Applied Mobilities

ISSN: 2380-0127 (Print) 2380-0135 (Online) Journal homepage: www.tandfonline.com/journals/rapm20

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To cite this article: Robert Egan, Hannah Julienne & Brian Caulfield (2026) A cyclist, a family or a vehicle? Claiming the road with the e-cargo bike, Applied Mobilities, 11:1, 58-78, DOI: 10.1080/23800127.2026.2621569

To link to this article: https://doi.org/10.1080/23800127.2026.2621569

Published online: 27 Jan 2026.

APPLIED MOBILITIES
2026, VOL. 11, NO. 1, 58–78
https://doi.org/10.1080/23800127.2026.2621569

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A cyclist, a family or a vehicle? Claiming the road with the e-cargo bike

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ABSTRACT

The ability to cycle on roads shared with motor traffic – or "vehicular cycling" – is a basic competence in countries with low rates of cycling. Through electric pedal assistance, e-bikes can reduce the physical demands of vehicular cycling. With their larger size and capacity to carry multiple children, e-cargo bikes may likewise change how vehicular cycling is experienced and practiced. In this paper, we present an analysis of vehicular cycling in Ireland with the e-cargo bike, focusing on the interview accounts of participants based in four major Irish cities: Dublin, Belfast, Galway, and Cork. We found that most participants felt more respected by motorists, more secure, more powerful, and more entitled as road users when e-cargo cycling. The materials of the e-cargo bike on the road appeared to subvert the established meanings of the bicycle and the cyclist, challenging the hegemony of the private car as the dominant "vehicle" of public space and as the quintessential "family" transport mode. Our unique analysis of e-cargo vélomobility in the spaces of automobility shows how the materiality of the e-cargo bike on the road can help to question dominant meanings of cycling in a car-centric society.

ARTICLE HISTORY
Received 9 May 2025
Accepted 19 January 2026

KEYWORDS
e-cargo bike; e-bike; vélomobility; risk; practice theory; automobility

1. Introduction

The rightful place of cyclists in public space has been a matter of heated historical debate (P. Cox 2012; Longhurst 2015). In the context of the U.S.A., Pucher (2001) has argued that safe (and popular) cycling primarily requires the provision of dedicated networks where people can cycle segregated from motor traffic. Forester (2001), on the other hand, has argued that what is truly needed for safe cycling is a distinct "vehicular" style of cycling on public roads, where cyclists confidently and assertively use the road like a private car driver (Forester 2001). Regardless of these debates, the necessity to cycle on roads shared with motor traffic is an everyday reality for many people cycling in low-cycling countries, such as Ireland (Egan and Philbin 2021).

In such contexts, the e-cargo bike raises interesting possibilities regarding cycling with motor traffic – or "vehicular cycling" – compared to conventional bicycles. With their

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larger size, electric pedal assistance and capacity to carry multiple children, e-cargo bikes may change how vehicular cycling is experienced and practiced. In this paper, we analyse experiences of vehicular cycling with the e-cargo bike in the context of Ireland, where cycling rates are low but policy interest in cycling is high. In particular, we explore how e-cargo bikes might reshape experiences and practices of *provoking responsibility* (Egan 2021) in motorists when cycling on roads. We focus our analysis on the interview accounts of e-cargo cyclists based in four major cities on the island of Ireland.

In the discussion, we incorporate social practice theory (Shove, Pantzar, and Watson 2012) as an analytic tool. Shove, Pantzar, and Watson (2012) argue that everyday practices such as "cycling" can be understood as the integration of three elements – materials (e.g. mobility infrastructure and bicycle), meanings (e.g. cycling as practical and accessible) and competences (e.g. ability to pedal and handle a bicycle). Practitioners are the "carriers" of a given practice that can reshape or reproduce what a practice is as a recognisable entity. Overall, our study suggests that the materiality of the e-cargo bike on the road productively subverts dominant meanings of the bicycle and the cyclist, while empowering riders to appropriate road space as (more) legitimate road users.

In the first section of our paper, we present a review of literature investigating practices and experiences of private e-cycling, cargo cycling and e-cargo cycling. Second, we describe the study methodology, which consisted of qualitative interview data collection and analysis underpinned by grounded theory. Third, we report the study findings, providing a qualitative account of vehicular cycling with the e-cargo bike for participants based in four major cities on the island of Ireland. Fourth and last, we consider the implications of the study. We focus on how e-cargo cycling may alter understandings of the status of cyclists and cycling in low-cycling contexts, productively blurring the lines of public representation as a "cyclist", as a "family" and as a "vehicle" with similar capabilities and equal rights to the road as the private car user.

2. E-Vélomobility: reconfiguring the competences and meanings of everyday cycling

The use of e-bikes has been found to significantly change the experience of everyday cycling compared to conventional cycling. This resonates with Behrendt (2018), who calls for dedicated attention in mobilities research to the unique "practices, technologies and systems of e-cycling" (p. 67) and "the complex interactions between bodies, bikes, electric motor and battery, urban environment and other road users" (p. 72). Behrendt (2018) conceptualises this distinct phenomenon and object of research as *e-vélomobility*, providing useful contrast with theoretical accounts of primarily non-electric vélomobility (P. Cox 2019) and car-centred automobility (Urry 2004). Focusing on the "technologies" (Behrendt 2018, 67) or "materials" (Shove, Pantzar, and Watson 2012) of e-vélomobility, the most radical difference between a conventional bicycle and an electric bicycle is the electric motor. Equipped with this motor, pedelec electric bicycles uniquely combine the practice of physical pedalling with electric pedal assistance (Behrendt 2018). In doing so, e-vélomobility reconfigures the physical competences and functional meanings of cycling as a recognisable entity (Shove, Pantzar, and Watson 2012).

