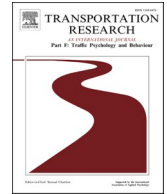




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A new tramway and the formation of emotional commuting experiences

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ABSTRACT

Sustainable urban mobility transitions require various measures that impact peoples' everyday lives. Implementing these measures, such as transport infrastructure projects, requires public acceptance. However, there is a lack of research on how sustainable urban mobility transitions impact commuters' emotional experiences. This study aims to understand the formation of emotional commuting experiences and to analyse the impact of the introduction of a tramway on those experiences. The findings are mainly based on qualitative data (33 interviews) but also on quantitative data on the participants' commuting behaviour collected in a Finnish city, Tampere, which launched a new tramline a couple of months prior to data collection. The research shows a variety of triggers for negative and positive emotional commuting experiences and highlights the role of critical incidents in the formation of emotional experiences. It reveals how launching a tram in a city impacts emotional commuting experiences on many levels, even for those who do not change their main mode of commuting. It also shows the dynamics involved in emotional commuting experiences, demonstrating how emotional experiences in the construction phase may differ greatly from those after the new commuting mode has been launched. Based on the findings, we suggest that in order to guarantee public support for sustainable urban transport projects, practitioners should recognise the wide range of emotional experiences associated with commuting, even for those who do not adopt the new mode of transport, and take these experiences into account not only during the lengthy infrastructure-building phase but also during the utilisation phase.

1. Introduction

Commuting has been found to play a role in individuals' subjective wellbeing (e.g., [Clark et al., 2020](#); [Ettema et al., 2010](#); [Sandberg et al., 2023](#)). As emotions are an essential part of subjective wellbeing ([Diener, 1994](#)), research has also started to pay increasing attention to emotional commuting experiences (e.g., [Chatterjee et al., 2020](#); [Friman et al., 2017](#)). Emotional commuting experiences

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can be defined as commuters' emotional reactions to commuting-related stimuli throughout their commuting journeys (cf. Becker and Jaakkola, 2020; Lemon and Verhoef, 2016). It is argued that emotions experienced during commuting not only impact commuters but also reflect on the wellbeing of families, work groups and society (Zhu and Fan, 2018), and therefore they should be better considered in transport planning and investment decisions (Hickman et al., 2013).

Even though the emotional experiences of commuters tend to be more neutral and milder than for those undertaking the same trip with social or recreational motives, these emotions vary during routine commute trips (van Hagen and Bron, 2014). Past research shows that emotional commuting experiences depend on numerous factors, such as the commuting mode (Thomas and Walker, 2015), the environment (Mokhtarian and Salomon, 2001) and transit and waiting experiences (Wener et al., 2003), during the whole commute trip. However, our knowledge of the factors influencing emotional commuting experiences is still rather limited (Chatterjee et al., 2020).

Studies on commuting experience acknowledge the role of emotions, yet they tend to be considered only in terms of satisfaction (e.g., Liu et al., 2021; Susilo and Cats, 2014) or at the mere valence level (van Hagen and Bron, 2014). Furthermore, many existing studies on commuting (e.g., Wang et al., 2020; Zhu and Fan, 2018) focus on the trip from home to work and neglect the return-home commute (Giménez-Nadal et al., 2021). This indicates a need to understand the overall emotional commuting experience.

Emotional commuting experiences are strongly related to the available commuting modes (e.g., Liu et al., 2021; Singleton, 2019) and thus the introduction of a new commuting mode to the range of available commuting modes for commuters is likely to also be reflected in their experiences. However, to date, the impact of introducing new commuting alternatives on commuting experiences has received scant attention in the research literature (Chatterjee et al., 2020).

Furthermore, emotional experiences in the context of shifts towards more sustainable modes of commuting are still largely unexplored (Redman et al., 2013; Woods and Masthoff, 2017), even though this knowledge would be important, as public and private actors are increasingly introducing and promoting more active and sustainable ways of commuting as part of sustainable urban mobility transitions (Ling et al., 2022; Tsavachidis and Le Petit, 2022; Whillans et al., 2021), and cities around the world are searching for and adopting ways to transform from car-oriented solutions towards more sustainable urban transport, such as tramways (Newman and Kenworthy, 2015; Scheurer et al., 2023; Sengers, 2017).

To address the research gaps identified above, this research sets out to *understand the formation of emotional commuting experiences and to analyse the impact of the introduction of a tramway on such experiences*. This study contributes to the research on urban commuting behaviour by deepening knowledge on the role of emotions in commuting experiences and by revealing how a sustainable mobility transition of a city transport system influences the emotional commuting experience of the individuals involved.

This article proceeds as follows. First, we review existing research on emotional commuting experiences and sustainable commuting modes. We then describe the urban context and methodology of the empirical study. In the findings section of this article, we present our analysis on a new tramway improving, deteriorating or not impacting emotional commuting experiences. We then continue with the discussion section, where we present both our theoretical contributions and practical implications, and end the paper with a concise conclusions section.

2. Literature review

2.1. Emotional commuting experiences

The research on commuting experiences originates from the customer experience research tradition (e.g., Mogaji and Erkan, 2019; Rincon-Novoa et al., 2022). Customer experience is seen to entail 'customers' non-deliberate, spontaneous responses and reactions to offering-related stimuli along the customer journey' (Becker and Jaakkola, 2020, p. 638). A customer journey refers to the series of offering-related touchpoints with which customers interact during their purchase and consumption processes (e.g., Lemon and Verhoef, 2016; Patrício et al., 2011).

