example of a mixed method approach for exploring relationalities of care, in this case focused on gender, mobility and parenting issues in 5 diverse areas of South Africa's Gauteng city regions (each exhibiting different socio-economic conditions). The study incorporated not only focus groups and qualitative interviews but extended to application of a mobile phone mobility app, where a small number of participants [43 in total] were provided with smartphones with a preloaded app which tracked their mobility for a period of two weeks. Triangulation of data from the different methods utilised provides a nuanced study suggesting how relations of care within the domestic sphere influenced mobility patterns, transport choices and spatial footprints at locations of care, as well as through materialities of care.

In the precarious conditions that characterise many low-income urban contexts, caring can present a particularly stressful factor shaping the mobility practices of family members – most often female – who are expected to provide that care. Intertwining of family members' practices requires a level of flexibility in the performance of everyday mobility that depends on effective communication, planning and openness to change (Rau and Satlegger, 2017); this can be particularly difficult to achieve in a context where precarity combines with pandemic. In the case of young women living with elderly relatives in low-income neighbourhoods of Tunis and Abuja during the COVID-19 pandemic, this took the form of on the one hand, emotionally charged decisions regarding mobility strategies that were required as they tried to reconcile their everyday caring, relational obligations in their home moorings, and the associated mobilities necessary for household provisioning, income generation and sociality, and on the other hand, COVID-generated public health imperatives of social distancing, sanitising and mask wearing (Porter et al., 2023). Findings in this study were largely dependent on thematic analysis of 419 [physical and

virtual] mobility diaries [135 for Abuja; 213 for Cape Town, and 71 for Tunis]. These were all written during the pandemic by residents of extremely low-income areas where prevailing poverty and violence was further exacerbated during the lockdowns. It was only because of the prior relationships and trust that had been built between local research teams and the community women they had trained as community peer researchers[3] the previous year that such work was feasible in these particularly fragile contexts.

When care is interpreted in this rather broader sense as the nurturing of one's social networks – at home, at work, among friends etc. – the complexity of mobility impacts, as demonstrated by increasingly convoluted trip chains between moorings, is clear. The concept is broadened even further by Orjuela and Schwanen (2023) in their mixed-methods study built through a series of small surveys conducted with 40 low-income women in the pandemic setting of peri-urban Medellin. They not only point to the critical importance of walking to meet friends and family as an element of self-care for women, but also further note that rendering visible the full extent of mobilities of care demands that careful consideration be given to (relative) immobilities as well[4]. De Madariaga's (2013) point that many of these care trips are not sufficiently accounted for in transportation datasets still remains a major limitation today (https://unhabitat.org/mobility-of-care-ines-sanchez-de-madariaga). All this chimes with Sheller's (2018: xv) interpretation of moorings in mobility justice as necessarily extending to incorporate "*the political and ethical dimensions of uneven mobility*".

RELATIONALITIES OVER TIME: A LIFE HISTORY PERSPECTIVE

While a focus on moorings, as opposed to a focus on journeys *per se*, brings important texture to mobility studies, it tends to emphasise present experiences. Mobility textures can be further enhanced by incorporating reflections on the individual's past connections and connectedness to places and experiences which may impact current journeys significantly. Though the life history method[5] is well established in the social sciences, life histories have rarely been incorporated into mobility studies (beyond those focused on international migration events, on social mobility, or on mobility across the life course (Rau and Scheiner, 2020)).

There is certainly little work applying a gender lens to exploring the impact of life histories on daily travel, transport patterns, and practices and the way these may change over an individual lifetime. However, a recent pilot qualitative study with young men in low-income neighbourhoods of Cape Town, London and Mossel Bay, South Africa[6] draws attention to the vital importance of past experiences (sometimes only a few weeks or months old, in other cases experiences from the distant past) as an important factor shaping the current daily walking (and related) mobilities of some individuals included in that study. This became particularly evident in the case of migrants who had arrived either from elsewhere in the country or overseas.

In the Cape Town study neighbourhoods, young Xhosa men who had recently arrived from rural areas of the Eastern Cape, for instance, sometimes had a heightened awareness of the dangers of the city, and their mobility patterns were shaped accordingly. This emerged through discussion about their past lives and experiences. Similarly, in London's east end neighbourhoods, recent in-migrants from other parts of the world tended to approach mobility with more attention to safe routeways than those born and brought up in the city, especially if their inexperience had resulted in an unfortunate negative incident while walking between home and a transport hub – for instance, having their phone snatched.

In Mossel Bay, one of the peer researchers involved in the study, a young man in his early 20s, had recently gone through initiation school. This will have very significant impact on his mobility for six months: the traditional rites mean that he is not allowed to turn his head to look back, even if someone calls his name, as this would bring bad luck. It has complex implications for each daily journey he makes. While this is an extreme case, past experiences of other locations – whether urban or rural – can be anticipated to play a role in shaping current daily mobility decisions and engagements. A previous bad experience with ferocious dogs had led to another peer researcher in this location avoiding routes through an area of the township where many dogs – described as Rottweilers and Pit Bulls – are kept, unless he is accompanied by others. His girlfriend, so he recounted, is extremely fearful of crossing roads, and avoids doing so whenever she can, because she has been "bumped" by a moving vehicle. He finds it now affects his behaviour too.

Another particularly telling story of dramatic changes in mobility practices over time has emerged with reference to the COVID-19 pandemic. The pandemic criminalized mobility for many globally and hit especially hard those residents in urban areas who had no access to a "safe" personal vehicle. The disruptions and early reconfigurations of gendered work and family-generated mobilities that have ensued (including a change to hybrid working for those with resources to work from home across the globe) have been charted in a diversity of contexts (Adey et al., 2021; Omwega, 2024; Porter et al., 2021, 2023; Shemer et al., 2022).

However, the aftermath of the pandemic (and perhaps the fear of future pandemics) is seemingly still generating new daily mobility practices: here extensive life history research would be particularly valuable, going forward, to assess the longer-term imprint of COVID-19 on daily mobilities in a diversity of contexts across the globe. Life stories charting changing personal mobilities associated with similar life/mobilities-changing events that would merit attention might include the impact of digital technology, climate change events such as major floods, and diverse mobility interventions, such as BRT, access to a personal car, even a working bicycle.

It is important to remember, as Dewey argued, "*that every experience enacted and undergone modifies the one who acts and undergoes, while this modification affects, whether we wish it or not, the quality of subsequent experiences. For it is a somewhat different person who enters into them*" (Dewey, 2015: 35).

RELATIONALITIES SHAPING MOBILITIES ON THE STREET / PUBLIC SPACES

This section considers relationalities between people, before moving on to consider relationalities between people and non-human objects on the street and in other public spaces. In considering such relationalities, however, it is important to first reflect on the rather different relationalities that are likely to be shaped as individuals experience different forms of transport – in particular the experiences that might be shaped by pedestrian travel, as opposed to travel in motorised vehicles. As Ingold (2017) observes, walking calls for the pedestrian's continual responsiveness to the terrain, the path, and the elements. To respond, they must attend to these things as they go along, joining or participating with them in their own movements. Listening, watching, and feeling are thus arguably part and parcel of walking practice, even if we rarely note them as such. Once people enter vehicles, their bodily comportment will change: whether sitting or standing, they are likely to not only be relatively stationary but also potentially located in close proximity to other bodies (unless driving their own vehicle without accompanying passengers). A rather different range of human and non-human interactions are likely to ensue. However, whether walking or travelling in a vehicle, as Sheller and Urry (2006: 216) observe, transport is experienced through a combination of senses and sensed through "*multiple registers of motion and emotion*".

Relationalities between people

Whether walking or travelling on public transport, an individual's movements have much potential to be either promoted or hampered by the actions of other people encountered on such journeys. The criminal activities so prevalent on streets, at transport hubs, and on public transport in many low-income urban neighbourhoods, in particular, can have considerable influence on travel practices in these locations, shaping the routes people take, mode(s) of transport selected, goods carried, dress, and the wider repertoire of tactics they employ. As Ingold observes, awareness of things and other beings constantly shapes our movements (something he describes as attentionality, as opposed to intentionality) (Ingold, 2017).