First, various studies document how e-cycling may facilitate physically easier cycling over hilly terrain (Dill and Rose 2012; Dowling and Maalsen 2020; Edberg 2024; Johnson

and Rose 2015; Marincek and Rérat 2021; Melia and Bartle 2022; Popovich et al. 2014; Thomas 2022; Wild, Woodward, and Shaw 2021) and in varied weather conditions (Dill and Rose 2012; Edberg 2024; Popovich et al. 2014). In the Californian study of Popovich et al. (2014), e-bike owners described how they used their e-bikes in hot and windy weather as e-cycling did not require the same level of exertion as cycling in these conditions, while also making hills much easier to climb compared to cycling with a conventional bicycle. Relatedly, the Australian study of Johnson and Rose (2015) reported that nearly one quarter of respondents, who regularly cycled before owning an e-bike, changed to e-cycling to reduce the physical effort of cycling up hills and many took more direct routes due to the availability of their e-bike (see also Dill and Rose 2012). In contrast, the studies of Wild, Woodward, and Shaw (2021) and Thomas (2022) suggest that e-cyclists can take less direct, experientially safer routes when e-cycling that may be avoided if cycling conventionally, due to hilliness and distance.

Second, through reducing the physical effort of pedalling, e-cycling may enable both faster and longer distance journeys than conventional cycling (Dill and Rose 2012; Fyhri and Sundfør 2020; Johnson and Rose 2015; Jones et al. 2022; Jones, Harms, and Heinen 2016; Melia and Bartle 2022; Popovich et al. 2014; Rérat 2021; Thomas 2022), thereby extending the possible ranges of everyday cycling, while also increasing potential cargo-carrying capacity for a given journey (Dill and Rose 2012; Dowling and Maalsen 2020; Edberg 2024; Johnson and Rose 2015; Jones, Harms, and Heinen 2016; Marincek and Rérat 2021; Melia and Bartle 2022; Popovich et al. 2014; Thomas 2022; Wild, Woodward, and Shaw 2021). In the study of Fyhri and Sundfør (2020), for example, e-bike ownership was associated with longer distance and more frequent cycling. Similarly, Johnson and Rose (2015) respondents reported switching from a standard bicycle to an e-bike to cycle farther distances while some also engaged in a more cargo-carrying journeys such as shopping, due to the enhanced cargo potential of the e-bike. Indeed, e-bikes have been found to act as a car substitute for transporting goods and children (Marincek and Rérat 2021; Thomas 2022; Wild, Woodward, and Shaw 2021), with e-cargo bikes particularly suited to this cargo function (Dowling and Maalsen 2020; Cass et al. 2025; Egan 2025; Glachant et al. 2025).

Third, with the exception of Rérat (2021), numerous studies have found that the e-bike enabled participants to cycle more comfortably and safely with car traffic (Dill and Rose 2012; Johnson and Rose 2015; Jones, Harms, and Heinen 2016; Melia and Bartle 2022; Popovich et al. 2014; Thomas 2022) – i.e. to engage in "vehicular cycling" – as the capabilities for more powerful acceleration and higher travel speeds when e-cycling meant one was able to "keep up" with motorists (Behrendt 2018; Dill and Rose 2012; Dowling and Maalsen 2020; Jones, Harms, and Heinen 2016; Popovich et al. 2014; Wild, Woodward, and Shaw 2021). This competence of integrating oneself with – and asserting oneself as – "traffic" can be observed as a major aspect of cycling in low-cycling contexts, such as the UK (Green, Steinbach, and Datta 2012; Larsen 2014; Latham and Wood 2015; Steinbach et al. 2011) and Ireland (Egan 2021).

The "materiality" (Shove, Pantzar, and Watson 2012) of e-cargo bikes – most notably their larger size compared to conventional e-bikes – may further enhance experiences of vehicular cycling. Several qualitative studies involving e-cargo bike users suggest that e-cargo bikes are experienced as exceptionally visible vehicles that improve road "presence" and regard by motorists compared to conventionally sized bicycles (Cass et al.

2025; Glachant et al. 2025; Thomas 2022). In the study of Glachant et al. (2025), for example, participants felt they were given more space by motorists when e-cargo cycling. While several participants attributed this phenomenon to the larger size of their e-cargo bike, others noted how cycling with child passengers "humanised" them as utilitarian road users rather than recreational road cyclists.

In the Swiss e-cargo bike study of Marincek, Rérat, and Lurkin (2024), a slight majority of participants who engaged in e-cargo cycling felt respected by other road users and 70% felt safe cycling with motor traffic. However, a majority of participants did not consider existing cycling infrastructure to be suitably designed for the use of cargo bikes. This aligns with the studies of Riggs and Schwartz (2018) and Liu et al. (2020), who noted how existing cycle infrastructure provision can be uncomfortably narrow for cargo-cycle users. Exploring the experiences of e-cargo cyclists in the UK, Melia and Bartle (2022) outline how e-cargo cyclists in their study found segregated routes more challenging to access due to gates and other obstructions more easily negotiated with narrower and lighter cycles (see also, Cox and Bartle 2020; Egan, Julienne, Philbin et al. 2025; Sherriff, Blazejewski, and Davies 2023). In this respect, a necessity to engage in more vehicular cycling relative to e-cycling may be an added competence for cargo and e-cargo cycling within low-cycling contexts.

To greater or lesser extents, e-cycling may be seen to increase the physical accessibility of participation in *fast* cycling cultures, where protected and integrated cycle networks may be in short supply (Larsen 2014; Popan 2019; Wild, Woodward, and Shaw 2021). In slower cycling cultures (Larsen 2017), competences may be similarly reduced through enabling practitioners to pace their cycling in such a way that requires less fitness and is less likely to stimulate sweat and fatigue, including in scenarios of hilly terrain, challenging weather, longer distance cycling, cargo-carrying journeys, vehicular cycling, and group cycling. This would of course draw attention to reconfiguring broader social arrangements that create the need for speed (Popan 2019), which are well documented in the time-pressured lives of women in the e-cycling studies of Wild, Woodward, and Shaw (2021) and Edberg (2024). In this way, as argued by Edberg (2024), e-cycling can be seen as a mobility practice that complements and reinforces a system of automobility (Urry 2004), rather than subverting such time-space arrangements (Popan 2019).