Commuting experience can be seen as one type of customer journey – that is, a customer's perspective of the entire commuting journey, consisting of various episodes (events occurring as part of a sequence) and touchpoints (moments of interaction) (Lemon and Verhoef, 2016; van Hagen and Bron, 2014). Touchpoints help us to understand potential leverage points in the commuting experience; in other words, they help us to differentiate between the points that can be influenced (such as available commuting modes and road maintenance) and those that cannot (such as the weather or topography) (cf. Lemon and Verhoef, 2016).

Several studies (e.g., Becker and Jaakkola, 2020; Lemon and Verhoef, 2016; Verhoef et al., 2009) have viewed customer experience as a multidimensional construct focusing on a customer's cognitive, physical, sensorial, social and emotional experiences. Emotional experiences are formed by emotions, which are typically short-term feelings that arise because of something and are expressed (sometimes very slightly) as behaviours (Frijda, 1993). Emotional experiences can be captured along two dimensions: pleasure–displeasure and the degree of arousal (Mehrabian and Russell, 1973; Russell et al., 1981).

The pleasure–displeasure dimension can be thought of as an experience of positive and negative emotions. The division between positive and negative emotions is based on individuals' perceptions regarding emotions, with positive emotions being pleasant and agreeable and negative emotions being unpleasant and disagreeable sensations (MacLean, 1980). There are various categorisations of positive and negative emotions (see Laros and Steenkamp, 2005 for a review). In consumer studies, emotions are often divided into eight basic emotions, of which four are positive (affection, contentment, happiness and pride) and four are negative (anger, fear, sadness and guilt) (e.g., Brebner, 2003; Laros and Steenkamp, 2005). These basic emotions can be further classified into various sub-emotions (see Laros and Steenkamp, 2005).

The degree of arousal can be understood as a subjective state dimension ranging from sleep to excitement and showing how

stimulated an individual is by the environment. In general, too few or too many stimuli evoke discomfort (Gilboa and Rafaeli, 2003), individuals differ in their tendencies to seek arousal (Mehrabian and Russell, 1973), and in different situations, they also tend to prefer different levels of stimulation (Apter, 2007).

The difficulties in studying emotions empirically have been largely acknowledged. Emotions are sensitive and private issues; individuals may feel and express their emotions in different ways, and they may report their felt emotions with self-censorship (Daborough et al., 2008). This makes it challenging to create standardised and universally applicable measurement tools. Furthermore, emotional experiences can be considered even more difficult to study, since they are constantly evolving and forming during the whole customer journey and are influenced by situational factors (Godovykh and Tasci, 2020). Furthermore, the non-linearity of experience and the difficulty of identifying the optimal experience level make it even more difficult to use, for example, standard survey designs in measuring emotional customer experiences (Palmer, 2010).

An emotional commuting experience is an outcome of various interlinked factors, such as commuting mode (e.g., Liu et al., 2021; Singleton, 2019), time spent commuting (e.g., Choi et al., 2013; Nie and Sousa-Poza, 2018), crowding and travel time (e.g., Tirachini et al., 2013; Wener et al., 2003) and time pressure (e.g., Lucas and Heady, 2002; Lyons and Chatterjee, 2008). Since individuals perceive the environment holistically, the total configuration of environmental dimensions, rather than any single element, forms their emotional experiences (Bitner, 1992; Lemon and Verhoef, 2016). Thus, to understand individuals' emotional commuting experiences, their overall door-to-door commuting experiences need to be considered (van Hagen and Bro, 2014).

Past research has shown that people tend to evaluate their overall experience within a time lapse based on their experiences during moments of the strongest emotions (peak or critical incidents) and at the end (Friman, 2004; Kahneman, 2011; Kahneman et al., 1993). Hence, it has been claimed that instead of maximising positive emotions throughout the entire customer journey, it may also be more effective to allow some temporary negative emotions to arise so that the contrasting positive emotions would be experienced with greater intensity (van Hagen and Bro, 2014).

2.2. Sustainable commuting modes and emotional commuting experiences

As cities are investing in infrastructure for environmentally friendly and energy-efficient transport systems, commuters are being encouraged to shift towards more sustainable forms of commuting (Banister, 2008; Kiviluoto et al., 2022; Paulsson, 2020). Sustainable commuting can be defined as encompassing environmentally friendly commuting modes, such as public transport, walking, cycling and carpooling.

Previous studies on the emotional experiences evoked by sustainable commuting modes have provided rather inconsistent results. On the one hand, studies indicate that active modes of commuting (walking and cycling) have been shown to elicit more positive emotions than driving or using public transport (e.g., Liu et al., 2021; Olsson et al., 2013; Singleton, 2019; Smith, 2017; St-Louis et al., 2014). Walkers and cyclists tend to perceive their work commute as relatively relaxing and exciting, whereas car commuters tend to perceive their work commute as more stressful than users of other modes (e.g., Gatersleben and Uzzell, 2007; Lajeunesse and Rodríguez, 2012).

