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Embodied interaction: a turn to better understand disabling marketplaces and consumer vulnerability

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**ABSTRACT**

The purpose of this study is to extend current understanding of disabling marketplaces by substantiating embodied interaction, between service providers and disabled consumers, as interlinked multimodal activities in a material environment. The study is based on three extensive datasets on service production and provider-consumer interactions, gathered from several public sector markets containing private service providers. Using different qualitative and semi-ethnographical methods, the study makes three contributions: i) a more embodied construct of disability, materialised in a conceptual typology of embodiment and materiality, advancing research into what disables consumers from being active members of marketplaces; ii) identifying themes of disabling marketplace interactions which contribute a more fine-grained understanding of the relationship between embodiment and how consumers experience vulnerability – an explanation of how consumers with disabilities appropriate space and ascribe meanings to a place; and iii) substantiating previous research into ‘bodily dys-appearance’.

**Introduction**

Increased attention has been directed at creating uplifting and transformative services that enable people with disabilities to participate in the marketplace on equal terms (Anderson & Ostrom, 2015; Anderson et al., 2013; Field et al., 2021). For example, in the EU, where one-fifth of the population is thought to have some form of disability (European Commission, 2021b), the European Commission has adopted a ‘Strategy for the rights of persons with disabilities 2021–2030’ (European Commission, 2021c), which includes making progress in terms of ensuring that all Europeans with disabilities have equal opportunities, and equal access to society and finances. Previous initiatives, such as the ‘European Accessibility Act’, also focused on improving the functioning of the internal market in order to enable more accessible products and services in that market (European Commission, 2021a). Despite such efforts, those with disabilities are still facing...
considerable barriers that risk excluding them from the marketplace, and still remain under-targeted in research (Echeverri & Salomonson, 2019).

These EU initiatives can be related to the highly influential and thus far dominant social model of disability (Baker et al., 2007; Kaufman-Scarborough; 1999, Kaufman-Scarborough, 2001; Navarro et al., 2014), whereby the environment and socio-political structures, not medical impairment, are perceived as disabling (Shakespeare, 2004). The social model has provided valuable insights into the ‘material barriers and inequalities’ that disabled consumers encounter in their daily lives (Goodley, 2017, p. 11). Research has contributed, for example, towards allowing us to understand how retail and service design, e.g. display heights in stores (Kaufman-Scarborough, 1999), general accessibility to merchandise (Baker et al., 2007), lighting and signage (Yu et al., 2015), and the furnishing of hotel rooms (Higgins, 2020), can all create inequalities in the marketplace. However, an increasing number of researchers have started to question the perspective of disability being seen solely as a social construct (Anastasiou & Kaufman, 2013, Beudaert, 2020; Higgins, 2020; Gottlieb, 2002; Pavia & Mason, 2014; Ware, 2002). Instead, these researchers argue that the social model is inadequate in that it does not fully account for the embodied reality of those with disabilities, i.e. the lived experience of the bodily limitations or differences that make everyday life and activities more difficult or time-consuming. It is not enough to only consider the social dimension of disability since bodily limitations and differences fundamentally alter how life is experienced (Anastasiou & Kaufman, 2013). Instead, the body is to be understood as both a socio-cultural and biological entity where the lived experiences of consumers are seen as forming and informing the context(s) of the disability experience (Papadimitriou, 2008).

‘Embodiment’ indicates ‘the negotiation of everyday life in relation to the material world and to the creation of social life’ (Dale, 2005, pp. 655–656). In contrast to most research into how people understand the world around them, which has been given a cognitive framing (e.g. Kuuru & Närvänänen, 2019), we choose to perceive consumers and service employees as both sensing and reflecting agents who use their bodies to learn and develop their competencies (Kuuru & Närvänänen, 2022; Willems, 2018). The key components of human action and social order are conceptualised and explored through their embeddedness in practice, rather than through mind, using a cognitive framing (Schatzki, 1996; Sandberg & Dall’Alba, 2009). In this embodied turn, directed at the embodiment of disability, the body appears both as a source of knowledge and as a site of meaning (e.g. Hughes & Paterson, 1997; Paterson & Hughes, 1999; Pinder, 1995) whereby disability-related, embodied, and unpleasant sensations, e.g. pain or exhaustion, are viewed as eminently personal experiences that cannot be solved simply through social and political change (Linton, 1998; Morris, 1991).