In the Global South, whether travelling on public transport or walking on the street, women and girls tend to face the most challenging interactions with other people, especially regarding sexual harassment. Women's negative experiences as soon as they enter the street as pedestrians are well described in an early paper by Seedat et al. 2006 on Johannesburg and Delhi. More recently, Dunckel-Graglia (2016) has shown how, when travelling in Mexico City, women try to avoid harassment through "down-playing" their looks by wearing all black and covering up their blouses or tops with sweaters – also having their fare ready upon request. She observes how the relegation of females to the private sphere and men to the public sphere provides some "silent" patriarchal attitudes such that, when women dare to venture outside the home, especially beyond what are

deemed appropriate hours for women, they are vulnerable to violent attacks. Fears of harassment and violence often intersect after dark to massively constrain movement (Zhang, Zhao, and Tong, 2022). Even going to carparks alone or using certain modes of transport is perceived to be hazardous (Stark and Meschik, 2018; Pedersen, 2020; Zhang, Zhao, and Tong, 2022).

In Africa, the Kenyan #MyDressMyChoice campaign, following the 2014 video of sexual assault on a Nairobi public bus, has drawn attention to sexual harassment in transit across the continent (Otu and Agugua, 2020, for Lagos; Vanderschuren et al., 2023, for Lagos and Blantyre). Just being female is, in itself, a disadvantage in public space, but for *young* women, the likelihood of sexual victimization seems to be particularly high (Ceccato and Loukaitou-Sideris, 2021). Many young women (18-35 y) who were interviewed in a three-city study comparing conditions for women living in low-income areas of Tunis, Abuja and Cape Town specifically referenced male harassment in the context of crowded, rush-hour journeys between home and work (Porter et. al., 2021, 2025). Much attention is paid to timing of movements, although work schedules, shifts and necessary trip-chaining before and after work do not always allow this. In Tunis, for instance, women who had to move regularly through public space to get to work, for education, and as family carers, emphasised how this required strategies and action plans. In this largely Moslem social context, some thus choose to dress conservatively, wearing a hijab to try to avoid male attentions. Many look to plan journeys with a companion, perhaps sharing the costs of an expensive door-to-door taxi, avoiding travelling down streets, waiting at transport hubs and joining overcrowded public transport where men may touch them or even masturbate on them. Others withdraw from work and educational opportunities because they cannot cope with the levels of harassment they have experienced (Murphy et al., 2023).

In Cape Town, young women emphasized their fears of early morning walks to the taxi rank before daylight, such that male partners are recruited to accompany them. In Abuja, girls talked about the dangers they encounter on their way to and from school, at street corners and outside night clubs, where men may congregate, smoking and consuming alcohol. Travelling in a group is a common tactic, as is the tendency to select routes along busy streets rather than on narrow, less-frequented pathways, though this can also mean having to dodge dangerous traffic, including motorcycle taxis that weave through at speed (Dungey et al., 2023). Many women now accompany their children to school in this city, because of the danger of "one chance" taxis kidnapping them and holding them for ransom: alongside traffic accidents, they see this as their biggest perceived danger as pedestrians.

Women's fear of violence and harassment has translated in some contexts into policy efforts towards the feminisation of transport and a search for improved mobility outcomes for women across the Global South. This includes the controversial introduction of women-only transport in many cities. In Mexico City, with the introduction of women-only transport in the city, not only were women provided with women-only subway carriages in metros – other modes of transportation spaces themselves were "feminized' through colour, naming and messages. For instance, women-only buses were painted pink, and named "Athena" after a Greek goddess renowned for strength and agility (Dunckel Graglia, 2016). However, as Sonal Shah (2018) emphasises (https://

itdp.org/wp-content/uploads/2019/01/Women-only-Transport.pdflic transport), "*sex segregation should not be the default response to harassment in public transport, as it does not foster behavioural change. Gender-equitable public transportation requires an integrated approach*."

It is notable that when women experience harassment on public transport, only rarely do they bring this to the attention of fellow passengers or contact the (generally male-dominated) transport operators or officialdom, such as the police, to make any complaint (Martin, 2022). The actual space and moment in which the interactions of harassment occur occupies a dark corner, hidden from view, but one with potentially momentous implications for the women's subsequent mobility practices and repercussions which may reverberate for years in her home moorings, if for instance (as was reported by some women in the Tunis case above), she withdraws from work outside the home.

While women's negative experiences of travel have dominated recent gender-focused research in Global South cities, it is important to point out that other groups may also face harassment and attack. Findings from recent VREF-funded walking research on young men in two low-income neighborhoods of the Cape Town city region demonstrate these issues well (Porter et al., 2024; Rink et al., 2025). Many young men spoke about the stresses of walking and the care with which they selected the items they will need to take with them when they leave the house. Valued items such as laptops and earphones are commonly left at home – it would certainly be unwise to listen to music when walking, especially once darkness falls. Students report being targeted by robbers because they often carry big backpacks with laptop computers and other expensive equipment. Choice of dress is important for many young men – avoiding 'big brands', expensive clothes and sneakers. Given that it may be necessary to run to avoid danger, many unsurprisingly referenced the value of wearing shoes that are comfortable for running in: sandals are difficult in such circumstances. It is also important to appear at ease in the street, blending in with the street scene while keeping a careful look-out for trouble: walking with others can be particularly helpful. Tactics that would be employed when alone and seeing a potentially dangerous encounter with a gang on the street ahead include the shoe-lace tactic: bending down to tie a shoe-lace so there is time to look back and check if it's safe to go on - or otherwise run for home, pretending you have just realised you've forgotten something. At the same time, young men also recounted the moments when walking generated pleasure, referencing the healing, beauty and peace of mind they experienced.

Clearly youth can exacerbate gendered vulnerabilities, but other factors, not least socio-economic status and disability, may also contribute. Children and youth have been the focus of a number of studies over the past two decades (e.g. Porter et al., 2017), but the constraints faced by persons (of both sexes) with a disability raises issues that are only just coming to the fore (Vanderschuren et al., 2015, Naami, 2019; Gitau et al., 2023). An intersectional approach to relationalities, encompassing consideration of how factors such as gender, age, race, health status and class connect with each other and shape individual experiences and opportunities, is an area that is still underexplored in Global South contexts.

Relationalities between people and non-human objects on the street: from dogs, cars, and traffic to technology and physical infrastructure

Other relationalities are observable between people and non-human objects on the street, extending from engagements with viruses, or animals such as dogs, to those inanimate objects built around traffic, physical infrastructure and technology. The potential for viruses to both impact on and reflect mobility patterns has been extensively demonstrated in extensive recent research following the onset of the COVID-19 pandemic. On a more micro-scale, dogs, as noted in the Mossel Bay example, can be a significant source of disquiet, necessitating micro-mobility adjustments for human pedestrians on the street (though humans may also impact on the movement of dogs, whether running wild or on leads led by humans!) Heavy rain, hot sun and the shade provided by trees are weather features which, in a different way, can significantly impact on temporality, route selection and travel mode.

In the everyday, it is often moving traffic (including bicycles), parked vehicles and traders stalls that present obstacles to free pedestrian movement in urban sites across the Global South, as a number of ongoing VREF-supported research studies are highlighting. Relationalities between pedestrians and traffic are often shaped by resources and access to transport. Vehicles tend to be very differently perceived by people, depending on their socio-economic status, as well as their gender. Girls such as those in low-income areas in Abuja, described above, must keep a careful watch on the traffic as they walk. They do not have access to personal transport and, as noted above, their mothers are particularly concerned to see they don't enter "one chance" taxis.

By contrast, those who have access to their own vehicle may be less likely to walk: in city neighborhoods where traveling by car has become the primary mode of transportation, the built environment has evolved such that walking, bicycling, and other forms of active travel are discouraged and may actually be hazardous (Shoham et al., 2015). Aspirations for personal car ownership have grown in low-income countries, seemingly exacerbated recently by the pandemic, when travel alone in a private car seemed to offer the greatest potential for travel safety. This draws attention to another aspect of relationality that rose to prominence during the pandemic: the links between transportation and disease spread. It encourages ongoing reflections as to how transportation controls should be implemented following the detection of a disease outbreak to limit the virus's spread, and how transportation restrictions could be coordinated with vaccination efforts when vaccines become available (Liu et al., 2024).