In this paper, we examine e-cargo vélomobility in the context of Ireland – a fast-cycling context where a bold, assertive style of cycling with motor traffic is a general requirement for participation (Egan 2021). We explore in particular the experiences of e-cargo cycling in the spaces of car-based automobility (Urry 2004), comparing these experiences with non-cargo cycling. We consider how e-cargo cycling might change the competences and meanings of vehicular cycling in a context where disregarding and endangering conduct toward cyclists is normal.

3. Study context

Cycling accounts for a low share of trips in Ireland relative to other modes of transport. Compared to trips by car (71.3%) or walking (17.6%), only 2.2% of estimated trips in the Republic of Ireland were made by bike in 2024 (National Transport Authority 2025a). Looking at gender, cycling comprises only 1.3% of women's total journeys versus 3% of journeys for men (Central Statistics Office 2022). Cycling participation also varies by age

and disability. For people aged 4–14, 15–24 and 35–44 across Ireland, 3% of trips are taken by bicycle, compared to only 1% of trips for people aged 65 years or older (National Transport Authority 2025a). For disability, 17% of disabled people living in the Dublin Metropolitan Area cycle at least once per week compared to 26% of non-disabled residents (National Transport Authority and Sustrans 2024). Lastly, there is considerable regional variation in cycling levels across Ireland. In the suburbs and city centre of Dublin, journeys by bicycle accounted for 5% of total journeys. For urban towns across Ireland, 2% of total journeys were cycling journeys (National Transport Authority 2025a).

Compared to higher cycling contexts within Europe, the availability of cycling paths protected from motor traffic in Ireland is scarce (Conway et al. 2019), inhibiting the inclusivity of cycling (Aldred, Woodcock, and Goodman 2016). However, segregated cycle network investment has increased nationwide (Department of Transport 2021) to enable modal shift from private car use to cycling (Department of the Environment, Climate and Communications 2023). For example, Cork City Council (2022) aim to deliver 100 km of new or upgraded cycle facilities by 2028. Dublin City Council (2025), on the other hand, plan to develop 314 km of active transport infrastructure from a baseline of 10 km. Looking ahead, 360 million euro per annum has been allocated to active transport for 2026 to 2030. Importantly, this financial commitment is much smaller than the "Road Networks and Road Safety" budget, which ranges from 1.6 to 2.7 billion euro per annum over the same period (Government of Ireland 2025, 5). Nevertheless, recent levels of active transport investment represent a major departure from previous years: for 2019, the National Transport Authority (2025b) reported a spend of 40 million euro on active transport infrastructure, contrasting with 321 million euro in 2024.

Disaggregated data capturing e-cycling and e-cargo cycling trips do not appear to be publicly available for Ireland. Data gathered by the Sustainable Energy Authority of Ireland (2025) indicates that 0.2% of trips in Ireland in 2024 were made by e-bike, while 0.1% were made by cargo cycles of any kind. In relation to ownership, present estimates suggest that 3% of Irish households own an e-cycle, while 44% of households own a non-electric cycle (National Transport Authority 2025a). Looking at the Irish market, sales of e-cycles are increasing each year, comprising 18% of all cycle sales for 2023 (Statista 2024). The growing popularity of private e-cycles is supported by the national "Cycle to Work" scheme, which offers larger subsidies for electric bicycles and e-cargo/cargo cycles (Revenue 2024).

4. Methodology

This paper derives from a wider research project which explored how e-cargo bike owners in Ireland experience cycle networks (Egan, Julienne, Philbin, et al. 2025); find a secure and convenient place to park their e-cargo bike (Egan, Julienne, and Caulfield 2025); and acquire an e-cargo bike to enact parental responsibilities and continue cycling as a parent (Egan 2025).

In this paper, we analysed data drawing on existing grounded theory that conceptualises experiences and practices of everyday (conventional) cycling in Ireland (Egan and Philbin 2021). In this theory, cyclists are positioned within conditions of *precarious entitlement* to public space in the context of Dublin. These conditions comprise piecemeal and neglected cycle networks (insecure space), disregard by professional and private motorists (spatial disregard) and

neglect by police in the protection of the rights of cyclists (police neglect) – all of which render the formal rights of cyclists to use public roads and cycle spaces precarious to exercise (Egan and Philbin 2021). We focused our analysis on how e-cargo cycling may reshape experiences and practices of *provoking responsibility* (Egan 2021) in motorists when cycling on roads: a core competence of cycling in conditions of precarious entitlement (Egan and Philbin 2021). Provoking responsibility captures a range of practices cyclists engage in to provoke motorists to respect the spatial entitlements of cyclists. This respect – or "spatial regard" – is enacted in various ways, such as maintaining adequate space when driving behind a cyclist, overtaking with a considerate passing distance, refraining from parking in dedicated cycle spaces, and observing a cyclist's right of way when sharing the road or crossing a cycle path. The theoretical perspective of provoking responsibility is implicit in our proceeding analysis of "vehicular cycling" with the e-cargo bike and is more openly drawn out in the discussion, alongside social practice theory (Shove, Pantzar, and Watson 2012).

Semi-structured qualitative interviews were used to collect data for this study. All participants were based on the island of Ireland and owned an e-cargo cycle. Twenty-three interviews were completed with 25 participants (13 women, 12 men). Nearly all participants were experienced utility cyclists and were parents to at least one child. There were three e-cargo bike types used by participants: the box-bike (Image 1), where cargo is focused to the front (11 participants); the long-tail bike (Image 2), where there is an elongated seating area to the rear (12 participants); and the box-trike, which is box-bike with two wheels on front rather than one (2 participants). The study was ethically approved by Trinity College Dublin Research Ethics (REAMS No: 3134) and signed informed consent forms were completed by all participants prior to interview. More information on study participants and the process of recruitment can be found in Egan (2025).