Further exploration of the embodied experience of disabled consumers has been called for by other researchers (see, for example, Beudaert, 2020; Hughes & Paterson, 1997; Paterson & Hughes, 1999). However, we argue that the embodied interaction between disabled consumers and service providers represents a particularly important ‘missing piece of the jigsaw puzzle’ when it comes to more fully understanding the disabling marketplace in practice. The centrality of interaction, the ‘moment of truth’ between a service recipient and a service provider, is widely recognised in marketing and service research (Grönroos, 2011; Prahalad & Ramaswamy, 2004), having recently also been given prominence in both the literature on consumer vulnerability and coping strategies among
disabled individuals using mobility services (Echeverri & Salomonson, 2017a, Echeverri & Salomonson, 2017b; Echeverri & Salomonson, 2019). The lack of understanding of embodied interaction is also somewhat surprising given that bodily embedded manifestations, significations, and actions of doings and sayings are thought of as being at the very centre of most service activities (Loscher et al., 2019; Schatzki, 1996, 2002, 2012, 2017), as well as being key to, for example, knowing and learning within organisations generally (Nicolini, 2009; Nicolini et al., 2003). This lack of understanding is addressed in this paper, as it identifies and conceptualises the function of this ‘outer shell’, i.e. embodiment, in a broad and empirical body of material taken from different service contexts.

Following the aforementioned research, in terms of viewing the body itself ‘... as a lens [through which] to understand how impairment impacts one’s ability to consume’, and in terms of approaching disability ‘... as a situation that leads to vulnerability from a practical day-to-day perspective’ (Pavia & Mason, 2014, p. 483), we seek to answer the question: How do bodily and material realities in service interaction elicit disabled consumers to experience vulnerability? Based on an extensive dataset of mobility and public transport services, gathered from public sector markets containing private service providers (municipalities buying services from private companies) and using different qualitative and semi-ethnographical methods, our purpose is to extend current understanding of disabling marketplaces; a concept which, in a recent call for papers, has been described as ‘... the spaces, places, structures, practices that deprive, de-limit and reduce the agency and power of consumers’ (Higgins et al., 2021). This is done by substantiating embodied interaction, between providers and disabled consumers, as interlinked multimodal activities in a material environment. Adding to knowledge on how marketplaces can disable consumers is particularly important when considering marketplace solutions for supporting consumers experiencing vulnerabilities (Johns & Davey, 2021).

In particular, our study makes three contributions to current understanding, in service and marketing research, of disabling marketplaces by focusing on key aspects of embodied interaction during service production. Firstly, we account for a more embodied construct of disabling marketplaces which captures consumers’ vulnerability in a practical day-to-day perspective. This is articulated in a conceptual typology of embodiment and materiality that advances research into the role played by these concepts in disabling consumers from being active members of marketplaces. Secondly, we identify themes of disabling marketplace interactions which contribute a more fine-grained understanding of the key role of embodiment in triggering consumers into experiencing vulnerability. In doing so, we put forward an explanation of how consumers with disabilities appropriate space and ascribe meanings to a place. Thirdly, we substantiate previous research into ‘bodily dys-appearance’, i.e. how service providers’ spatially specific embodied actions and resources contribute to consumers’ experiencing the body as a problematic or disharmonious thing. The paper also addresses some managerial implications, describes limitations, and suggests future research.

**Literature review**

In what follows, we first review research into ‘disabling marketplaces’, more to the point, some of its shortcomings regarding the underlying mechanisms explaining vulnerability, and specifically how the marketplace disables consumers in everyday life. We then
address some key aspects of embodiment, identified both in research on social interaction and in disability studies, that are relevant to our understanding of what is going on between individuals during marketplace interactions. The section covers central bodily mechanisms linking individuals both to each other and to material arrangements. The outlined aspects are used to detail the phenomenon of embodied interaction as regards vulnerable customers and disabling marketplaces.

The disabling marketplace

Although used, the concept of the ‘marketplace’ is still an elusive and rather ill-defined phenomenon in service and marketing research into consumer vulnerability. The marketplace has been viewed, in this context, as a venue where consumers complete tasks, meet their recreational and social needs, and perform their expected roles, in addition to being in a setting where they exercise and relish their independence and where they experience a sense of autonomy (Baker et al., 2001). The latter experience has a positive effect on the individual’s self-esteem. The marketplace, as well as the consumer behaviours occurring there, have also been found to be of importance to consumer normalcy and identity formation (Baker, 2006).

At the same time, the marketplace is not only capable of creating/re-creating/enhancing a consumer’s identity, sense of normalcy, autonomy and inclusion, it also devalues it and contributes towards consumer vulnerability (Baker, 2006), i.e. the state of powerlessness arising from an imbalance occurring during marketplace interactions or from the consumption of marketing messages and products (Baker et al., 2005). Vulnerability occurs when ‘...symbolic elements of the servicescape signal certain customer types should not be there, who they are is not okay, they are incompetent, and/or they are not part of the in-group of shoppers, the servicescape communicates certain customer types are not normal’ (Baker, 2006, p. 47). The servicescape has been found to be enabling or disabling (Baker et al., 2001; Kaufman-Scarborough & Baker, 2005) on the basis of factors that signal welcome/unwelcome, in particular the behaviour of service staff, but also the physical environment of the store, the other customers present in the retail setting, and the range of products and services (Baker et al., 2007, p. 165). Disabled consumers who feel their freedom of choice is threatened by these limitations and obstacles in the marketplace may experience this as highly negative. The concept of ‘marketplace exclusion’ is often used when referring to the mechanisms through which certain individuals and communities are barred from the activities, resources and opportunities that the market provides to other citizens – to the majority of the people in a society – but also when the market fails to adequately represent them symbolically (Saren et al., 2019, p. 476). This has implications for quality of life and social cohesion (Burgess et al., 2017).