In Africa, the private car is not only viewed as a status symbol and a route to securing safety from pandemic threats, but also as the means of obtaining comfortable seating, privacy, and a choice of company and entertainment (Bruun et al., 2016; Porter et al., 2020). The preference is reinforced in South Africa by additional concerns around high crime levels that have promoted elite perceptions that, in major cities, any venture into public space is potentially dangerous – a private car is the only solution (Scheidegger, 2009: 208, 210). However, even in South Africa, only 21.8. % of women currently have a car license, compared to 40.1% of men (South Africa census, 2020): gender remains a significant factor in access. Incidentally, this gender bias may

explain why, on a global scale, vehicle design still focuses on the needs – and bodies – of male travellers, to the detriment of women: essential collision research primarily still prioritises dummies which represent males (Perez, 2020).

Another aspect of the expansion in personal car ownership across Africa is the way new relationalities are developing between different socio-economic groups of vehicle users. Hart noted the scale of tensions evident on the road in Ghana, between "*the elite 'myself' drivers with luxury SUVs and sedans against working-class urban residents crammed in dilapidated trotros and taxis, all asserting the rights to space, mobility, and opportunity*" (Hart, 2016: 183-184). Such tensions increasingly prevail across the continent (and beyond) but are little researched. They clearly link to differential mobility empowerments that reflect structures and hierarchies of power and position, shaped by race, gender, age and class, and all evident at a diversity of scales (Tesfahuney, 1998: 501).

Technology has brought new relationalities to the fore, linking virtual with physical mobility practices. Hannam et al., (2006) drew early attention to the way the human body and the home are transformed as proximity and connectivity are imagined in new ways and often enhanced by communication devices likely to be "on the move".

Mobile phone technology is now well integrated into urban transport systems across the Global South. Recent work, for instance, notes the contribution of such technology to the improvement and expansion of motorbike taxi services in urban centers, as customers and drivers connect (Nkonoki and Hamza, 2024, for Dar es Salaam). Meanwhile, the gig economy, with its emphasis on last-minute scheduling has generated huge new streams of urban mobility as Uber, Uber-eats and similar commercial enterprises continue to burgeon across most major cities in the Global South.

Moving on to human relations with physical street infrastructure, narrow unpaved streets, culverts, barriers associated with BRT construction, heavily trafficked highways, and long over-head pedestrian road bridges can all be associated with constraint on pedestrian routeway selection. Impatience with such constraints can result in risky action and the potential for serious accident and death. In cities in low-income countries, technological equipment such as traffic management systems tend to be limited and may not be well maintained, especially in slum neighbourhoods, but still tend to regulate some movement (traffic lights, belisha beacons etc.), thus playing a significant if barely acknowledged role in daily pedestrian and auto-mobility routines. However, it is streetlights (working or not working) that tend to impinge particularly directly on human movement decisions once darkness falls. Load shedding (electricity power supply cuts) has been regularly experienced in South African cities over the last few years and has significantly impacted the way people plan and negotiate walking journeys. This is well exemplified by young men's accounts of their fear when they must travel after dark in low-income areas of Cape Town, the emphasis being on making essential journeys at speed and organising door-to-door transport where possible (Porter, Rink, Maskiti et al., 2024).

A final point regarding people-infrastructure interactions is that while placement of infrastructure and technology is generated through human decision making, once in place its potential to impact on mobile lives becomes complex. In particular, street lighting can fail, and digital networks disintegrate. Only when humans identify and resolve the technical problem can people-infrastructure interactions resume.

RELATIONALITIES WITHIN THE TRANSPORT SECTOR

Relationalities within the transport sector itself certainly need closer attention. The specific ways that vehicle operators (drivers, conductors etc.) and others in the transport sector engage, not only with their customers but with fellow workers, can have wider impacts extending through to interactions with machines, transport unions, digital technology etc.

Interactions between workers (whatever their gender) operating in the transport sector have, to date, received limited attention. However, one of the defining features of the transport business globally is its domination by men. This gender imbalance promotes an intense interplay of elements – bodies, technologies, time, place – that are critical in the shaping of an "affective atmosphere" which is probably perceived by many (especially low-skilled) men as conducive to supporting their exploitation of a niche that offers potential for autonomy and status (Gibbs, 2014).

A relevant example of gender imbalance is the motorbike sector in East Africa, which is dominated by men. Motorbikes as a means of transport are particularly attractive to younger men in countries like Uganda, Kenya and Tanzania because motorbikes offer them dignity, livelihood, and visibility (Gaba, 2023). Gaba further asserts that motorbike taxi transportation is seen as providing them with "cleaner" work conditions in comparison with farming. Using a relational lens, this male domination of the motorbike taxi sector can also be seen as a facilitator of transactional sexual relationships between male riders and teenage girls and the sexual harassment of female passengers.

Another relational lens that can be applied to young men in the motorbike taxi industry in East Africa concerns criminal activities (Opondo & Kiprop, 2018). This association between motorcycle taxis and crime is aided by the informality of the motorbike taxi sector and the lack of documentation when it is unregulated by government (ibid).

Women's everyday experiences of transport contrast significantly with those of men across the Global South. In Africa, women commonly perceive the "affective atmosphere" that prevails in the sector as unfriendly and potentially threatening (Porter et al., 2023). This atmosphere impacts on women as transport users, making their bodies uneasy and keenly defensive (Martin 2022), also deterring most women from working in the sector. Some attention is now being given to the

importance of changing the atmosphere that so oppresses women when they travel, by bringing more women into work in the sector, especially in customer-facing roles. This is encouraging new research in this field (see Hiramatsu, 2021, for Mexico City; Muhoza et al., 2021, for Kampala, Nairobi and Dar es Salaam; Wright, 2019, and Carter et al., 2020, for Nairobi; Kamau and Mitullah, 2022, for Nairobi; Porter et al., 2023, for Abuja, Cape Town and Tunis).

Some earlier research of particular note concerning the interactions of women travelers with transport workers points to the significant repercussions that may follow on from relationships that develop between (usually older) male mini-bus taxi drivers and the young women who use their services, specifically in South Africa. Potgeiter et al.'s study of taxi "sugar daddies" and their taxi "queens" in Western Cape (2012) emphasises the transactional nature of such relationships, which seem to be perceived, among both drivers and their queens, as conferring status (although there is evidence of stigmatisation of the girls concerned in their communities). The risk of contracting HIV and other STIs through those ride-along relationships is high and thus has the potential to rebound with massively damaging consequences in the personal "moorings" at either end of such journeys.

For many men working in the transport sector in low-income country contexts, solidarity with other male workers in the sector, including through signifiers such as style of dress and language as well as through local and regional union membership, enables them to cope with the challenges they face as they operate along badly-maintained roads in congested and dangerous traffic conditions, while dealing with the unwelcome advances of rent-seeking police and other transport officialdom (Hart, 2016; Rizzo, 2017; Ehebrecht and Lenz, 2018). Deeper exploration of the complex entanglements that link transport workers in low-income countries with the vehicles they choose to drive and decorate, the unwritten codes that shape their engagements with each other, the movement of licenses and permits (legal and illegal), and their diverse interactions with union officials, police services, judiciary and political organisations that shape the broader transport landscape is long overdue, yet essential to full comprehension of the transport scene. However, while stories of corruption (which is a slippery concept) regularly emerge across the sector, most remain highly resistant to detailed investigation (Majondo, 2022, for Kenya; Mmakwena et al., 2023, for Pakistan) – and some are arguably potentially dangerous for individual researchers to pursue.

URBAN-RURAL INTERACTIONS SHAPING MOBILITY OUTCOMES

Looking beyond the neighbourhood and city scale, there are other relationalities that impact transport and mobilities, not least those operating between urban centres and the rural areas that supply them with food, energy and workers, sometimes on a daily basis. The complex relationalities that shape the finer detail of rural-urban mobilities also impact back on the moorings at either end. This is another arena with considerable research potential which has

received relatively little focused attention from transport specialists in recent years, as interest in the complex web of connections that exemplify strategies of "straddling" between rural and urban locations (e.g. Tacoli, 2003; Satterthwaite and Tacoli, 2014) has seemingly waned, mirrored by an increasing focus on the internal workings of mega-cities. Recent research tends to compare travel patterns of rural and urban residents, rather than examining rural-urban and urban-rural travel flows themselves, though there has been some specific interest in long commutes, given that the proportion of long commuting is increasing in large, still growing cities in many low-income countries (He and Zhao, 2017; Zhao et al., 2020). Length of commuting time, with its wider implications for time poverty, health and well-being, is well illustrated by a recent study in Greater Accra by Carmichael et al. (2024), where a survey found an average commute of 1.8h for men and 1.6h for women.