On the other hand, Zhu et al. (2019) discovered that commuters who walked or cycled were more likely to experience less happiness than those who used motor vehicles when commuting. In line with this, existing research shows that car use may evoke arousal and various positive emotions (Steg, 2005), such as the enjoyment of driving (Stradling et al., 2000) and even emotional attachment to the car (Barreto et al., 2022).

The use of public transport has also been found to evoke both negative and positive emotions. According to Friman et al. (2017), the use of public transport in daily travel is related to negative emotions, and Gatersleben and Uzzell (2007) noted that bus commuters often viewed their commute as boring. On the contrary, some studies (e.g., Abou Zeid, 2009; Martin et al., 2014) have found that taking public transportation evokes positive emotions in commuters. Additionally, research has shown that complex travel, such as public transport that requires transfers, creates negative emotions (Wener et al., 2003). To conclude, determining how sustainable commuting modes impact emotional commuting experiences seems to be a challenging task.

3. Study area and methodology

We utilised a mixed-methods approach to study emotional door-to-door commuting experiences and the impact of a sustainable mobility transition on those experiences. The empirical data were collected in a Finnish city, Tampere. Tampere is located between two large lakes in southern Finland. It is the third largest city in Finland (having around 250,000 inhabitants) and it is one of the most rapidly developing regions in Finland. In recent years, it has been investing heavily in becoming a pioneer in sustainable urban development. Tampere aims to be carbon neutral by 2030. It has developed internal traffic routes and connections supporting active commuting, supported smart mobility services and has recently built a tram commuting infrastructure.

In Tampere, our focus was on the Kauppi Campus, where we assumed that the introduction of the tram would impact commuting behaviour. This area surrounds Tampere University Hospital and includes various other nursing- and medicine-related employers – that is, workplaces in which remote work is rare and often impossible. Overall, the area employs over 8,000 people. The Kauppi Campus is located three kilometres from the city centre within reach of various public and private, active and inactive commuting modes. It is connected by a new tramline and many recently improved cycling and pedestrian routes.

Our data consisted of quantitative survey data and qualitative interview data collected a couple of months after the launch of the tram. In this study, the quantitative survey had a subsidiary role, but it was critical in facilitating the qualitative interviews (Hurmerinta-Peltomäki and Nummela, 2004). The survey was conducted in September 2021. We contacted various workplaces on Kauppi

Campus and invited them to participate. A total of 161 employees participated in the electronic survey. The survey collected information on demographic issues, commuting modes and times. In this paper, the survey data were not analysed further, but were used to (1) find and contact interviewees and get them to commit to the study and (2) validate, at least partly, the information on commuting behaviour gained during the interviews. The latter was of particular importance because due to social desirability and social approval traits (Adams et al., 2005), individuals are inclined to report more active commuting than they practice in reality.

After collecting the survey answers, we contacted all the survey respondents and inquired about their willingness to participate in the interviews on commuting experiences. We interviewed all volunteer participants in November 2021. Consequently, our data consist of 33 interviewees representing five different workplaces on the Kauppi Campus (Table 1, Fig. 1). It is noteworthy that all the informants were female due to the predominantly female workplaces on the campus. This bias needs to be recognised when analysing the results of the study. Fig. 1 illustrates how most of the informants live in areas where the new tramline does not provide direct access. In some cases, the tram may be part of a multi-modal commuting trip, and for those who live in the city centre, it provides an alternative to walking or cycling.

The interviews were performed individually, face-to-face and had an average duration of 27 min. The interviews started with demographic questions, followed by open-ended questions concerning commuting practices, critical incidents in commuting, commuting incentives and obstacles, and emotions and attitudes related to commuting and commuting modes – tram commuting in particular. Altogether, the transcribed interview data consisted of 132,691 words.

The data were analysed in three phases. First, the demographic and commuting data from the survey and interviews were compared to verify and validate the data (e.g., Hurmerinta-Peltomäki and Nummela, 2006). Second, the effect of the introduction of the tram on commuting behaviour was analysed for each participant based on both the survey data and the interview data. Third, emotional experiences were identified in the interview data. For this, we used the existing categorisations of basic emotions; thus, the analysis could be described as a directed content analysis (Hsieh and Shannon, 2005). The emotion classification by Laros and Steenkamp (2005) was selected over other possible classifications, such as PANAS (Watson et al., 1988) and POMS (Curran et al., 1995), because it

Table 1
List of informants.