Image 1. Box E-Cargo bike.

Image 2. Long-tail E-Cargo bike.

5. Findings

The majority of participants in this study felt e-cargo cycling led to more patient and respectful motorist conduct relative to conventional cycling. In this section, we explore the interview accounts of five e-cargo bike owners based in four major Irish cities: Dublin, Belfast, Cork and Galway. These accounts provide nuanced and contextualised illustrations of findings from the broader study. We examine how these people experienced vehicular cycling when using their e-cargo bike for everyday journeys, with a particular focus on how they attempted to *provoke responsibility* (Egan 2021) in motorists when using the roads. Through examining these participant accounts, we can better understand how e-cargo cycling may influence motorist conduct toward cyclists, and cyclist conduct toward motorists. While the availability of protected cycle networks in these contexts varied widely, this analysis relates only to the experience of cycling on roads shared with motor traffic.

Each city varied in population size. Dublin City had a population of nearly 600 thousand people (Central Statistics Office 2023a), compared to Belfast City (345,415) (NISRA 2022), Cork City (224,004) (Central Statistics Office 2023b) and Galway City (84,414) (Central Statistics Office 2023c). Cycling levels were also highly varied. While Dublin City boasted 11.9% of commuters cycling to work (Central Statistics Office 2023a), the three other cities demonstrated lower rates: 2.5% for Belfast (NISRA 2022), 3.1% for Cork (Central Statistics Office 2023b) and 6.3% for Galway (Central Statistics Office 2023c).

5.1. Dublin

Gerald was a man in his 30s based in suburban Dublin. He cycled a high-end e-cargo box-bike and situated himself as part of a committing walking and cycling family, comprising himself, his wife and their young daughter, who was a toddler. A confident and long-standing utility cyclist, Gerald experienced motorist conduct differently when using his

e-cargo bike rather than a conventional bicycle. In particular, he felt that motorists "give you more space on the cargo bike".

Alongside wider and more patient overtaking, Gerald perceived greater "respect" for his right of way as a road user from motorists.

> People would just give you a bit more . . . people are more inclined to give right of way. Like, respect my right of way on the cargo bike than if I'm on a regular bike.

He described the visible differences riding the e-cargo bike might present to motorists. First, he wore "helmet-mounted car cameras" more frequently when riding the e-cargo bike, especially with his daughter on board. He considered these cameras – which could be used to record and report endangering behaviour by a motorist – might deter such behaviour.

> So, I do cycle a bit more with helmet-mounted car cameras as well – particularly if I've got my daughter in it. So, maybe that's what they're reacting to . . . But I definitely notice fewer dangerous overtaking manoeuvres – like, close passes – when I'm on the cargo bike, as opposed to when I'm on my regular bike. You know, it's much less common for me to experience a close pass.

Gerald's use of cameras resonates with Egan (2021, 28), where conventional cyclists in Dublin reported illegal conduct by motorists to the relevant authorities. These attempts to provoke responsibility through official channels generally failed to elicit a police response (Egan and Philbin 2021, 518). However, the threat of police reporting could plausibly influence motorist conduct, irrespective of the likely legal consequences. In this way, the visible use of a camera arguably creates a "watching" road presence (Egan 2021, 26) for Gerald and the other e-cargo cyclists in this study who cycled with cameras.

Second, Gerald noted that his e-cargo bike was simply "larger" and "more visible" than a conventional bicycle, particularly due to the large box at the front.

> Now, I don't know why motorists . . . maybe it's cos it's a larger bike and it's just a bit more visible . . . Like, even if you're coming from behind, you can see the box. So that might make them a bit less . . .

He generally cycled faster with his e-cargo bike, enabled by its "electric assist". This, he considered, might additionally quell the impatience of a motorist looking to pass as soon as possible, encouraging them "to sit back" and wait for a safe opportunity to pass with ample clearance.

> It goes faster. So, you know, with the electric assist, I am moving faster, so maybe they are just a bit more com(sic) . . . happy . . . to sit back.

However, Gerald noted that he had always cycled fast, no matter the type of bicycle, and that this had not prevented "the desperate urge" for motorists to overtake without adequate passing distance.

The potentially faster speed of cycling the e-cargo bike compared to a conventional bicycle gave Gerald more confidence in "taking the lane": a positioning strategy to provoke safer motorist conduct when overtaking, by limiting the opportunity to pass very close, in keeping with Forester (2001). Gerald

explained that he enacted this means of provoking responsibility with any style of bicycle, having previously learnt from experience that being "deferential to motorists" by keeping oneself "out of the way" often led to more dangerous overtaking behaviour. By positioning himself somewhat "in the way", he was aware that this would likely cause irritation but could nevertheless provoke wider overtaking attempts. He additionally noted that, while potentially more "visible", motorists may also believe a child is on board the front of his e-cargo bike, encouraging more careful overtaking – and perhaps more tolerance toward a cyclist occupying a central position on the road.

> I take the lane more, yeah . . . If she's not in the bike, I can get . . . between my contribution and the pedal-assist, I can get my speed up to – comfortably up to – 30 kilometres an hour.[1] And so, if I'm doing that, I'll happily take the lane. And, like, as I say, it's more visible as a bike. Drivers tend to respect it a bit more. Maybe they think there's a child in it, so they don't do dangerous stuff, so I'm much more inclined to take the lane with it.

However, it is noticeable in Gerald's account that "taking the lane" may have required, from his perspective, a need to travel at a "reasonable" or "normal" speed. This suggests that there was a threshold speed necessary to feel justified and confident "taking the lane" versus being "out of the way" – or, perhaps if travelling slower, becoming *unreasonably* "in the way". He contrasted this with a hypothetical scenario of cycling a non-assisted cargo bike, presumably with his daughter on board ("with that much weight").