Research has also argued that prioritising consumers’ coping and adaptation strategies in situations of vulnerability has, unwittingly, perpetuated the system of ableism, as well as deeper forms of disempowerment and the internalisation of fear (Higgins, 2020). Higgins (2020, p. 2689) writes that this internalisation of fear leaves consumers living with impairment reluctant to complain against or resist the disabling marketplace practices enacted upon them, and thus hides disability issues from public notice, further entrenching consumers living with impairment, and those associated with them, within the system of ableism.
Despite the valuable contributions made in previous research regarding marketplace dimensions that may diminish or contribute to how consumers experience vulnerability, our understanding of how the marketplace disables consumers in terms of embodied interaction, in the nexus of consumers, service providers, and material arrangements, is still scant. In contrast to this research, which has predominantly focused on consumers’ life experiences in different marketplaces, and given a cognitive framing (e.g. Baker, 2006; Baker et al., 2001; Baker et al., 2007; Kaufman-Scarborough, 2001, Kaufman-Scarborough & Baker, 2005; Lee et al., 1999), we seek to account for the embodied understanding of the reality of those with disabilities; the lived experience of the bodily limitations or differences that make everyday life and activities more difficult or time-consuming. As argued by Anastasiou and Kauffman (2013), bodily limitations and differences fundamentally alter how life is experienced. Research into embodiment, in relation to the experiences of consumers with disabilities, has hitherto largely been discounted by scholars (Beudaert, 2020).

**Embodiment**

The concept of embodiment both captures the fact that human action is strongly related to the human body and addresses how individuals coordinate and adapt their bodily movements during interaction as a device for enacting, for example, service encounters. Interaction is key, since the social is considered to occur during human interactions between bodies rather than residing in the human mind (McCull-Kennedy et al. 2015a, 2015b; Chandler & Chen, 2016). Embodiment embraces both bodily experiences and us sensing our surroundings (Cunliffe & Coupland, 2012), with the body having been described as the ‘lived centre of the experience’ (Stevens et al. 2019, p. 807).

In a recent review in organisational research, Lawrence et al. (2023) acknowledged the human body as ‘shaped’ by the intentional efforts of individual and collective actors in organisations. Using the notion ‘organizational body work’, they show how this can shape experiences of organisational life, such as including, enhancing or diminishing physical and mental wellbeing or contributing to experiences of inclusion and exclusion. In their review, the body is not only conceptualised as materiality in a material environment, or as having different meanings in organisations, it is also conceptualised as functionality, i.e. how it is linked to purposeful organisational work efforts and manifests itself in a wide range of bodily abilities and performances, or lack thereof (ergonomics, job design, etc.). Body work occurs as instantiations of practices, or improvisations around such practices (Nicolini, 2013), situated and embedded in organisational life.

One of the phenomenological and methodological roots of embodiment is early practice theory research, a family of differing theoretical perspectives (Nicolini, 2011) devoted to understanding frameworks of the organised actions which people enact in order to carry out concrete streams of actions (Reckwitz, 2002; Schatzki, 2019). In practice theory research, the point of departure is often the observable interactional and embodied practice itself (Holt, 1995; Schau et al., 2009), holding that action is only possible and understandable in relation to common and shared practices, and that social order is constituted by practices (Bourdieu, 1977; Foucault, 1977; Giddens, 1984), as individuals act and interpret other actors’ actions (Orlikowski, 2007; Schatzki, 2006).
Embodied practices are shared social, symbolic, and material tools that actors unconsciously draw on in order to manoeuvre in everyday life and through which, for example, service work is done (Jarzabkowski & Spee, 2009). Warde (2005) argues that practices comprise either a temporally unfolding and spatially dispersed nexus of behaviours that includes practical activities, performances, and representations, or talk during which the body is central. A particular combination of these constitutes practices which, for example, can be ‘routinized ways in which bodies are moved, objects are handled, subjects are treated, things are described, and the world is understood’ (Reckwitz, 2002, p. 250). As a consequence, human actors who perform practices – i.e. practitioners – are not only conceived of as mere identities or subjectivity, as functions of a stable constellation of attributes, beliefs, values, and motives residing in the individual, rather they are viewed as subject positions embedded in the ‘background knowledge’ of the practices in which the individual’s body is involved. Below, we describe embodied aspects, as they have been elaborated upon in different research fields, in order to better identify the phenomenon under study.