Despite the paucity of recent research specifically focused on urban-rural relationalities, there is ample evidence of the extent to which daily rural-urban and urban-rural flows still prevail, in terms of the traffic congestion that characterises many routes into urban centres, including into smaller intermediate urban centres across the Global South, in the early morning and towards nightfall. These dynamics would merit renewed attention. Food distribution, for instance, still offers a prime example of daily rural-urban flows that are crucial to urban sustainability (Lynch, 2005, 2018). Informal rural-urban and intra-urban food distribution networks, which include informal taxi drivers, play a vital role in supplying food to city populations (albeit its being vulnerable to state clampdowns on informality) (Smit, 2016). Lynch (ibid) suggests that this encourages fluidity and fragmented identities, with fluidity often a deliberate strategy of people living in urban areas, utilised as a means to maximising their livelihood opportunities through nurturing of rural connections.

Meanwhile, there are others who travel to the city, sometimes daily, from their rural homes, either for education or when looking for, or participating in, paid city-generated work. A majority of those travelling in educational contexts tend to be male, since fewer girls have access to bicycles, and parents are concerned about their daughters travelling in to city schools alone (which is one of the factors that inhibits girls' secondary school attendance, see e.g. Porter et al., 2017:66 and Siiba, 2020, for Ghana; Siddhu, 2011, for India; Zhao and Wan, 2021, for China). Prince (2013) notes the "tarmacking" of young people on a less regular basis as they search for city jobs in Kisumu, Kenya. Their place in the city is insecure, so they move often, "tarmacking" in and out of the city, from one rented room to another, and from one project to another.

Finally, it is also important to remember the journeys that take people and the goods that are delivered in the opposite direction, from city residences to the countryside. Urban-based traders and transporters with manufactured groceries, second-hand clothing, drugs and such

are a prime example. There are also cases where men and women travel out of the city for agricultural work. For instance, in the urban periphery of Tunis, there are groups of women residing in small satellite towns who, experiencing particularly high unemployment rates, travel to the fields on a daily basis (often riding precariously on the top of open lorries) as agricultural workers (Murphy et al., 2023).

UP-SCALING IN A GLOBAL WORLD

Up-scaling even further, there may be wider relationalities – possibly global – within which such regional connections are set. Simone's (2014, 2023) reflections on "infrastructures of relationality" emphasise the lived and ritualised experiences of power: how micro-experiences and life worlds of individuals, groups and institutions are connected through global networks, with the processes and configurations of relations weaving together. Issues around climate change and its implications for transport and mobility across the globe fit within that broader nexus of relationships. This introduces complexities at a scale that are difficult to encompass, reflecting Chandler and Pugh's point (2020) hat the intensification of relations globally makes the work of relationality an ongoing process of exploration. However, when applied at scale, such exploration is arguably more disturbing than it is enabling, especially if it rationalises the reproduction of inequalities and exclusions. This point can be further pursued through consideration of public policy and the impact of global relationalities on transport interventions, as discussed in the next section.

RELATIONALITY AND PUBLIC POLICY

Relationality has direct implications for public policy. Studies that engage with relational analysis in the urban transport policy context could be very fruitful, given growing concern regarding the difficulties of moving public policy in more positive mobilities directions – for instance, in terms of gender/disability mainstreaming and improved walking and cycling infrastructure. Lejano and Kan (2022) consider relationality not only as a condition but also as a set of processes, arguing that the relational often operates unseen in the back stages of a policy arena. They suggest that relational policy analysis can provide deeper insights into the career of any policy and the dynamics of any policy situation. The web of relationships among policy actors – such as governmental, third sector, private sector, donors – may significantly affect the construction and conduct of policy. This resonates with Simone's (2014) broader reflections concerning "infrastructures of relationality" - the ways in which relationships themselves constitute an infrastructure for inhab-

itation in cities of the majority world. As he observes, following his reflections on urban politics, sociality and the built environment in Jakarta:

> "It is probably too simple to say that planning and governance must take greater cognizance of these relational infrastructures in times where the long range futures of cities become more precarious. Regardless of the limitations in any system of accountancy, there must be ways to enable the efforts that residents make to sustain and redo their inhabitation count more in the ways in which governmental decisions and policies are deliberated and structured. Relational infrastructures must also intensify the possibilities of *making visible capacities and aspirations that otherwise remain occluded*, [our italics] either for tactical reasons on the part of those who deem that the efficacy of what they do requires to remain under the radar or because they simply are not recognized by the optics of power. Much emphasis has been placed on inhabitants participating in a wide range of decentralized planning and governance processes. Work must also take place that thinks strategically about how to fold in the multifaceted, multi-scaled institutions of planning, resource allocation and political decision-making into the infrastructures of relational practices, even if only to issue new complicities and dilemmas."

Aspects of this relationality can, and need to be, traced through to the global scale since the process of policy construction and circulation, even when focused on specific local contexts and issues, regularly extends well beyond national boundaries. Some knowledges are assembled, mobilized, then localised at speed, with complex interactions occurring between exogenous and endogenous influences and influencers. This is particularly well demonstrated by Wood's (2015) work which traces the adoption of BRT in South American and South African cities, exploring how and why certain cities are brought into conversation with one another, as well as the consequent actions. As she concludes, "*policy circulation is never a rational survey of best practices but a political process through which policymakers select their sites of learning in accordance with wider aspirations, ideologies and positioning*" (Wood, 2015: 1062).

In such contexts it is vital to understand the flows of elite power that commonly restrict outsiders from gaining insight into embedded cultural practices that may be operating at a multiplicity of scales. This requires close attention to the processes and configurations of relations that interconnect individuals, organisations and exchange mechanisms, bringing about a critical focus on the system of operations and contractual arrangements that flow through space (Simpson, 2024). Manderscheid (2014: 214) makes an important point in this regard, noting how in

the field of policy making, "*numbers and calculations are the hegemonic representations of social realities*". She thus proposes that relational approaches can usefully also draw on quantitative work in this context, since "*speaking the language of numbers and statistics increases the chance for critique to be heard in policy-making and to establish alternative figures such as the socially and spatially embedded mobile actor into social realities, in competition with the idealised solitary rational mobile subject*" (ibid).

RELATIONALITIES AND THEIR IMPACT ON RESEARCH PRACTICE

Finally, it is worth reflecting as to how relationalities affect research practice and the relationship between researchers and the researched in transport studies and other contexts. Researchers impact on the individuals they are studying and the people being studied impact back on the researcher (and the knowledge they disseminate) – a point that is central to anthropological field understandings, but rarely adequately acknowledged in transport research. Whatever is being studied can be conceptualised as a configuration of relationships, not an independent, "objective" entity: neither the researcher nor their interlocuters can be removed from tangles of responsibilities and other relational pressures that may even contradict each other.

Even so, inequalities of power, voice and vulnerability tend to favour the researcher. Although efforts to avoid extractivism[7] (an inverse of relationality) are growing, greater attention to the local knowledge of marginalised groups and acknowledgement of its value in the development of professional understandings of local context are needed. In this vein, there is also a need for more relationally-informed transport studies undertaken by researchers from minority groups, specifically women, early career researchers and those living with disabilities, in order to provide a stronger gendered and intersectional lens in this arena.

WIDER CONNECTIONS TO OTHER ESTABLISHED CONCEPTS AND THEORIES APPLIED IN TRANSPORT/ MOBILITIES RESEARCH

Until recently, transport studies (as opposed to more encompassing mobilities work) has been firmly focused on transport modes and operations per se, but there are a few established concepts and theories utilised in the social sciences – notably time-geography and assemblages – which can usefully be considered alongside the relationalities approach discussed above.