> I feel like you can do it more comfortably – you can take the lane more comfortably – for a number of reasons: because of its shape, and because of driver behaviour, and because of the speeds you can kinda comfortably get . . . So, you're never . . . I think if you're on a cargo bike with that much weight, you'd struggle to get up to a normal speed – you know, 20, 25 kilometres. You'd struggle. Like, it's a lot of work. Whereas, with the electric-assist, you can get up to a normal bike speed quite easily, and that just makes you a lot more confident taking the lane. For me anyway, it feels like I'm a lot more confident because, at least, you know, you are up at a reasonable speed, and so manoeuvring is just a little bit easier when you're in . . . when you're mingling with traffic.

5.2. Belfast

Ruth and Ian were a couple in their 30s that lived in the suburbs of Belfast City. Identifying as people that had "always cycled", they shared a long-tail e-cargo bike, having previously cycled conventional bikes to commute. The used their long-tail to transport their two young children, travel to work and head on family outings to the city. Having previously lived in Dublin, Ruth described how cycling in Belfast required far more vehicular cycling due to its relative shortage of cycle spaces. This meant that one had to "own the middle of the lane" rather than "going at the side" when cycling on the road with motor traffic, echoing Gerald's practice of "taking the lane" rather than placing oneself "out of the way". It did not matter whether Ruth was cycling an e-cargo bike or a conventional bike: Ruth viewed "owning the lane" – thereby cycling "like a car" – as an essential skill to protect herself when using the road as a cyclist.

> I've always been on a bike . . . and from living in Dublin, it's, like . . . it's easy to cycle. Like, people cycle everywhere and . . . cycle lanes. So, when I moved back up here, I learned very

> quickly that you have to own the road. There's none of this, like, you know, going at the side on a cycle lane or whatever, you just have to . . . own the middle of the lane. So, in some ways, cycling in Belfast forces you to cycle like a car, and it wasn't just because of the cargo bike, it was just . . . for safety point of view.

Building on Ruth's point, Ian offered his experience of cycling in Belfast, describing it as a "combat sport" due to the lack of protected cycling infrastructure available to cyclists. Ian pointed out, however, that a recent video he watched regarding e-cargo cycling with children resonated with his personal experience: "people seem to treat you differently on an e-cargo bike". Similar to Gerald, Ian observed that the visible presence of his children to motorists behind him – discernible by the "two small helmets" at the rear of their long-tail – may have contributed to this more considerate treatment when being overtaken, or as he described, motorists giving him and the children a "wider berth". Ruth considered this observation, offering her own interpretation that motorists may be unsure of how to overtake this longer and stranger style of bike, thereby giving a "wider berth".

> Maybe it's the space – they don't know how to operate around it, so, they . . . yeah, maybe they do give you a wider berth . . .

While special treatment from motorists when e-cargo cycling was something that Ruth had not reflected on previously, she recalled her routine experiences of motorist conduct when she used to cycle home on her conventional bicycle with their older child several days a week.

> I would have had, you know, on my own bike and with one child behind me . . . I would be coming home, like, two of three days a week (shakes head) just being like "Wait until you hear what happened today (laughs)!" or ringing up Translink and being like "Another one of your bus drivers got too close to me!" But yeah . . . now that you've said that I don't really . . . experience those passes anymore. It's safer, then, yeah . . .

Ian described how cycling with the long-tail was a "different type of cycling", offering an upright, robust and stable experience compared to his other conventional bicycles.

> It definitely feels [. . .] it's just a different type of cycling than any type of cycling we've done before. The wheels are quite thick – and you get that on a lot of cargo bikes . . . and it's kind of like Dutch-style. Like, it's wide handlebar and . . . it just feels really, really solid and really safe in a way that some of my bikes don't. (laughs)

Ruth similarly contrasted her sense of security when cycling the e-cargo bike with cycling a conventional bike. She described the experience as akin to cycling a child's bike, where she felt "small" and "exposed" relative to cycling her long-tail.

> Yeah, and I suppose even . . . like, I cycled to work on Thursday on my own bike and it does feel like you're jumping on one of the children's bike (laughs)! So small!

5.3. Cork

Jennifer was a woman in her 40s with two daughters in primary school. Based in a Cork suburb, she used her e-cargo box-bike for chauffeuring her children to and from school and after-school activities. All manner of trips to and from Cork city were also undertaken with the e-cargo bike, such as travelling to work and shopping for groceries. Jennifer

described how she felt her box-bike had a strong and visible presence when cycling on the road, due to its size, width and height compared to a conventional bicycle, which meant as a rider one takes up "a lot of space on the road" without trying.

> I think with the cargo bike and particularly because of the box-bike style . . . it's like a big unit. Like, it's nearly as long as a small car and it's quite wide and you're up quite high, so you take up a lot of space on the road.

However, much like the previous participants, Jennifer was a seasoned urban cyclist who knew how to "take the lane" to prevent close overtaking from motorists. This practice was aided by the considerable visibility and bulk of her e-cargo bike, which helped her feel safe when cycling with her children on board.

> So, I'm . . . like, I've cycled in cities all my life, so I'm, like, quite *assertive* on the road. Like, I'll take up a full lane – like, I'm not . . . you know . . . And so, because you're quite visible, I don't ever feel . . . threatened on . . . my bike, because I'm cycling through very residential, almost semi-suburban spaces, and I don't ever have concerns for the kids' safety.

Jennifer remarked on the how the e-cargo bike served to safely "contain" her children while simultaneously presenting itself to motorists on the road as a vehicle designed to transport children.

> It's very *contained* and visible. Yeah, they're contained in front of you and it's quite vis . . . it's like a *visible* . . . transporting device, so people are immediately aware that you are transporting children.