Informant	Employer	Age	Distance to work (km)	Main commuting modes	Experience on tram in Tampere	
					Tried	Using regularly for commuting
Clarice	A hospital	53	5	walking	yes	no
Eve	A hospital	31	3	cycling	yes	no
Gladys	A laboratory	53	13	car (winter), cycling + train + tram (summer)	yes	yes
Hazel	A laboratory	34	10	car (winter), cycling (summer)	yes	no
Heather	A laboratory	37	1	walking (winter), cycling (summer)	yes	no
Ingrid	A family support centre	36	8	bus + tram	yes	yes
Judith	A family support centre	38	5	cycling	yes	no
Julia	A day-care centre	53	3	cycling (summer), walking (winter)	yes	no
Kelly	A day-care centre	59	10	cycling	no	no
Laureen	A day-care centre	63	3	car	no	no
Lily	A hospital	51	9	cycling	yes	no
Lorena	A hospital	26	2	cycling	no	no
Louise	A family support centre	48	9	bus, tram	yes	no
Lynn	A nursing home	56	11	cycling (summer), car (winter)	no	no
Madeleine	A nursing home	26	3	cycling	yes	no
Margret	A hospital	32	22	bus + tram, car (nightshifts)	yes	yes
Marion	A hospital	58	14	bus	yes	no
Melanie	A nursing home	56	14	bus + tram	yes	yes
Morgan	A laboratory	59	14	car	yes	no
Netty	A hospital	42	13	car	yes	no
Nicole	A hospital	46	11	cycling (summer), bus (winter)	yes	no
Paula	A laboratory	33	2	cycling	no	no
Phoebe	A hospital	56	3	walking (mornings), tram (afternoons)	yes	yes
Rhonda	A hospital	57	12	bus + tram	yes	yes
Roberta	A laboratory	48	14	cycling	no	no
Rosaline	A hospital	35	10	bus + tram, car, cycling	yes	yes
Sharon	A laboratory	56	1	walking (winter), cycling (summer)	yes	no
Shelly	A hospital	56	57	car	yes	no
Stacey	A laboratory	38	22	car, cycling + train + cycling	yes	yes
Tiffany	A hospital	57	43	car	no	no
Tracy	A hospital	39	11	cycling (summer), bus + tram (winter)	yes	yes
Veronica	A laboratory	57	11	cycling (summer), bus + tram (winter)	yes	yes
Wendy	A nursing home	47	6	cycling (summer), tram + tram (winter)	yes	yes

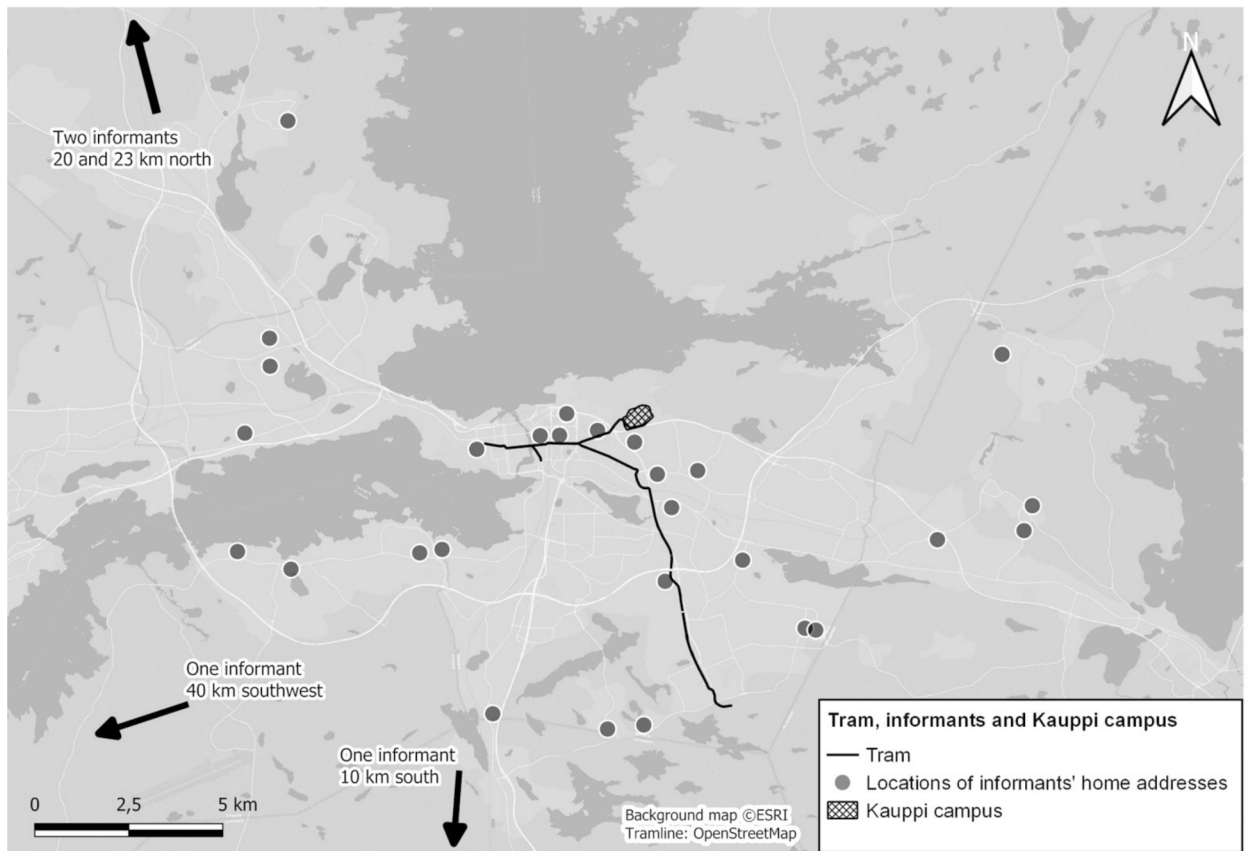


Fig. 1. Informants placed on a map of Tampere.

is based on an extensive review of several existing emotion classifications, offers a classification of emotions and sub-emotions and concentrates on emotions, not moods.