Time- geography, which has a well-established position in transport-focused research, can be linked to the discussions above on both moorings and life history work. With regard to the relationalities associated with moorings, there are direct resonances with Hägerstrand's (1985) time-geography concepts. These relate to how and why individuals in one or more populations (human and non-human), link to each other and move (or are moved), between places along their individual paths, utilising various resources which are contextualised by reference to *capacity constraints* regarding the individual's skills, knowledge, material assets, and tools. Constraints refer both to phenomena that have occurred in the past and to the possible paths that can be trodden in the future material world, suggesting broader linkages extending to life history work. However, time geography tends towards quasi-quantitative analyses, with much less concentrated attention on the affective nature of the linkages between moorings, life histories and journeys in and of the moment, an approach that requires specific attention to detailed investigation of qualitative data. Thus Hannam et al. (2006:4, 6), argue that the emphasis had been on "*spatial ordering, with travel as a neutral set of technologies and processes*" and the need to look beyond "*spatially fixed geographical containers for social processes*". They point to the need to discard boundedness and the linear assumptions about temporality and timing which encourage the idea that actors can only do one thing at a time, with events following each other in a linear order. Time geography has also been critiqued by feminists for taking an androcentric lens to everyday tasks (Scholten, Friberg, and Sandén, 2012).

A different reflection comes from McQuoid and Dijst (2012: 26) who observe that "*although there is ample evidence that the way we feel and anticipate feeling in certain situations or places can assert great influence on our behavior, this emotional component of the space–time path has for the most part remained external to time geographical analyses*". Space-time analyses tend to promote an emphasis on constraints, while relational perspectives arguably open a broader perspective of possibilities as well as constraints.

A stronger link can be identified between the relationalities themes reviewed above and the **assemblage thinking** which has been developing out of the socio-spatial theories of Deleuze and Guattari (1987). A broadly Deleuzian reading of assemblages places emphasis on becoming, contingency, local difference, and how relationships give rise to things. They insist that '*every assemblage is basically territorial . . . [and the] territory makes the assemblage*' (pp. 503–504). This approach can draw out the relational properties of things and identify when, and in what way, different properties of things emerge as effective in distinctive ways.

Assemblage theory certainly puts emphasis on relationalities – in this case, the provisional, unstable and potentially ephemeral nature of socio-spatial relationships, with human and non-human components combining into a rhizomatic arrangement and interacting to create emergent qualities. Relations are reformulated not just by components internal to the assemblage but also by parts exterior to them, a point that wider reflections on relationalities (for instance regarding urban-rural connections) similarly suggest. McFarlane (2009: 566) proposes a "relational topology" of assemblage: "*Unlike network, assemblage does more than emphasise a set of connections between sites in that it draws attention to history, labour, materiality and*

performance. Assemblage points to reassembling and disassembling, to dispersion and transformation, processes often overlooked in network accounts." On close inspection McFarlane's translocal assemblage, which is built around a particular case study of housing issues in low-income communities, seems to offer a very similar approach to the relational lens we propose in this paper, although without any direct reference to emotion and effect.

Dovey and Reccio (2024) also offer a useful example of the assemblage approach in a study of Manila and Jakarta. They argue that theories of informal urbanism need to be grounded in an understanding of how informal urbanism works to sustain livelihoods, moving beyond studies of informal settlement, street vending and transport to understand the synergies, interrelations and interdependencies between them. They note how assemblage thinking seeks to expose a multiplicity of interconnections, synergies, alliances and symbioses (much as we have suggested regarding the adoption of a relationalities lens). Dovey and Reccio talk of the city as complex adaptive assemblages– spaces of possibility, which link sociality to spatiality, local to global, informal to formal, embodying an understanding of both the power of authority and of resistance, of oppression and empowerment. Again, this mirrors the way we have approached relationalities. However, assemblage theory, as Müller (2015: 27) suggests, arguably needs a "*more sustained engagement with issues of language and power, and affect and the body*" – key potential elements in a relational approach.

POTENTIAL APPLICATION OF A RELATIONAL APPROACH IN VREF PROGRAMMES

Examples where research opportunities using a relational approach could be particularly productive can now be identified, firstly setting these out with reference to each of VREF's current programmes: VREF's Mobility & Access in African Cities, (MAC programme), the Walking as a Mode of Transport programme, and the Informal and Shared Mobility in Low- and Middle-Income Countries, (ISM programme). In each programme we anticipate that the research activity that the approach would generate could be primarily qualitative or more quantitative/mixed method in approach.

Mobility & Access in African Cities (MAC programme)

The emphasis within the MAC programme on production and dissemination of locally grounded cross-disciplinary knowledge looks to offer considerable potential for development of qualitative and mixed-method, relationalities-focused research across a diversity of contexts and themes, with particular reference to the programme's theme 1 (User Needs and Practices, Equity Issues) and theme 2 (Governance, Politics, Institutions and Finance). The relationalities approach should

also have relevance for the other programme themes and the more substantial African Research Programs (ARP-MACs) currently being initiated and funded by VREF.

In terms of user needs and practices, there would be clear value in greater reflection regarding the role of origin and destination moorings on travel practices (and vice versa), with particular consideration of the ways affect and emotion move across and shape these diverse spaces and practices. More attention to longitudinal perspectives, meanwhile, would help chart how relationalities are continuing to change over time. For instance, the aftermath of the pandemic (and perhaps the fear of future pandemics) is seemingly still generating new daily mobility practices. Going forward, extensive life history research could aid in the assessment of the longer-term imprint of COVID-19 on daily mobilities in a diversity of contexts. Life stories charting changing personal mobilities associated with other life/mobilities-changing events that would merit attention include events caused by weather and climate change (such as major floods), digital technology, and diverse mobility interventions (such as BRT, access to a personal car, even a working bicycle). Intersectional approaches that take fuller cognizance of how different groups of people impact on each other would complement both moorings and life story work. Gender has gained much greater attention in transport analyses over the last decade, but investigation into the finer detail of intersectionalities – extending to considerations of how ethnicity, age, health status and class intersect with each other (and with gender) – would promote the construction of more nuanced understandings of mobility practices.

In relation to the MAC programme's theme 2 (Governance, Politics, Institutions and Finance), perspectives built around relationality's implications for public policy and associated relational policy analysis are particularly relevant. The back stages of any policy arena in which transport plays a significant role are likely to be extremely difficult to unpick, given the potential (and propensity) of urban elites for obscuring the power flows that help shape decision making, for instance through contractual arrangements and associated sleights of hand. However, if transport justice for less privileged city residents is to be secured, improving the visibility of policy processes by unpicking the relationalities that underpin them will be essential.

Walking as a Mode of Transport programme

Walking is only now starting to occupy a more centre-stage place in transportation studies and the micro-scale of most work ongoing in this field offers strong potential for application of qualitative methods and the application of relational perspectives. Paying stronger attention to relationalities evident in walking contexts could benefit all four of this programme's themes (that is, Conceptualizing and critically appraising walking as a mode of transport; Walking as transport in everyday urban life including equity issues; Governance, policy and urban planning for walking as a mode of transport; Services, tools and business models to facilitate walking as a mode of transport). Affect and emotion are key aspects of relationality that can usefully be linked to all four them, where much greater attention is needed with regard to the felt experiences of diverse groups, particularly those residing in low-income neighbourhoods (again, taking an

intersectional approach as noted with reference to the MAC programme). The emphasis on walkability in Global South cities currently being pursued (for instance with ongoing support from UNHabitat and ITDP) is extremely useful, but its focus on hard infrastructure and road safety would be well complemented by inclusion of a relational lens.

Informal and Shared Mobility in Low- and Middle-Income Countries programme (ISM Programme)

The scientific profile of this programme is built around three thematic areas: Impact – Governance – Integration. The international research programme which is at the core of the programme, entitled "An Equity, Ecosystems and Engaged Approach to Informal Transport and Shared Mobility," is taking a collaborative, grassroots approach to knowledge creation by establishing seven "living labs" in eight quite diverse cities across Africa, Lain America and Asia (Accra, Bangkok, Beijing, Bogotá, Cape Town, Kumasi, Mumbai, and Metro San José). These living labs are clearly sharply focused on transport, while seeking insights across a broad spectrum of themes, not least the ecological and climate crises, escalating air pollution, and the need for social justice in LMIC cities. An assemblage approach seems to fit the move towards living labs, which can enable a better understanding of the many interrelations of informal urbanism with practices of formal governance. However, for transport/mobilities specialists this might perhaps be seen as drawing the focus away from in-depth understandings of key transport components of the city.