While this presentation was achieved passively by the design of the bike, Jennifer had also actively indicated to motorists that she was cycling with children when motorists were threateningly invading her space. This revealed how Jennifer asserted her right to space as a cyclist by drawing on her status as a parent transporting her children. This is not dissimilar to the use of "baby on board" stickers on motor vehicles – a practice also enacted by participants in this study with their e-cargo bikes. Jennifer's assertive behaviour appeared to be an effective way to provoke responsibility in motorists to provide more space for Jennifer and her children.

> Sometimes when drivers are being kind of – in my opinion – unnecessarily *aggressive* or *driving too close* or don't have any sense of perception of depth or space, I'll be like . . . I'll *point* to the kids, "You fucking kidding me, like, they're right here!" (points to side incredulously). You know what I mean? And you can kinda see the drivers going, "Oh, jeekers. Yeah". You know, it's quite in your face, "There's two small kids here. You need to give me a bit more space."

While Jennifer considered her e-cargo bike a highly visible "transporting device", she adopted additional measures to "remove any excuse people have to not see you". Having attached Christmas tree lights to the exterior of her bike to create a sense of festive fun for her children, Jennifer decided to leave these lights on "all year round". Combined with the general use of hi-visibility stickers, hi-visibility vests, helmets, and the height and overall size of the box-bike, Jennifer appeared confident that her "presence" on the road was hard to ignore. She indicated that this highly visible presence might reduce the attempts of motorists to "tear along the outside". Importantly, Jennifer's seemingly reluctant use of hi-visibility clothing and helmets suggested that being physically visible was only part of

being "seen". Instead, similar to Egan (2021), it also mattered that one was seen to be a visibly "responsible" cyclist, worthy of respect through the enactment of official safety responsibilities to wear personal protective equipment, irrespective of their effectiveness.

> About two Christmases ago, we put – in an effort to be festive – we put Christmas lights all around the outside of the bike for the kids, just for a bit of fun [. . .] But we found ourselves leaving them on all year round *to be as absolutely visible* as we could be [. . .] Now, we have all, like, reflective stickers put onto the side of our box . . . Aw . . . I'll (winces reluctantly) . . . if I think of it, wear a high vis. The kids always have helmets on and everything. But you're almost, like, trying to . . . remove *any* excuse people have to not see you (laugh). Because, as I said, on the box-bike, you're up quite high. Like, you're *as high* as most cars honestly. And especially on roads . . . like, we're always on roads that have a 50k speed limit, d'ya know? There shouldn't *really* be any need for anyone to be tearing along the outside of you, you know. But, as I say, definitely the kind of size of the bike does definitely give you a sense of a presence and a bit of safety.

Finally, much like Jennifer's willingness to "take the lane" when vehicular cycling, Jennifer's sense that her e-cargo bike was a legitimate family vehicle equal to a car extended to her parking practices. When travelling to her local supermarket, she regularly parked her e-cargo bike freestanding within a designated car parking space, including those allocated for families. Despite frequently engaging in this practice, Jennifer often felt ready to defend her right to park with a motorist who might challenge her appropriation of this space intended for motor vehicles. In particular, Jennifer viewed the e-cargo bike as a "vehicle" much like a car, which was also a "family vehicle" by virtue of its use for carrying her children. On this basis, Jennifer considered her e-cargo bike equally "worthy" of "parking space" relative to a motor vehicle, and was prepared to publicly defend this parity of entitlement. However, Jennifer had found over time that nobody seemed to challenge this practice, suggesting some level of recognition for her perspective.

> I'm absolutely not against taking up a parking space [. . .] my rationale is, "There are three of us in the vehicle as well, why is your vehicle . . . more . . . *worthy* of a parking space than mine?" (Laughs) [. . .] And I've never, ever had an issue. I'm always, like, almost more ramped up and ready to be like, "What are you gonna do about it?!" But sure, like, nobody cares. You're like, "Grand".

5.4. Galway

Sinéad was a woman in her 40s based in a suburb of Galway city. She shared her long-tail e-cargo bike with her husband and used it primarily for grocery shopping and transporting her two children to school and various after-school activities. Originally, Sinéad and her husband were encouraged to purchase their e-cargo bike in response to a planned cycleway in Galway that would have provided physical segregation from motor traffic for a great deal of the journey to their children's school. In anticipation of this infrastructure, they committed to buying their e-cargo bike. However, the proposal never progressed to implementation. While disappointed with this planning failure, Sinéad described another factor she did not anticipate: the relative sense of security when vehicular cycling with the e-cargo bike compared to a conventional bike.

> The one thing that I didn't kind of anticipate is being on the cargo bike feels a lot more secure than when you're on a regular bike. So, weirdly, we didn't mind so much. It would have been lovely to have had segregated cycling infrastructure, and we *did* have some hairy moments – and we still do. But, in terms of . . . actually having that bike, and getting used to that bike and the sturdiness of it and the size of it, made a huge difference to our – and, actually, the *electric-ness* of it – made a huge difference to our willingness to just get on the road anyway.

Sinéad elaborated how the e-cargo bike improved her sense of security when cycling with motor traffic. She alluded to how the larger size and heavier weight of the e-cargo bike increased her experience of visibility and stability when vehicular cycling.

> I genuinely think with a heavier bike, a bigger bike, you're more likely to be seen, you are sturdier, and with the lower centre of gravity, you're less likely to be knocked off.

Furthermore, in the case of potential "dooring",[2] Sinéad saw the e-cargo bike as a threat to the vehicles of disregarding motorists rather than a vulnerable vehicle itself. She described her sense of power cycling the e-cargo bike on narrow road spaces with adjacent car parking, strongly contrasting the fear of "dooring" reported by conventional cyclists in Egan and Philbin (2021).