**Embodied interaction as action complexes**

For a long time, attention has been paid to the position, meaning, and functions of bodily movements, typically related to hand(s), arm(s), head, face – i.e. the upper parts of the body – often either in connection with the speech of specific individuals, see for example research on *gestures* (Kendon, 1997; McNeill, 2000), or rooted in early practice theory research on ethnomethodology (Garfinkel, 1967). However, during embodied interaction, e.g. in mundane service and marketing settings, we can identify several patterns of interactions between people going beyond such limitations. Individuals may dynamically interact without words, or just by adopting bodily positions within a given space, and by using other resources going beyond traditional gestures. One specific category of this kind of gesture is highly contextualised, i.e. being produced closely related to a specific environment (Hutchins & Palen, 1997). Goodwin (2003) labels this class ‘symbiotic’ due to its properties as regards involving other materials and embodied resources within the environment. Such an embodied complex cannot be understood without including other elements, e.g. other people, physical elements, signs or other graphical structures.

Examples of this include weather presentations, giving traffic directions, or guiding restaurant guests. Human bodies, and the actions they are visibly performing, are situated in a consequential setting. The positioning, actions, and orientation of the body, in the environment, are crucial with regard to both how participants understand what is happening and how they build action together. More to the point, when there is an environment which the interactants are referring to, neither the interlocutors nor anyone else would be able to see the action being performed just by paying attention to, for example, a hand. To understand the action in the relevant manner, we not only need a gesture, but also the patterning of the environment that the other person is being instructed to follow. For example, ‘pointing’ indicates the relevant graphical structure (physical element), while this structure is simultaneously giving organisation to the precise location, shape and trajectory of the gesture (Goodwin, 2003). Each gesture mutually elaborates other gestures and may further be elaborated by accompanying talk. For example, the movements of travellers cannot be understood by looking at their bodies in isolation. Rather, these are given organisation by their positioning within
the visible part of the structured transportation environment (an acting field, e.g. an underground station).

The body is also given meaning by the contextual field it is embedded within. The environment contains the semiotic and physical resources that will make particular kinds of actions possible (e.g. jostling, passing others by, giving way, laying a table, serving meals at restaurants, cutting hair, etc.). Such actions can only come into being when bodies move through specific environmental features (Schatzki, 2017). A person’s movements are also organised while keeping an eye on the movements and actions of others. Thus, many types of human actions are based on the juxtaposition of rather diverse materials, including the actor’s body, the bodies of others, language, the structure of the material environment, etc.

These resources make embodied interaction socially organised, constituted by the coordination of actions (co-production) and multi-participation. More specifically, these are based on multimodal resources involving different modes—e.g. gazes, mimicking, pointing, posturing, in combination with words, prosody, etc (e.g. Deppermann, 2013; Hazel et al., 2014; Richards, 2004). Multi-participants take each other’s bodies into account when building relevant action in concert with each other.

In their study of service interactions in mobility transport services, Echeverri and Salomonson (2017b) show that providers and consumers use a wide range of non-verbal modalities while interacting with each other, turn-by-turn, including the frequent use of specific looks, gestures, body positions, movements, intonations, and pauses, etc. The use of these modalities is shown to directly influence the ongoing production of sociality. They identified a sub-sub-level of embodied interaction whereby interactants use specific context-relevant modalities during the actual production of activities. They refer to this as body language or nonverbal communication, addressing oral modalities such as tone of voice, speech tempo, and other patronising paralinguistic markers. The shared meaning arising from the connotations of this use of multimodalities adds to what is otherwise articulated using words or written information. This resource is linked to oral and bodily modes of interaction, as these markers do not just provide clues as to how to understand what is being said (and not said), they also structure the interaction per se and inform the interactants as to how to navigate within the myriad of interaction components. Although Echeverri and Salomonson (2017b) identified instances of what they label ‘value destruction’, they did not focus on consumer vulnerability in disabling marketplaces per se.