To identify the diverse emotions within the qualitative, freely produced narrative data, we utilised two tactics, always taking into account the context of the expressions. First, we searched explicit expressions for emotions, for example, ‘I like it’ (contentment) or ‘It is disgusting’ (dissatisfaction, sub-emotion of anger). Second, we searched for implicit expressions of emotions. This needed more interpretation; for example, ‘This morning, I was able to read the morning paper on the bus’ (contentment). The analysis required several iteration cycles in which the interpretations were discussed and finally theorised by all the researchers. This resulted in the

Table 2
Data supporting interpretations of improved emotional commuting experiences.

Circumstances	Examples of citations on emotional experiences
Changed main modes of commuting	<p><i>Now that they are brand new, they look nice. There's space; it's like airy, and it feels faster, since in some places, it can travel somehow smoother than a bus. (Rosaline)</i></p> <p><i>I just love it [using the tram]! It's just brilliant. [...] First of all, there is independence from timetables. The benefit is the same as with cars and bikes. I don't have to stress about when it comes, and I don't need to see if I can catch a bus or when the next one is coming. Instead, they [the trams] drive all the time. The absolute benefit in this is independence and freedom, which normally applies only to those vehicles that you're driving yourself. So, it's the only vehicle driven by others where you don't need to keep checking your watch. (Wendy)</i></p>
Changed alternative modes of commuting	<p><i>Today I have come by tram just because I chose to do so today. And yes, the third option [instead of walking or cycling] is the tram. [Interviewer: What made you come by tram today?] Firstly, the busy morning. It's a totally chaotic day, and from here, I need to be able to definitely leave early ... So if there's a great rush or bad weather, then it's okay to take the tram. It's so easy and I like it very much. (Sharon)</i></p> <p><i>When it's possible to choose either one [bus or tram], then I decide based on the schedule. When I leave from here [the workplace], there's like 50 m between the [bus and tram] stops, so that does not make a difference. [...] My own experience is that it has expanded the choices for me. [...] I think that no matter what the city, it's like a city-style way to travel, that you're like at the same level where people walk, and so the visual experience is also different compared to being on a bus where you sit a bit higher. (Louise)</i></p>
Unchanged main and alternative modes of commuting	<p><i>I have an e-bike, so it takes me like 40 min. [...] They are doing those construction works, but so far, I think none of them have focused on the tram, but instead they keep improving the cycling lanes. (Paula)</i></p>

analysis of the new tramway in terms of it improving, deteriorating or not impacting emotional commuting experiences. This is presented next in the findings section.

4. Findings

4.1. The new tramway improving emotional commuting experiences

The improved emotional experiences were related to three kinds of circumstances: changed main modes of commuting, changed alternative modes of commuting and unchanged main and alternative modes of commuting (Table 2). Positive emotions related to the changed main modes of commuting were particularly highlighted among those who changed their commuting mode from bus to tram. The following citation by Madeleine, who changed one part of her commuting chain from bus to tram, captures a rather typical view of positive emotional experiences:

Since the tramline opened, I haven't really commuted by bus because the tram is so handy. [...] The tram is such a pleasant and easy way to travel from one place to another. Quick and all. You can just sit. It stops at every stop, and there's no need to worry about when to push some button, and the stops are clearly visible and ... I just think it's so nice when compared to the bus. (Madeleine)

Like Madeleine, many others also praised the ease of tram travel. Furthermore, as the tram wagons were new, they were regarded as clean and luxurious, especially when compared to buses.

Positive emotional experiences among those whose main mode of commuting did not change but for whom the tram provided a new alternative that they could occasionally utilise in their commute were also detected. This was expressed by Louise, who preferred the bus because its route extended closer to her home, but who also welcomed the tram and used it for one part of her transport journey when it was more readily available:

I like the tram enormously because it's new, but I can't really differentiate between the tram and bus. They both have a strong presence in my everyday life, but at the moment, maybe the bus wins the day since the tram doesn't go past my home yet ... Actually, if I need to change [the vehicle] in the city centre when I come here [to work], I choose either the bus or tram, depending on which comes sooner, so there's really no difference. (Louise)

It was somewhat surprising to notice that positive emotional experiences were also expressed by some whose mode of commuting did not change because of the tram. For example, Lorena, who liked to use her bicycle to commute, enjoyed seeing trams while cycling: 'I haven't actually travelled with it [the tram]. But it does bring like a big-city feeling and it looks nice when they are driving over there.' Furthermore, another cyclist stated that the cycle paths had been improved along with the tramline construction and that it made her feel content.

Overall, the informants expressed positive emotions, such as contentment, happiness and affection. These were triggered, for example, by the convenient transit from the bus to the tram, by the steady and fast ride, by the pleasant interior of the new tram carriages, by the increase in alternative commute modes and by the improved city image.

4.2. The new tramway deteriorating emotional commuting experiences

The deteriorated emotional experiences were related to the same kinds of circumstances as the improved experiences: changed main modes of commuting, changed alternative modes of commuting and unchanged main and alternative modes of commuting (Table 3).

Table 3
Data supporting interpretations of deteriorated emotional commuting experiences.