> Our bike is quite heavy, which I thought would have been off-putting but it's actually quite reassuring because part of that route is along a road where you're literally cycling between moving traffic and parked cars, so *dooring* is a constant fear and issue, which is part of the reason why I'd be so reluctant to let the kids, you know, cycle that. [. . .] The thing about that bike is that if I was going at a fair clip, I'd take the door off, you know. And I feel like even if somebody did . . . give me a knock, I'd be less likely to fall.

Most significantly, Sinéad felt "more entitled to take up space on the road" as a cyclist when using the e-cargo bike, which – alike many participants in this study – could prevent close overtaking attempts by motorists.

> The other thing that makes a huge difference is that . . . you feel more entitled because you've got . . . kids, or groceries or something, and also the bike itself is bigger. You feel more entitled to take up space on the road. And if you take up space on the road, cars are forced to go into the other lane and they give you more space.

While Sinéad considered it a right for any cyclist "to take up road space" like a motorist, the e-cargo bike helped her "feel more confident doing that". Similar to Gerald's comment about "taking the lane" at a "reasonable speed", Sinéad commented on how the e-cargo bike publicly presented as a more "reasonable" vehicle on the road relative to a conventional bicycle due to its larger size. Like many participants in this study, Sinéad implied that assertively cycling a larger sized bike on the road might be considered more acceptable by "an outsider" than taking up road space with a conventional bike.

> A person on a bike is every bit as entitled to take up road space as . . . a person driving a very big SUV yoke. So, yeah . . . it's definitely changed my behaviour. However, I feel, on the cargo bike, I feel more confident doing that. I think because it's . . . possibly, to an outsider, it looks more reasonable: you've got a big bike, so . . .

Indeed, Sinéad described how her experience of cycling on the road and seeing many single occupants of motor vehicles emboldened her to be more assertive when using the roads as a cyclist. As a mother cycling with two children, moving at "pretty much" the same speed as a motorist, Sinéad considered herself as a person driving

a legitimate "vehicle" rather than an "interloper" on the road. This echoed Jennifer's perspective on the vehicular status of her e-cargo bike in designated car parking space. However, while the e-cargo bike could be seen to publicly present to motorists as a legitimate "vehicle" that would therefore have a warranted claim to occupy the road like other vehicles, Sinéad also described how having children visibly on the bike "humanised" her to motorists. This was most apparent in how Sinéad enlisted her children to thank motorists who refrained from overtaking them when cycling on the road.

> If you've kids on the bike, it is quite unusual for people to be really terrible. You will always get one here and there, but, on the whole, I've found people to be actually . . . quite nice and quite considerate, and they will wave and they'll be behind us and I'll be like, "Will you wave to the person behind us! Just make . . . (laughs) . . . say thank you for not overtaking us!" Cos it's the passing that's horrible. They don't . . . I don't think people realise, I don't think they think . . . and I don't think they know how it feels . . . to be on a bike when something big is passing you.

Conscious of the unequal power dynamics between different road users and the relative power of the e-cargo bike relative to pedestrians, Sinéad made a concerted effort to show respect for people walking when cycling the shared walking and cycling spaces in her local area. She enacted this respect by observing pedestrian right of way, by cycling slowly and by patiently waiting for "proper space" to overtake pedestrians in front of her. As Sinéad eloquently described: "If you're a walker, a bike is like a car – you know what I mean? It's the same feeling".

6. Discussion

In this paper, we analysed the interview accounts of five e-cargo cyclists based in four major Irish cities to illustrate the experiences of vehicular cycling with the e-cargo bike in Ireland. We found that the e-cargo bike enhanced the experience of vehicular cycling among these individuals – an experience shared by the majority of participants within the broader study. In particular, e-cargo cycling enhanced the ability to *provoke responsibility* (Egan 2021) in motorists when cycling on roads shared with motor traffic. Using the language of social practice theory (Shove, Pantzar, and Watson 2012), this appeared to occur through a reconfiguration of the elements – i.e. the meanings, materials and competences – of conventional vehicular cycling.

First, to varying extents, the materiality of the e-cargo bike appeared to change broader social meanings (Shove, Pantzar, and Watson 2012) of the bicycle in this context. With its longer, higher and sometimes wider design, the e-cargo bike occupied more physical space on the roadscape relative to a non-cargo bike. With its observable functional capacity to carry children and shopping, the e-cargo bike demonstrated a status as an everyday utility "vehicle" more saliently than a non-cargo bike, similar to the findings of Glachant et al. (2025). From the perspective of participants, the e-cargo bike was perceived as a more legitimate (or "reasonable") and visible "vehicle" when cycling on roads due to these material differences, within a context where cyclists are routinely subject to disregard as road users (Egan and Philbin 2021; Hogan and Jeffers 2023; Lawson et al. 2013; Mullan 2013). The sense of improved visibility among e-cargo riders in this study resembles the findings of Thomas (2022)

In this way, the perceived "vehicle" status of the e-cargo bike on the basis of its size and everyday cargo functionality made participants feel more respected by motorists and more entitled to occupy spaces primarily designed for motorists, as equal traffic participants (Bonham, Johnson, and Haworth 2020). These findings indicate that riding an e-cargo bike appears to integrate a passive claim on road space due to its greater size. Rather than having to "pretend to be bigger" as a conventional cyclist (Hogan and Jeffers 2023, 44), the e-cargo bike appeared to automatically give riders additional "presence" relative to the less conspicuous bicycle, thereby reducing the need to actively "accentuate presence" on the road (Egan 2021). Relatedly, the e-cargo bike was experienced to present as a "vehicle" similar to a private car to greater extent than a non-cargo bike. This appeared to embolden participants to more comfortably occupy road space and car parking space, asserting their entitlement *as a vehicle* (Egan 2021; Longhurst 2015). The experience of the e-cargo bike as a more legitimate and well-regarded road vehicle in this study echoes the findings of Cass et al. (2025) and Glachant et al. (2025). In Cass et al. (2025) in particular, participants variably described their e-cargo bike as a "big vehicle", "a lot of bike" and a "mini car", on which they felt more "justified" to assertively occupy road space than if cycling a conventional bicycle (p.12).