*Embodied interaction and vulnerability as bodily ‘dys-appearance’*

Based on a review that includes the external (physical and logistical elements, marketplace stigma) and internal factors (individual states and characteristics) that make the experience of disability an experience of vulnerability, Beudaert (2020) argues, inspired by Imrie (2016), that the embodied experience of impairment merits further exploration. One suggested future research avenue is how consumers with disabilities appropriate space, helping us to decipher how they ascribe meanings (e.g. secure/insecure, ordinary/extraordinary, welcoming/unwelcoming) to places. This understanding can assist retailers and service providers in designing so called ‘embodied consumptionscapes’, i.e. places where
bodies do not ‘dys-appear’. Coined by Leder (1990), the concept of ‘dys-appearance’
depicts situations when the body is brought into the foreground and manifested ‘as
a problematic or disharmonious thing’ (Leder, 1990, p. 70). Such situations can include
organic ‘dys-appearance’, associated with pain, sickness or disabilities. Leder (1990)
argues that physical suffering constricts both the spatial and temporal spheres: It brings
us back to the here and now—to the present. Thus, ‘we are ceaselessly reminded of the
here-and-now body’ (Leder, 1990, p. 76). Dys-appearance can be triggered by vital or
affective disturbance, but also dysfunction in the motor sphere, e.g. feet are ‘remembered’
the moment we stumble. The mastered tacit skill of walking goes awry, and we start
thinking about where to put our feet. There is a dis-ease with the situation which provokes
dys-appearance, but which also calls for action, for interpretation and problem resolution.
In situations of serious illness, life projects may otherwise be threatened (Leder, 1990).
Similarly, as argued by Leder (1990, p. 96), situations of ‘social dys-appearance’ may
emerge when interacting with others, in particular in the objectifying gaze of others
who refuse cotranscendence, i.e. when treated in a highly distanced, antagonistic, or
objectifying way. Social dys-appearance may also be initiated by a discrepancy in power,
i.e. when one is confronted by another with potential power over one’s life and projects:
doctor-patient, student-teacher, prisoner-jailer.

Utilising Leder’s (1990) work on how the impaired body dys-appears when encoun-
tering prejudice due to behaviour or attitude, through (socially produced) embodied
norms (e.g. norms of communication and interaction), Paterson and Hughes (1999)
argue that ‘when one is confronted by social and physical inaccessibility one is simulta-
neously confronted by oneself; the external and the internal collide in a moment of
simultaneous recognition’ (p. 603). One is ‘reminded’ of one’s body: exclusion is experi-
enced in the form of carnal self-recognition or dys-appearance. The mode of dys-
appearance is not biological, but social, and impairment as dys-appearance is not an
intracorporeal phenomenon but an intercorporeal phenomenon, i.e. ‘the impaired body
“dys-appears” as a consequence of the profound oppressions of everyday life’ (Paterson
& Hughes, 1999, p. 603). This research echoes the work of Lefebvre (1991) who points to
‘conceived spaces’ to describe how a space may be designed (‘conceived’) with partic-
ular modalities of behaviour in mind; with ‘deliberate constructions of space to
embody certain conceptualizations (e.g. functionality, control) in materialized form’
(Dale, 2005, p. 657). This is described as overlaid with imaginary spaces whereby the
material and the cultural are fused, where space is socially created and where signs,
images and symbols are made material. The deliberate construction of a space may thus,
in the words of Leder (1990), make bodies dys-appear.

Recently, research has also started to recognise the need to consider disability
as a material phenomenon. For example, Feely (2016) calls for a more holistic
approach that includes consideration of the material environments that people
with impairments inhabit, and their embodied experiences. The body, impaired or
not, is considered to exist within a specific material context, and thus its capacities
and limitations are always contextual and relational. Feely (2016) argues that the
limitations of an individual with cerebral palsy, e.g. unable to speak at the time
and in the current context, are context-dependent and not an essence of the body
or a brutal truth. Instead, if the context changes, and individuals gain access to
speech-producing technologies, this may become something their bodies can do.
This approach increases the number of things a body can do, by using, for example, new electronic communication technologies, or it alleviates embodied distress (e.g. drugs that alleviate pain).

Similar to the concept of dys-appearance (Leder, 1990; Paterson & Hughes, 1999), Papadimitriou (2008, p. 701) argues that the process of learning to use a wheelchair, becoming ‘en-wheeled’, and making it a part of one’s embodied existence, contains a paradox. She shows that this process of achieving re-embodiment, which involves the negotiation of past and new habits, abilities and ways of doing – becoming ‘active doers’–can also stigmatise users since it is this very accomplishment that brings them out in public where they are seen as unable to ‘do’. Disability is viewed, according to Papadimitriou (2008), as a situated accomplishment, i.e. something we do (or cannot do) rather than something we are.

It should also be noted that there are critics of Leder’s work on how the latent body is brought to awareness through dys-appearance. For example, Shilling (2012, p. 219) argues that Leder’s thesis ‘marginalizes those for whom the body is regularly foregrounded in manner that affects their identity’. Referring to Zitzelsberger (2005), Shilling exemplifies how individuals with disabilities can experience their embodied selves as both visible and invisible across sociomaterial places, i.e. their disabilities are visible to others, but they are invisible to them as full human beings, denied and unnoticed in their identities and capacities. Shilling (2012, p. 219) also suggests that Leder’s vision of corporeal latency ‘disallows for the possibility that the body has become a project in recent years’. That is, if the body is a ‘project’ – in which embodiment is central to identity – it cannot at the same time be viewed as a latent state only brought to consciousness through physical or social experiences, e.g. physical suffering like pain or being treated in an alienating or objectifying way by others. Other researchers, such as Nettleton and Watson (1998), suggest that Leder’s work limits the empirical investigation of able bodies since the acceptance of bodily dys-appearance would mean that healthy, non-disabled people’s experiences of embodiment are only artificial, not real. However, there are researchers that dispute the two perspectives of the ‘body as project’ and the ‘absent body’ not being relevant to the experience of embodiment and not being able to exist at the same time. For example, Gimlin (2006, p. 700), in her study of women undergoing cosmetic surgery, argues that the procedure ‘provides a tool for self-expression because it alleviates intrusive bodily selfawareness’. She means that cosmetic surgery can sometimes be used to alleviate problematic perceptions of the body and allow a greater degree of volition in focusing on the body or beyond it. In fact, both perspectives are necessary for understanding these experiences (and their associated actions).