Circumstances	Examples of citations on emotional experiences
Changed main modes of commuting	<i>Thus far, the connections have been really good, but now they have worsened considerably because of the tram. (Nicole)</i> <i>A stop from where I used to get [here] with one bus is right within sight [of my home], but now you can't hop on from there because of the tram. My firm opinion is that the tram completely sucks. (Veronica)</i>
Changed alternative modes of commuting	<i>The [bus] lines got a bit poorer over there when the tram was introduced. [...] One line that was honestly really good was terminated. One could just go by one bus ... So now that the line has been closed, I haven't commuted by bus ever since. [...] When the car is there [available], so hell, yeah, I'll take that [the car]. (Lynn)</i> <i>Before this tram reform, it was possible to come here to the workplace directly without any changes, but now, when you want to commute on public transport, you must change [vehicles], so it got worse for me. One line goes over there, still. I have studied these new schedules, but there are quite a lot of diversions, so it takes as long as going by bike. (Lily)</i>
Unchanged main and alternative modes of commuting	<i>When those crossroads are rearranged, you need to go by bike from here and there, and it's like wondering each time where one should go from. For instance, that crossroads over there has been quite challenging for bike riders, like what's the right route with a bike? [...] The tram may come from two directions, so then you wonder if a car can also come from behind it and what the arrangement of different lanes is over there. So it doesn't feel so clear. I go awfully carefully to that crossroads and prefer to walk with my bike. (Kelly)</i> <i>I need to cross those rails a few times on my way to work, and the traffic lights are a bit silly, because all the rest of the traffic needs to wait so long for the tram, so it bothers me a little. (Roberta)</i>

Most negative emotional experiences originated from the new tramlines replacing some of the bus lanes, but not reaching as far as the old bus routes. This forced some of the commuters who previously travelled on one bus from home to work to transit from the bus to the tram during their commute trip to find completely new ways of commuting, such as cycling or car commuting. The following citation illustrates Tracy's situation, who had started to cycle 11 km between home and work, but who pondered whether to buy a car to be able to commute during wintertime:

So far, I've commuted by bike because the timetables changed in the autumn, and I can't get there with one bus [connection] anymore. [...] When the weather changes and the roads become slidy, inevitably it [cycling] won't be an option. [...] I have no car at my disposal. Unless I decide to buy one. (Tracy)

She also explained how her family had chosen the location of their home based on the direct bus line to her work and how, now, as the situation had changed, they had considered moving, but the idea was abandoned because of the children. Furthermore, she noted that cycling had also become slower and more difficult due to the construction of tramlines and the related changes in the cycle paths. For some, the deterioration of cycle paths was so significant that they had started to use the bus instead, as the following citation shows:

It [giving up cycling] has irritated me. I used to [cycle] in the spring and summer and at the beginning of autumn, but it started being awkward. [...] Before, I used to cycle, until these road constructions started, but suddenly there was crushed stone on the cycling lane and once, when it broke my tyre, I thought I didn't want to go by bike anymore. [...] Then, the site moved forward, and the cycling routes were changed. [...] So often, it was a surprise, and it was difficult to find the routes, so I thought that my commute trip with my bike was so long as such that I didn't want to use any extra time searching for a route to work or wondering whether my tyre would get punctured. (Marion)

Thus, those who had previously enjoyed well-functioning commuting modes and felt that the construction of the tram had forced them to change their main mode of commuting felt that it complicated their daily lives and this evoked various negative emotional experiences.

For some, the introduction of the tram decreased alternative ways of commuting and thus evoked negative emotional experiences, making them prefer to go by car or bicycle instead of using public transport. This was also the case with Hazel, who cycled or drove by car when using the bus became riskier:

The time[table]s got worse. For instance, in the morning, when the bus leaves, it's a worse time – earlier or very much later ... so you must either wake up earlier or hope that the bus is precisely on time, because if it's even slightly late, I'll be late [for work]. (Hazel)

Notably, negative emotional experiences were also expressed by interviewees whose modes of commuting did not change because of the tram, but where the tram caused difficulties for their commutes, for example, by lengthening their commuting time or causing inconvenience. One interviewee was irritated that, as a taxpayer, she had paid for the tram, which she could not use:

I travels via Road X, so I can't hop on from where I live. Nothing else irritates me, but the fact that it passes by my home, but I can't hop on because there's no stop there. [...] I see a tram like 10 times a day, every day. And I have to wait with my little car that 'darn, those trams', when they always come at the same time. First, there's one coming from over there and then another from the other direction, and I keep waiting. (Laureen)

It is noteworthy that, even though the introduction of the tramlines caused many negative emotions, these were directed at the routes of the tramlines and at the negative implications caused by tramlines to other commuting modes and to the smooth running of everyday life – especially during the construction phase. All of the interviewees who had tried the new tram mentioned that the tram itself was very fancy and extremely pleasant to use. For example, Marion, who had negative emotional experiences during the construction phase, noted that she liked to use the trams occasionally when commuting because they were 'spacious, light and easy to enter and exit'. Also, those who had not tried the tram appreciated its effects on the city atmosphere, as noted by Kelly:

I like the red colour, though. It has quite a nice clinging sound when it travels by my side over there [on the main street] when I cycle. It has the kind of tone that brings like Not like a big-city style, but rather a more ambient, small-town feeling for me. (Kelly)

To sum up, the informants expressed negative emotions, such as anger and fear. These were triggered by the limited routes of the tramlines, by the inconvenient transit timetables and by the difficulties caused to other forms of commuting by tram transport and tram building work. However, the informants who highlighted negative emotional experiences also expressed some positive emotions related to the tramway.