From this perspective, there could be some potential complementarity between the two approaches, with transport specialists contributing to work with urban studies researchers who are specialising in other fields in a city lab context. In-depth qualitative or mixed-method research on relationalities within a broader assemblage frame could contribute to understanding some of the entanglements that transport-related relationalities bring to the wider urban assemblage. Through such collaborations, knowledge generated through a wider "assemblage" perspective and knowledge generated through a more focused relationalities lens (which puts more emphasis on felt experience, affect and emotion and the deeply embedded cultural practices that help shape both policy circulation and everyday travel practices) should benefit each other.

Looking across the three programmes as a whole, closer attention to the positionality of researchers and how that inevitably shapes research practice and outputs could be a valuable reflective exercise that is rarely conducted in transport research. This might also lead to more work around the adoption of participatory methods that can help ameliorate the power relations so produced.

THE POTENTIAL FOR WORKING WITH A RELATIONAL LENS IN EAST AFRICAN TRANSPORT/MOBILITIES CONTEXTS

This final section of the paper focuses on potential applications of a relational approach in East Africa, where the second author is based. In the East African context there has been a tendency to put the emphasis on quantitative approaches in transport research (Kayi, 2021), where the adoption of a relational lens appears to have some potential as a complementary research strand. The discussion that follows is structured around the headings utilised in the main section of the paper.

Relationalities embedded in Moorings

There is much potential to build firmer connections between on the one hand, the journey-focused research that has been central to transport studies in East Africa and on the other hand, the departure and destination moorings that punctuate and book-end these journeys. For instance, there has been some relevant work in Kenya around women's mobility and navigation of daily chores/domestic work (Sarkar, 2020). Certain tasks such as fetching water are clearly gendered, with women and girls undertaking the majority of such work. Thus, in Mathare informal settlement in Nairobi, Sarkar reports that in 45% of households it is women who are responsible for fetching water, while men collect water in only 7% of households. This point demonstrates the way daily mobilities are shaped both by the lack of infrastructure at residential moorings and by local social norms, where women have to walk up to 30 minutes away from their dwellings to collect water.

Caring responsibilities play a key part in the relational world of many women in East Africa. Findings from a survey conducted by World Resources Institute, WRI in collaboration with the University of Michigan in Fort Portal, a regional city in Uganda (Courtwright et al., 2022), reveals that women accompany children on three times as many trips as men do, highlighting the burden of childcare responsibilities on women during travel. In interviews for the study, men expressed the challenges of accompanying children while traveling, which lead them to choose modes of transportation that were easier for them to control children on, such as taxis and minibuses. Women, in contrast, reported taking children on up to five times as many walking trips as men, and the duration of women's walking trips with children was found to be twice as long as men's (ibid). Such work that explores relationalities associated with care trips, and the moorings from which they are generated, has significant potential for exposing the contingent relations between movements.

Another, as yet largely unresearched element around moorings, concerns the emergence of food delivery apps such as Uber Eats and Bolt Food in urban centres across East Africa. While the rise of food delivery apps was a significant measure in preventing the spread of COVID-

19, the consequences of continued growth of the sector, in terms of connections between journeys and mooring (in this case retail food sellers), seem largely unknown. A small study by Sitas et al. (2022) on Nairobi and Kigali notes a diversity of services providing both food, groceries, and more general parcel deliveries in Nairobi, some by motorcycle-taxis while others by e-taxi services. Instances of prepared-food delivery services include Uber Eats, which started in Nairobi in 2018, and Bolt Food which started in 2021 in Nairobi, as well as many locally-founded services. Bolt Food has reportedly partnered with over 200 restaurants in Nairobi, where payment can be made by debit or credit card (ibid)[8].

The smaller city of Kigali has a similar but smaller range of delivery services in operation. Before the rise of food delivery apps, many urban dwellers, particularly middle-class families, relied upon good quality food vendors and cafés around workplaces and homes to prepare their food. At the same time, motorbike taxis known by either customers or by food cafes were trusted to deliver it. With the rise of food delivery apps, these ecosystems around food preparation and deliveries/transportation seem to be changing shape and potentially facing significant disruption, with implications for motorised transportation and walking as a mode of transport. Questions arise as to how this will impact on walking. Are middle class professionals walking less as the food (and broader) app ecology expands? And is this trend contributing to the expansion of the obesity problem that is now becoming evident in many East African cities? This is another case where research focused on the complexity of relationalities could be very productive.

Relationalities over time: a life history perspective

Studies in Kenya and East Africa which take a temporal perspective tend to examine current everyday mobilities, including the time spent travelling and the spaces which women and men pass through for work or chores, rather than giving any consideration to lengthier time frames. The focus on daily current travel practices which can be surveyed and mapped is in line with work in time geography (Scholten, Friberg, and Sandén, 2012). Kayi (2021) thus examines the ways that women in Nairobi and Kampala get to and from work, reporting that women avoided travelling between 10 pm and 7 am for safety reasons. This links to issues around work opportunities, as it limits the times that women are available for work outside the home.

While work with qualitative time-geography diaries would be insightful in expanding understanding of women's experiences of space and time during their daily commute in the East African context, broader investigation taking a life history perspective has seemingly not yet begun. Given the potential for factors such as past migration history, technological change, climate change experiences, and illness to impact significantly on people's subsequent everyday mobility practices, a life history perspective could offer a more nuanced understanding of current everyday mobility regimes in the region.

Relationalities shaping mobilities on the street/public spaces

In recent years, studies of relationalities between people on the street and in public transport in East Africa have tended to focus on gender issues. For instance, there are relatively few studies on aging and mobility in urban Eastern Africa, although Gitau et al. (2023) have undertaken important work on the needs of elderly and disabled women, largely focused on Nairobi. Kayi (2021) argues that applying a gender lens to transport policy and programmes in Kenya is still in its infancy, a point that probably extends to other East African countries.

With reference to pedestrian contexts, Sarkar (2020) observes how the dangers experienced by women as they walk to collect water in Mathare, Nairobi, are often compounded by non-existing lighting and steep inclines. At night, poor lighting makes women particularly vulnerable to gender violence and crime (ibid). There is a strong connectedness between crime and informal settlements around Nairobi, including a high prevalence of gender-based violence; according to a study by Gatuguta et al. (2018), in these neighborhoods 20.4 percent of sexual violence occurs on the roadside or near bushes. This situation is compounded by the fact that in Nairobi County medical facilities are 40 to 90 minutes away from major bus stops (Dimovitz, 2015).

The disadvantages faced by women in Nairobi as they walk is mirrored by their experiences on public transport. A study of Nairobi undertaken by Flone Initiative reports that 73 percent of the survey respondents had heard or witnessed a case of violence against women and girls in public transport and its associated spaces (Flone and UN Habitat, 2018). As such, harassment and intimidation places significant restrictions on women's movements. The report further indicates that the majority (64 percent) of harassment incidents experienced by women occurred at a bus stop/station.

Another (largely quantitative) study by Kayi (2021) had the main objective of obtaining empirical evidence on the barriers faced by women in accessing and using public transport in Nairobi and Kampala. As noted earlier, many women (46%) reported that they felt unsafe travelling in the hours of darkness, with implications for income generation (Kayi, 2021). There is clearly a need to study the interactions between women's economic activities and public transport use and barriers in greater depth. More qualitative data that could provide complementary rich robust data on women's mobility and transportation experiences are required.

Although Nairobi has been the focus of much of the recent research on women's mobility in East Africa, it is important to also examine a wider range of East African cities, including secondary cities and smaller towns, to assess how and why women move around and use transport systems differently, as well as to evaluate their safety and security from a gender perspective. Studies that extend exploration of women's vulnerability in public transport beyond low-income groups to the potentially very different arena of professional women's travel practices and tactics are also needed. The importance of creating safe inclusive spaces applies to all sectors of the population, hence the importance of an intersectional perspective. Ultimately, a city cannot be inclusive if some of its residents are unable to travel and walk freely.