The above-discussed facets of embodied interactions are used to frame and guide our empirical study of the disabling marketplace in a service setting.

**Methodology**

The study is based on three extensive datasets on service production and provider-consumer interactions, gathered from several public sector markets containing private service providers (see also Table 1 for more details):
Table 1. Overview of the different datasets.

<table>
<thead>
<tr>
<th>Datasets</th>
<th>Mobility transport</th>
<th>Hospital transport</th>
<th>Public transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year collected</td>
<td>2016</td>
<td>2015</td>
<td>2009</td>
</tr>
<tr>
<td>Empirical contexts</td>
<td>Travelling by mobility vehicle (car or minibus with ramp) in a large city (City 1), to and from different destinations for shopping, social activities, and visiting the doctor/dentist/pharmacy</td>
<td>Travelling to and from a hospital in a medium-sized city (City 2) for medical examinations and treatment.</td>
<td>Travelling on an urban public transport system (including buses, trains, trams, ferry) in a large city (City 3), to and from different destinations for shopping, social activities, and work journeys</td>
</tr>
<tr>
<td>Data types</td>
<td>Audio recordings (25)</td>
<td>Video recordings (20)</td>
<td>Video recordings (15)</td>
</tr>
<tr>
<td></td>
<td>Video recordings (13)</td>
<td>Photos (61)</td>
<td>Transcripts (29 pages)</td>
</tr>
<tr>
<td></td>
<td>Photos (107)</td>
<td>Transcript/memos (64 pages)</td>
<td></td>
</tr>
<tr>
<td>Methods</td>
<td>Semi-structured interviews</td>
<td>Semi-structured interviews</td>
<td>In-situ interviews</td>
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<td></td>
<td>Observations</td>
<td>Observations</td>
<td>Observations</td>
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<tr>
<td></td>
<td>Shadowing during trips</td>
<td>Shadowing during trips</td>
<td>Think-aloud shadowing</td>
</tr>
<tr>
<td>Informants</td>
<td>11 disabled consumers (6 women, 5 men, aged 28–94)</td>
<td>13 consumers</td>
<td>7 consumers making 15 journeys</td>
</tr>
<tr>
<td></td>
<td>9 drivers (7 men, 2 women)</td>
<td>1 personal assistant</td>
<td>(including change of vehicle, stops, terminals, etc.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 drivers</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 call centre representatives</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 call centre managers</td>
<td></td>
</tr>
<tr>
<td>Disabilities</td>
<td>Chronic pain, consequences of a stroke, fibromyalgia, chronic fatigue syndrome, sensitivity to infections, visual impairment, physical impairment, memory problems, difficulties handling unfamiliar situations</td>
<td>Similar to informants of study 1</td>
<td>Blind</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blind with hearing aid</td>
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<td>Severely visually impaired</td>
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<td></td>
<td>Wheelchair user</td>
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<tr>
<td>Actor perspective</td>
<td>Consumer, provider, and those involved in interaction</td>
<td>Multi-actor</td>
<td>Reliant on a walker</td>
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<td></td>
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<td>Deaf</td>
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<td>Cognitively impaired</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Consumer</td>
</tr>
</tbody>
</table>

(1) Mobility transport services: Disabled consumers in a large city context (City 1), travelling for general purposes, e.g. consumers going shopping, doing social activities with friends and relatives, visiting the doctor/dentist/pharmacy, etc.

(2) Hospital transport services: Disabled consumers going to and from a hospital in a medium-sized city context (City 2), travelling for specific purposes, e.g. consumers undergoing medical examinations and treatment; and

(3) Public transport services: Disabled consumers using public transport, including bus, train, tram, and ferry in a large city context (City 3), travelling for general purposes, i.e. more or less the same type of differing activities as in dataset 1 above.