4.3. The new tramway and indifferent emotional commuting experiences

There were also commuters for whom the introduction of the tram did not seem to create any changes in their emotional commuting experiences – that is, it did not produce emotional reactions to any commuting-related stimuli throughout their commuting journey. Many of them came from afar by car or from directions in which the tram did not create major changes. It did not change either their modes of commuting or their emotions related to commuting. Yet even these informants reported both positive and negative emotions evoked by the tram (Table 4), in general.

Pride and contentment were the positive emotions that were often highlighted, and they were related to the improved city image, to

the ease of use and to the possibilities of occasionally using the tram to visit the city centre (and leaving the car in the workplace’s parking lot). The latter is expressed by Morgan as follows:

You can get downtown pretty conveniently with it. For instance, when you come here, you can leave your car in the parking lot and continue downtown with the tram if you don’t have a heavy load to carry. It’s very easy, a lot easier than going by car and driving around, wondering where to find a parking space. (Morgan)

Worry was the negative emotion most often highlighted and it was evoked by the changed traffic routes and arrangements because of the construction of the tramlines and the ensuing tram traffic. Since these commuters came to work from directions that the tram did not travel in, they were not used to it, and therefore, when they occasionally needed to visit the city centre, they felt nervous, as Netty expressed:

When I visited my friend at this end of the route, all of a sudden, I recalled that, yes, here’s the tram, how is it again that one should drive [a car] over here. It’s a bit like, is it now going to drive over me? (Netty)

To sum up, even though, for these informants, the tram did not change their personal emotional commuting experiences, it still evoked both positive and negative emotions when they saw the trams or occasionally used them beyond commuting purposes.

5. Discussion

By focusing on the formation of emotional commuting experiences following the introduction of a tramway, our study advances research on the role of emotions in commuting experiences and adds to our understanding of how the sustainable mobility transition of a city transport system impacts emotional commuting experiences.

By studying the role of emotions in commuting experiences, we were able to contribute to the existing research on emotional customer experiences. Our findings revealed various triggers for both negative and positive emotional commuting experiences and we also noted mixed emotions expressed by the same commuters. The latter supports Manthiou et al.’s (2020) proposition that positive and negative emotions can coexist during a customer experience. Furthermore, in line with Friman’s (2004) notion of the importance of critical incidents, the interviewees pointed out certain specific critical incidents (such as accidents) in the formation of emotional customer experiences.

Past research has noted that changes in commuting mode impact the emotions of commuters (e.g., Liu et al., 2021; Singleton, 2019). Our research supports this idea but extends it further by revealing how the introduction of a new commuting mode also impacts the emotional commuting experiences of those commuters who do not adopt the new commuting mode. Furthermore, we also noted that the new commuting mode evoked positive and negative emotions, even in those individuals whose emotional commuting experiences were not influenced by it. Thus, our research suggests that the introduction of a new commuting mode into an established city transport system also impacts *extensively* beyond those who actually adopt the new commuting mode.

Past studies on sustainable mobility transitions in urban areas have noted that knowledge of emotional experiences during this process is still very limited (e.g., Redman et al., 2013; Woods and Masthoff, 2017). Our empirical study on the introduction of a tram in a city contributes to this emerging understanding and shows that the impact of the tram on emotional commuting experiences is *dynamic*; emotional experiences in the construction phase may differ greatly from emotional experiences after the tram has been launched. This supports Kranzbühler et al.’s (2018) proposition that to understand customer experiences, one may need to study recurring customer journeys over long time periods.

Acknowledging both the extensive and dynamic impacts is important, first, because researchers and practitioners tend to focus only on those whose commuting mode changes, thus neglecting the large number of individuals who do not change anything but still feel the impact of a newly introduced commuting mode. Fig. 2 visually presents our new understanding. This illustrates how launching a tram in a city impacts emotional commuting experiences on many levels, even for those who do not change their main mode of commuting.

Second, sustainable mobility transitions in urban areas involve a long-lasting infrastructure-building phase and long-term commuting solutions. The dynamic emotional commuting experiences detected in this study and the variation in commuting

Table 4
Data supporting interpretations of mixed emotions evoked by the tram.

Mixed emotions	Examples of citations on mixed emotions
Positive emotions	<i>I fancy it [the tram] because it looks so nice when it whizzes over there, but I haven’t used it. It creates like a big-world feeling. (Stacey)</i> <i>Feeling proud of Tampere that we have put up something like this. (Tracy)</i> <i>It was so handy because it was possible to pay for it with an NFC payment, so there was no need to have any app downloaded. Like, I didn’t have any major issues before travelling and I was able to pay it with that. It was very handy and ... And for one thing, the price was good. If I had taken the car downtown, the parking would have cost a lot more than the return ticket with the tram. It was really a very nice experience. (Netty)</i>
Negative emotions	<i>I rarely go to the city centre. And when there have been some errands to run over there, I have had to go there awfully early, because I didn’t know how the routes had changed over there. I haven’t had a routine for keeping up with the changes all the time. And at the worst times, it has been quite awkward, but I don’t know if there’s any harm other than all the road construction that there has been over there. (Eve)</i> <i>It kind of stresses me ... there has not yet been a situation when, at the crossroads, a tram has come across it or something like that. I, of course, always mind the red lights, but now it has stuck even stronger in my mind never to drive when the light is red since there are trams ... So I kind of stress about it a little. (Stacey)</i>