Relationalities between people and non-human objects

Scholars such as Adey (2006), discussing ideas around the relational politics of mobility, have pointed out that relational mobilities are dependent on complex intersecting materialities and mobilities, just in the way that pathways or walking paths are present to enable people to get where they need to go. This material aspect of the immobile facilitating mobility is an interesting aspect of mobilities that has been understudied in the East African context.

Relationalities between people and non-human objects potentially encompass a vast array of objects and entanglements. In East Africa, the connections between digital technology and transportation offer many new and unexplored areas for research. The rise of digital hailing apps such as Bolt and Uber, as well as the local apps such Kenya Little Cabs that have subsequently emerged, have started to garner much attention. An early study in Nairobi by Onyango (2016) noted positive aspects regarding how e-hailing apps were improving passenger access to taxis by decreasing waiting time and avoiding physically waving down taxis. Over time these apps have significantly altered access to taxi services across urban Africa, as this previously expensive service has become more accessible to low-income people in many locations. A recent study by Nkonoki and Hamza (2024) shows how motorcycle-taxi riders also now employ mobile phones to considerable business advantage in Dar es Salaam, using ride hailing apps on their smartphones. Digital map reading is reportedly their biggest challenge, especially if they lack the English language skills that can aid accessing information (given that default map directions are provided in English).

Castel-Branco et al. (2023) identified 23 ride hailing apps in Kenya by the early 2020s, but although three-quarters of the companies are locally incorporated, Uber and Bolt, as first entrants, still dominate the market. Such domination contributes to growing concerns that these platforms may reinforce existing modes of labour oppression and even introduce new ones for those employed in the transport sector (Pasquali, Commenges, and Louail, 2022). This is further discussed in the next section.

The use of digital tools such as mobile money (MPESA) in Kenya within the transportation sector offers another example of digital technology impacts, given that Kenya has made great strides in digital/mobile money transfers. MPESA mobile transfer has revolutionised the way that people in Kenya undertake financial transactions in terms of linkages between digital innovations and transportation. There are several research gaps in this field which merit investigation. While there is anecdotal evidence from journalistic perspectives on the failure of digital cards (such as Beba pay in Kenya), there are only a few studies which explore the challenges that people experience when using MPESA in local transport (Gitonga, 2019). A study by Gitonga noted that Kenyan paratransit systems are still heavily reliant on cash as a mode of payment, although MPESA is popular among middle-aged men in Nairobi. There is need to examine the rise of the various cashless payment systems in operation within local transport in Kenya and East Africa and, particularly, the reasons for the success of some systems over others. Comparative studies

that include other African regions would also be useful to understand the regional adoption of digital systems in the transport sector.

Relationalities within the transport industry

The ways in which vehicle operators (drivers, conductors etc.) engage with each other and with their customers can have impacts in many directions, shaping interactions with transport unions and digital technology. In East Africa, much transport research has focused on paratransit (Klopp and Mitullah, 2015; Klopp and Cavoli, 2019; Klopp, 2021) and, in recent years, on the motorcycle taxi industry (Nkonoki and Hamza, 2024). Dominated by men, these industries are a major source of male informal employment and income generation (although younger men are the dominant group working as motorcycle taxi riders). Given the male dominance of that transport sector space (such that women – whether fellow-workers or customers – often seem to be barely tolerated at best), it is perhaps unsurprising that attention to women's positions as workers in the sector has only recently developed.

However, over the past few years some ground-breaking studies of women transport workers have been conducted in Kenya, including Flone Initiative (2018, 2024[9]), Wright (2019), Carter et al. (2020), Kamau and Mitullah (2022), Ference (2024) and Omwega (2024). These studies emphasise the enormous constraints women in the sector face. The majority are in poorly paid, customer-facing roles as conductors or stage managers in the informal paratransit (matatu minibus) sector. Here the workplace culture is frequently extremely hostile: sexual harassment and passenger violence are faced on a daily basis. There are a few women drivers in the paratransit sector, and some have also moved into platform work, where they are estimated to comprise 10% of drivers (Wright 2018). Yet although this work may offer better security and flexibility, many challenges remain. A recent small study by Flone (2024) is notable because it includes the small town of Wote (around 20,000 people) in rural Makueni county, Kenya, and its environs. In this county women comprise only 4% of the transport workforce. Unsurprisingly, their experiences mirror those of women in larger centres such as Nairobi – fears of harassment, job insecurity, impact of local social norms, lack of skills and training, and lack of confidence.

As noted in the previous section, during the last decade in East Africa, ride-hailing apps have become an increasingly important component of the transport business for both men and women drivers. Initially, the conditions of work for drivers on the Uber platform in Nairobi were relatively good, but the arrival of Bolt (then Taxify) in the market in 2016 reportedly reduced drivers' rates dramatically (Castel-Branco et al., 2023). Castel-Bronco et al. observe how widespread informality, low barriers to entry, the dispersed and individualised nature of work, misclassification as self-employed, and high levels of labour control all ultimately constrain collective action. For women, in particular, long hours for very little pay must be weighed against the benefits they gain through more security and flexibility, given that transactions can be undertaken via card or mobile money and drivers have the option to work when they want or are available. While

the potential for improved security and flexibility has encouraged women to enter this sector, many work even longer hours, face male harassment, and lack adequate support from the male-dominated transport unions (ibid).

Much additional in-depth qualitative work is needed to build on all aspects of work in the transport sector, particularly with regard to secondary cities, where the availability of digital technology, union relations and such may vary significantly from those in primate urban centres.

Relationality and public policy

In-depth research into public policy in East African transport contexts has been somewhat sparse, though Rizzo's Dar es Salaam study (2017), which pointed to the complexities of policy circuits when a new transport intervention (BRT) is planned, is a notable early exception. As Appelhans et al. (2021) emphasise, there are different planning epistemologies that structure transport provision in relation to transport needs across East African urban contexts. However, rapid urbanisation coupled with growing populations is a common challenge. In particular, Kenya has a progressive transport policy which, at least in theory, integrates safety, gender mainstreaming, ICT and the environment with the transport sector (Kenya Integrated Transport Policy, 2009). Other East African countries are now similarly referencing the need for broader perspectives when considering transport issues within their national transport policies (e.g. National Transport and Strategy Policy for Rwanda, 2021), where the linkages between an efficient transport system and economic and social development seem to be increasingly recognised. However, practical implementation of work in such a complex relational nexus has yet to be fully realised in any of the countries concerned.

An important point to note in a policy context is that everywhere across East Africa, motorised transport remains a central focus of attention for key policy actors. Recognition of the potential relational links between the use of non-motorised transportation modes (such as walking) and a healthy nation are emerging relatively slowly. Planning for improved pedestrian experiences in informal settlements is a particularly understudied area (Benton et al., 2023; Mitullah and Opiyo, 2017), though walkability interventions led by UN Habitat and the Institute for Transportation and Development Policy, ITDP in Kisumu, Kenya, as part of their sustainable mobility plan, indicate a potential for making positive interventions. It could be very fruitful to explore the policy circuits that have made this work feasible, given that less than half of all African countries have developed walking plans and policies as part of their broader transport planning (Benton et al., 2023) and interventions following on from these plans remain relatively sparse.

Despite the common planning emphasis on motorised transportation noted above, even here some elements still remain largely neglected. In particular, paratransit is typically not well understood by urban planners, often being seen as chaotic, with fluctuating fares and schedules (Plano, 2022). In a discussion of paratransit mapping exercises in Nairobi and Maputo, Klopp and Cavoli (2019) point out that paratransit reform tends to be addressed mainly through BRT

projects, which have become increasingly popular in transportation planning in Africa. However, as Plano observes, the transition from paratransit to formalized vehicle operating companies has turned out to be more difficult than initially anticipated.

Klopp and Cavoli's engagement with the paratransit sector offers a different perspective: detailed mapping of paratransit movements suggests that data gathering and mapping processes can be highly collaborative if they involve operators, owners, policy makers, universities, technologists and users. They argue that even if local and national governments have been slower to engage with the mapping process, they ultimately recognise the value of the maps and data that have been produced, thus helping improve understanding of minibus systems within the planning process. Nevertheless, the granular, detailed knowledge of local routes and passengers that are produced through paratransit mapping exercises needs to be taken more seriously in planning processes (Klopp, 2021).