These transport contexts are suitable as they contain many different forms of interactions between consumers and service providers during which consumers experience and have to deal with vulnerability. Each dataset represents a service context (consumers using mobility, hospital, and public travel services) with a substantial amount of material and embodied aspects, all focusing on the actual, and often difficult, marketplace situations (e.g. travelling in order to do some shopping, visiting relatives and friends, undergoing medical examinations and treatment, etc.) faced by disabled consumers. We concentrated our analysis on instances of embodiment and materiality – how it is key to what goes on during service production and how it destroys the wellbeing, eliciting situations of vulnerability, of the consumers in the marketplace.
Data collection

The empirical data was gathered using different qualitative and semi-ethnographical methods, consisting of videos, photographs, fieldnotes, observations, and interviews. This methodological approach has been deemed especially appropriate, both for the in-depth analysis of service interactions (Arnould, 1998) and for uncovering nuances in the interactions occurring (Miles & Huberman, 2004). The approach obtains open and detailed information from the informants, as well as an in-depth understanding of what is important to them, given their context. We have received consent for transcripts, photographs, etc to be used in the publication.

The datasets include three different service contexts in Sweden – mobility, hospital, and public transport – all focusing on interactions between service providers (e.g. drivers, call centre representatives) and disabled consumers. All the informants were recruited via the various service organisations’ networks of employees and consumers. See Table 1 for an overview.

Each dataset is described in detail below.

Dataset 1 – mobility transport

The first dataset concerns mobility transport services (also known as Demand Responsive Transport, DRT) for disabled consumers in City 1. It consists of a go-along approach containing multiple in-depth and semi-structured interviews, observations (fieldnotes including videos, photographs, and audio recordings), and going ‘under-cover’. The interviews were conducted with 11 consumers (6 women and 5 men; aged between 28 and 94) with a wide range of disabilities, including chronic pain, the consequences of a stroke, fibromyalgia, chronic fatigue syndrome, sensitivity to infections, visual impairment, physical impairment, memory problems, and difficulties handling unfamiliar situations and people, stress, and orientating themselves outdoors. Consumer journeys included mundane things like shopping, social activities (e.g. visiting relatives and friends or going to the cinema or theatre) or going to the doctor/dentist/pharmacy.

The go-along approach, deemed an appropriate ethnographic research tool as it has the potential to access some of the transcendent and reflexive aspects of the lived experience in situ (Kusenbach, 2003), included a number of steps. First, we interviewed the consumers at home. This enabled us to grasp important contextual factors, e.g. their disabilities and how these affect them in their day-to-day lives, their life situations and interests, their personal needs and experiences in relation to mobility services, and their interactions with drivers. We then accompanied them on their journeys (using mobility transport) to one or two destinations which they had chosen. During these journeys, continuing with the interviews, we encouraged them to comment on the things they had experienced while using the service, and on their perceptions, thoughts and meanings. We also took fieldnotes and photos and made audio recordings, documenting crucial situations and interactions between consumers and drivers, their use of the equipment, and the exchange of information etc. We completed the interviews at the destination, asking the consumers to reflect on things that had happened, the driver’s performance, the role of the consumer in the service process, and how they had personally experienced service in relation to their disabilities. This in-situ procedure enabled us to unearth contextually relevant factors and to access naturally occurring
data that we deemed important for gaining an in-depth understanding of the phenomenon (cf. Silverman, 2006). Each go-along interaction with a consumer lasted for about 2 hrs. In order to gain an in-depth understanding of the service per se, we also studied the service provider side (i.e. how drivers handle the mobility service process). We also accompanied four other drivers, with each journey lasting between 1.5 and 2 hrs, in more or less the same way as the consumers, applying the go-along approach and collecting data in the field (semi-structured interviews and observations), in the driver’s natural environment. No consumers were present during these journeys. Five additional interviews were conducted with other drivers at the mobility services office, each lasting between 1 and 1.5 hrs. The interviews with the consumers and drivers were digitally recorded (audio) and then transcribed.

As part of the methodology, we then went ‘under-cover’; i.e. one of the researchers took on the role of a wheelchair user, while the other acted as his personal assistant. Over the course of 10 journeys (each lasting between 15 and 45 mins), journeys which had been approved by the mobility services organisation, we made detailed observations of the service procedure, taking fieldnotes and photographs (using an iPad and a smartphone). This concealed type of participant observation is sometimes labelled shadowing, and grasps the processes, procedures, and interactions of service production. The technique can ensure that the experience is natural, i.e. not contrived for the sake of the observer (Wilson, 1998). The technique raises ethical issues, i.e. observing people without their consent and taking on the role of a disabled consumer. Besides gaining permission from the mobility organisation to conduct these observations, the drivers had also been made aware that these observations could take place – but not when. Further, the technique was deemed ethically appropriate as the mobility organisation itself regularly conducted similar observations, i.e. taking on the role of disabled consumers and using the mobility services, for quality assurance reasons. Part of our data collection, before going ‘under-cover’, was studying how disabled consumers use their wheelchairs in the mobility service. We saw this as being of the utmost importance in order to understand their use, and as regards being able to act respectfully and sensitively towards the consumers, but also towards the service providers, i.e. the drivers. This meant that, as researchers acting as wheelchair using consumers, we had to avoid overdoing or exaggerating any movements or interactions with the service providers. It also meant that, mentally and to the best of our ability, we had to try to put ourselves in the position of others, i.e. what it is like being a wheelchair using consumer using this mobility service.