Second, the materiality of the e-cargo bike – its electric pedal assistance, weight and size – changed the competences generally required to engage in vehicular cycling among participants. The technology of electric-assistance reduced the physical demands of synchronising with motor traffic on roads (Popan 2020), especially with child passengers, improving perceived security. This finding aligns with existing research investigating experiences of e-cycling (Behrendt 2018; Dill and Rose 2012, Dowling & Maalsen, 2020; Jones, Harms, and Heinen 2016; Popovich et al. 2014; Wild, Woodward, and Shaw 2021). It particularly resonates with the study of Wild, Woodward, and Shaw (2021), where one participant described how the assistance of the e-bike made her feel "more like a vehicle on the road" (p. 10) as opposed to an obstacle "in the way" of motor traffic. Alongside the electric pedal assistance, the weight and size of the e-cargo bike made participants feel more stable and powerful relative to a conventional bicycle – a finding also reported for some participants in the e-bike study of Dill and Rose (2012). The additional power of the e-cargo bike appeared to translate to the exercise of extra caution when sharing space with pedestrians, as mentioned by Sinéad.

Third, cycling with children on the e-cargo bike diminished the sense among participants that they presented to motorists as a nuisance "cyclist" (Aldred 2013; Bonham, Johnson, and Haworth 2020; Hanna 2015; Williams 2023). Instead, those who cycled with children felt they presented more as a "family" (see also, Hogan and Jeffers 2023, 49). They described how their child passengers could be salient to motorists driving behind the e-cargo bike, prompting more careful and respectful overtaking practices. The presence of children could be observed indirectly through the visible passenger box positioned on the front of a box-bike, or directly observed to the rear of a long-tail bike. Some participants accessorised their e-cargo bikes to maximise visibility with fairy lights, potentially indicating the presence of child passengers to motorists occupying the road. In the case of Jennifer, she would gesture the presence of her "two small children" directly to motorists, with a corresponding demand for more space. Sinéad, on the other hand, recruited her children to reward motorists displaying patience by waving politely to them in gratitude, thereby encouraging active "passengering" (Laurier et al. 2008, 6). Similar to

our study, participants in Glachant et al. (2025) reported greater regard by motorists when travelling on their e-cargo bikes with children. As Glachant et al. (2025) argue, e-cargo cycling can help to broaden "cycling citizenship from the individual to the family scale" (p.8).

Our findings indicate that rather than being a stigmatised symbol of negligent parenting (McLaren 2018, 852), the "family" identity presented when e-cargo cycling could be leveraged to both "indicate transgression" and "display responsibility" (Egan 2021) in interactions with motorists. As one participant from the broader sample described, "Cars tend to give you a wider berth when you've got the girls in the back. They kinda see more than … dickhead cyclists! Cos there's actually a family on board". By transforming the social presentation of the rider and passenger from (unwelcome) "cyclist" to (respectable) "family", as Sinéad described, cycling with children on the e-cargo bike appeared to "humanise" the potentially dehumanised cycling subject (Delbosc et al. 2019; Glachant et al. 2025, 5). This contrasts with the indicatively positive objectification of the e-cargo bike and cyclist as a "vehicle" with corresponding rights to the road. Therefore, alongside presenting as a "big unit", cycling with children on the e-cargo bike presented as a "family unit".

7. Conclusion

Our study contributes to an understanding of the experiences and practices of e-cargo vélomobility in the spaces of automobility (Behrendt 2018). Broader insights regarding how e-cargo vélomobility conforms with and challenges automobility – such as through parent–child mobility practices – can be found elsewhere (Cass et al. 2025; Egan 2025; Glachant et al. 2025).

Overall, our study suggests that the materials of the e-cargo bike on the roadscape change both the social meanings of the bicycle and the cyclist – the object and subject of cycling. Namely, the e-cargo bike presented as a more legitimate "vehicle" compared to a conventional bicycle while riders and passengers presented as a "family" rather than as "cyclists". These meanings appeared to improve the conduct of motorists, thereby decreasing the competences of vehicular cycling in Ireland, such as asserting entitlement to road space (Egan 2021). The security and accessibility of vehicular cycling were likewise enhanced by the electric assist, weight and size of the e-cargo bike. These materials similarly empowered e-cargo cyclists to appropriate road space as (more) legitimate traffic participants. In addition, they arguably enabled e-cargo cyclists to "pass" as a motor vehicle (Aldred 2013, 262; Goffman 1968) by more readily fitting into the spaces and rhythms of motor traffic than non-e-cargo cyclists (Popan 2020).

To conclude, the potential "vehicle" status of the e-cargo bike and the "family" identity of riders who travel with children could be leveraged to improve the standing of cycling at large. Claiming the road with the e-cargo bike may help to fracture discourses that homogenise the bicycle as a recreational mode (Bonham and Cox 2010; Egan and Caulfield 2024; Glachant et al. 2025), the cyclist as an athletic, white, middle-class man (Lam 2018) and cycle mobilities as illegitimate "traffic" (Emanuel 2012). More broadly, the subversion of established meanings the e-cargo bike, cyclist and passengers offer in vehicular cycling performances may help to challenge the hegemony of the private car as the dominant "vehicle" of public space (Longhurst 2015; Norton 2011) and as the quintessential "family" transport mode (Sheller 2004).

Notes

1. Legal e-bikes and e-cargo bikes in Ireland provide electric pedal assistance up to 25 km/h (Department of Transport 2025).
2. "Dooring" is when a motorist opens the door of their vehicle into the path of an oncoming cyclist or other road user.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the Sustainable Energy Authority of Ireland under the SEAI Fellowship Pilot Programme 2022, Grant number 22/RDDF/756.

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