Ride hailing apps offer a different challenge for policy makers. The policy environment still provides inadequate support for drivers linked to ride hailing apps, a point well demonstrated by studies regarding how drivers coped during the pandemic period and the relief measures that Kenyan and South African governments provided to workers (Otieno, Stein and Anwar, 2020). The circuits that link public policy and these transportation apps appear opaque. Anecdotally, drivers linked to taxi apps are known to strike often due to issues around fair renumeration, but there is inadequate exploration of renumeration issues and ways in which government can provide policies to protect drivers and riders from unfair pricing. Another issue is customer information and complaints about drivers that are held by ride-hailing apps. Customer information data privacy, authenticity of driver information, and criminality associated with this sector (abductions, thefts etc.), would all benefit from in-depth study (Kamais, 2019). However, a recent report on Kenyan e-mobility prospects (Siemens, 2024) notes that electric vehicle (EV) policy changes in March 2024 have had a positive influence on the sector, outlining a comprehensive strategy to promote local EV production, infrastructure development, technical capacity building, and a smooth transition to a fully electric transportation ecosystem in Kenya[10].

Relationalities and their impact on research practice

Finally, it is interesting to reflect on how a relationalities perspective might affect research practice and the relationship between researchers and the researched in the context of transport studies in East Africa. Here, as elsewhere, inequalities of power, voice and vulnerability inevitably tend to favour the researcher. More attention to the local knowledge held by marginalised groups, and acknowledgement of its value in the development of professional understandings of local context, is needed. Given the male dominance in transport research in East Africa, as elsewhere (see Kayi, 2021; Njenga and Tanzarn, 2020), studies by African women researchers, particularly those living with disabilities, arguably have a potential to support a stronger gendered and intersectional lens. There is a significant knowledge gap in terms of documenting African women's experiences from women's own perspectives (or at least utilising women's voices through qual-

itative research). Gender specific tools or women-centred approaches to data collection could aid understanding of women's mobilities and the barriers that women face. Tools such as time diaries, also well as broader methodologies such as peer research which could support evidence-based studies and feed into policy interventions, could be of particular value.

CONCLUSION

Mobility is "meaningful, emotionally felt, and entangled in issues of power, politics, and social justice" (Cresswell 2021:53).

Application of a relational lens has much potential when it comes to understanding everyday urban mobility practices as they are made, remade and unmade through local and global relationships. In this world in motion, relational lives and afterlives maintain, sustain and enliven what might appear at first glance to be ubiquitous and ordinary. As Sheller, Manderscheid and others have pointed out, the significance of everyday social infrastructures has too often been put to one side in transport research.

We have argued that an appreciation of the scale and complexity of these interconnections can contribute substantially to understandings of how daily mobilities in cities of the Global South are being shaped and reshaped. Some key themes have been identified, starting with moorings, life histories, and exchanges on the street and in public transport and extending through to the policy relationalities and elite corporate interests that may interpose their own constraints and opportunities. Following the identification of relevant thematic areas, we have suggested potential applications firstly with reference to VREF's current programmes, then with specific reference to the East Africa region.

While both authors of this paper are committed to taking a relational approach to research, it must be acknowledged that various reservations regarding relational approaches have appeared across a diversity of disciplines over the years. In relation to human geography and the social sciences, Jones (2010:248) reflected on the limits to thinking about space relationally, observing the dangers of mobility and fluidity being put "*in opposition to territories*" and stressing the need for more attention to mobility. However, subsequent relationalities work in the social sciences has burgeoned, moving well beyond notions of static space and putting increasing emphasis on the role of affect and emotion. Most current relationalities-focused work thus tends to be embedded in qualitative research, or in mixed methods research that has a strong qualitative element, such that it can give sufficient attention to affect, to the body and power. Inevitably, however, this kind of approach can also impose constraints. So far as qualitative research methods are concerned, the time (and funds) required to conduct careful in-depth research is arguably the most significant drawback in the transport field, especially when research is focused on hard-to-reach marginalised groups where trust can be difficult to build.

Political machinations have particular potential to disrupt and destroy the sensitive community-academic-policy networks on which such work depends. There is also clearly a potential for major players to disregard findings, given a seemingly still widespread preference for statistical data sets that can be perceived to provide more "objective" guidelines for policy and planning (a point emphasised by Manderscheid 2014 as part of her justification for building a primarily quantitative study). From this perspective, a mixed method approach may offer particular advantages, so long as sufficient time and resources can be allocated to in-depth qualitative work at a preliminary stage, thus enabling careful shaping of subsequent quantitative studies, and so long as time is allocated towards the end of the project to exploring the results of careful triangulation of quantitative and qualitative findings. Another novel approach could be to build comparative analyses from many small qualitative studies, utilising machine learning software, as Haynes et al., (2019) demonstrate through their exploration of gendered patterns of active travel in the UK, utilising seven separate qualitative datasets.

To conclude, a final reflection – and justification – of the relationalities approach from a social justice perspective concerns the potentially significant benefits it offers for more nuanced understandings of the complexities of urban travel in the Global South as it is experienced on a daily basis. As Simpson (2024:102) has observed (albeit from a very different context), there is a "*configuration of relations that cannot be limited to groups or places, but flows through and across the multiple fields and which connect observable situations to global exchange networks and embedded historical relations*". At the same time, Chipango and To's (2024) argument, from a Zimbabwean example, that development must be relational and context-dependent, shaped by local people's knowledge and culture, seems particularly apposite. They suggest that the most promising relational ethic is one premised not merely on caring for others' quality of life, but also on sharing a way of life with others. This is arguably a utopian goal, given the complexities that a relational lens brings to the fore, but surely one worth working towards, in the transport sector as in other fields. It is with that perspective of social justice in mind that this think-piece has been positioned.

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Endnotes

[1] Manderscheid (2014) argues in favour of the critical application of quantitative methods, especially correspondence analysis, as a tool to focus on the link between structures and practices. However, the majority of research to date that focuses on relational perspectives draws from either purely qualitative methods, or on mixed-methods research usually embedded in preliminary in-depth qualitative studies.

[2] And changes in that household composition over the life course of an individual will have further implications for their personal mobility potential, as has been demonstrated in life-course research which points to the way individual biographies – complex in themselves as people pass through different phases of their life and specific mobility milestones such as acquisition of a bicycle or vehicle - are entangled with the biographies of other household members and wider societal change (Rau and Sattlegger 2017).

[3] Attention to the potential of peer research methods is starting to expand in the Global South. For discussion of the methodology in transport/mobility contexts see Porter 2016; Porter et al. 2023; Rink et al. 2025.

[4] Taking note of Adey's (2006:83) observation that "there is never any absolute immobility, but only mobilities which we mistake for immobility, what could be called 'relative immobilities'".

[5] A qualitative research method that generally involves recording an individual's or group's personal narratives, memories, and reflections with remembered detail is built through a series of interviews and observations.

[6] Walking studies no EP-2022-WK-01 and EP-2023-WK-01, funded under the VREF programme.

[7] Extractivism is a term that has slipped from a specific focus on resource extraction to broader usage extending to a diversity of fields, including finance and the global economy. Chagnon et al. (2022:760) refer to extractivism as "a complex of self-reinforcing practices, mentalities, and power differentials underwriting and rationalizing socio-ecologically destructive modes of organizing life-through subjugation, depletion, and non-reciprocity". Relationality challenges the extractivist model by prioritizing social justice.

[8] Uber also announced the first launch of electric motorcycles in Africa in 2021 for uberBODA, Uber Connect and Uber Eats in Kenya. The launch of Uber Technologies' "electric boda" reportedly potentially presents a 45% reduction in overall costs for uberBODA and Uber Connect riders, for whom fuel is the highest operating cost (Sitas et al. 2022).

[9] https://floneinitiative.org/the-baseline-survey-report-on-the-status-of-vulnerable-groups-in-makueni-county-public-transport, last accessed 31 January 2025.

[10] https://www.siemens-stiftung.org/wp-content/uploads/2030/09/studie-unlocking-the-growth-potential-of-Kenya-E-Mobility-Sector.pdf-1.pdf, last accessed 31 January 2025.