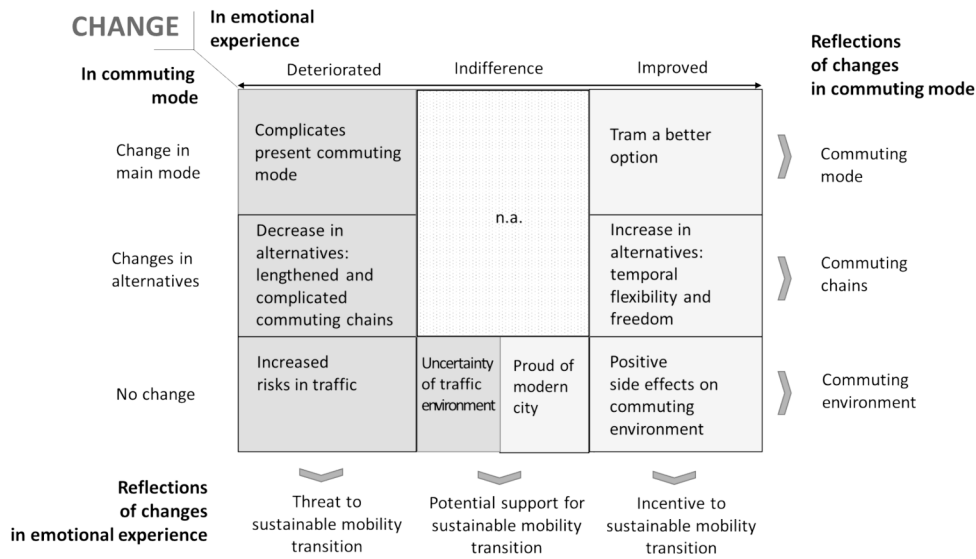


Fig. 2. Impacts of the introduction of the new tramway on commuting modes and emotional commuting experiences.

experiences between the construction phase and the utilisation phase pose challenges to transport project management. To ensure public support for comprehensive urban transport projects, practitioners also need to consider emotional commuting experiences during the long infrastructure-building phase. Objective-based planning for sustainable mobility has an implementation problem that is dependent on public acceptability. To gain public and political support for sustainable mobility measures, there is a need for a deeper understanding of acceptability (Banister, 2008).

The limitations of this study provide opportunities for further studies. By focusing on the introduction of a tramway in one city, we were able to capture the dynamics and complexities of emotional commuting experiences. Nevertheless, this study was conducted in a northern European city among female commuters working in the healthcare sector. Thus, further studies should be conducted in different contexts to validate the findings. It is also worth noting that our data were collected in the ‘honeymoon phase’, when the tram was new, clean and modern. Thus, it provides information on what to consider when launching a new commuting mode in a city. However, maintaining public transport as an attractive alternative may be much more challenging in the long term. Hence, further research should be carried out to explore how emotional commuting experiences change when vehicles get older and shabbier. Longitudinal research would also allow us to understand what kinds of emotional commuting experiences individuals remember best and are thus important in the long term.

Our study also indicates that emotional commuting experiences are formed in the context of many interrelated dimensions, such as seasonal contexts, work shifts, the frequency of commuting needs depending on the nature of work (always on site, occasionally remote or mostly remote) and activity contexts (i.e., what kinds of other activities are carried out during commutes). Further research is required to study the impact of these dimensions on emotional experiences. Furthermore, this study was exploratory and based mainly on qualitative data; further studies also employing quantitative analysis would be valuable to generate more replicable and generalisable results.

6. Conclusions

This study offers insights into urban commuting behaviour by deepening knowledge of the role of emotions in commuting experiences and by showing how a sustainable mobility transition of a city transport system influences the emotional commuting experience of the individuals involved. Our study identified a variety of triggers for negative and positive emotional commuting experiences and showed the role of critical incidents in the formation of emotional customer experiences.

Furthermore, the study reveals how introducing a new commuting mode also impacts the emotional experiences of commuters who do not adopt the new commuting mode. Recognising this extensive impact is important, because researchers and practitioners tend to focus only on those whose commuting mode changes, thus neglecting the large number of individuals who do not change their commuting mode but nonetheless experience the effects of a newly introduced commuting mode. Furthermore, the study shows the dynamics involved in emotional commuting experiences, demonstrating how emotional experiences during the construction phase and those following the introduction of the new form of transportation may differ considerably. Thus, to ensure public support for comprehensive urban transport projects, practitioners also need to consider emotional commuting experiences during the long infrastructure-building phase.

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CRedit authorship contribution statement

Birgitta Sandberg: Conceptualization, Investigation, Methodology, Writing – original draft. **Leila Hurmerinta:** Conceptualization, Investigation, Methodology, Visualization, Writing – review & editing. **Ville Helminen:** Visualization, Writing – review & editing. **Henna M. Leino:** Visualization, Writing – review & editing. **Tommi Vasankari:** Resources, Writing – review & editing.

Data availability

The data that has been used is confidential.

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