An additional argument, discussed in the literature (e.g. Jorgensen, 1989; Wilson, 1998), is that services are often performed in settings where employees are observed by other consumers (including researchers). Thus, being observed as an employee is an everyday, normal circumstance.

Dataset 2 – hospital transport
The second dataset is oriented towards services transporting disabled consumers to and from a hospital in City 2. It consists of qualitative multi-actor data collected using semi-structured interviews and observations with actors from the two major service systems involved in providing the service, i.e. a transport system and a healthcare system, integrated by the transport service itself.
In total, 33 interviews were conducted: 13 consumers, 1 personal assistant, 7 drivers, 4 call centre representatives, 2 call centre managers, 1 receptionist, and 5 nurses. Three of the interviews took place during trips and four were at consumers’ homes. In addition, seven observations were conducted during consumers’ journeys: five in a mobility taxi, one on a mobility ‘route bus’, and one on a regular bus. During these journeys, fieldnotes, photographs and audio recordings were taken, documenting crucial situations and interactions, e.g. the interactive behaviour between consumers and drivers, the use of equipment and vehicles, and the exchange of information etc. Questions arising during the observations were included as a natural part of our interviews with the informants. This approach provided us with their narratives regarding how and why they act as they do. Information was also collected during a collaborative exercise, during a service design session with employees and consumers, and from some internal documents.

Using this in-situ procedure, contextually- and naturally occurring data was collected, data deemed important for gaining an in-depth understanding of the phenomenon (Silverman, 2006). Getting close to the experience of dealing with the service process made analysis more sensitive with regard to interpreting what really matters to the consumer, including contextual factors such as physical objects, equipment, and other resources and practice elements enacted within the service system.

**Dataset 3 – public transport**

The third dataset focuses on disabled consumers using a public transport system, including travel by bus, train, tram, and ferry in City 3. This dataset consists of observations of seven consumers with different disabilities, e.g. (i) one blind; (ii) one blind and with a hearing aid; (iii) one severely visually impaired; (iv) one unable to use their lower extremities (wheelchair user); (v) one reliant on a walker; (vi) one deaf; and (vii) one cognitively impaired.

All the consumers were equipped with a mobile microphone to report on the critical aspects, including materiality and embodied matters and cognitions, emotions, and behaviours. They did this during a journey from their homes to a chosen destination. During the journey, one of the researchers followed the consumer in question, using a mobile video camera in order to document their perceived physical and communication environment. The consumers were instructed to contribute using the ‘think-aloud’ methodology – a psychological method for documenting spontaneous perceptions of the travel experience. This data collection procedure was used partly in order to encourage the consumers to associate beyond the obvious issues, e.g. problems and negative critical incidents, and partly in order for them to report on things on a non à priori basis.

The data consisted of 15 observations documented using video recordings and lasting 1-2 hrs for each consumer. These included consumers leaving one transport mode, passing through (for example) an interchange and then continuing using another mode of transport. In the videos, the researcher was able to observe the consumers’ mobility, behaviour, and gestures – as well as the various physical objects constituting elements of the process. The empirical material shows how the consumers point to, ask about, touch, and smell the different aspects of the environment. If something in the service environment was of significance, the consumer had the ability to comment on that using the mobile microphone. This data approach guided our analysis of what to focus on, and how to interpret the influence and meaning of that. This approach enabled a more profound
understanding of the contextual setting by means of having the consumer point out important aspects and then providing their interpretation of them.

During the observations the consumers commented on both their previous and present travel experiences. In particular, they reported on how they managed the nodes between the different transport modes, e.g. interchanges, walkways, layouts, and so on, including the final link from the final transport vehicle, via interchanges, and then on to their final destinations. We gained detailed information on how they interacted with electronic information systems and were then able to observe concrete dependencies on links between the parts of the system.

Data analysis

As shown, the empirical material is substantial and rich in detail. Inspired by Layder (2005), and in order to match our purpose as well as our aim of identifying the key aspects of embodied disabling marketplaces – crucial when it comes to understanding disabling marketplaces – we used a coding approach that enabled us to both take advantage of the material’s richness and delimit our analysis. Firstly, we searched the three different empirical datasets for instances, i.e. narratives, of embodiment in the material world, as well as how these instances are represented in the videos, photographs, fieldnotes, interview transcriptions, etc. Our approach made us sensitive to key aspects of embodiment and how these aspects are realised during interaction. Secondly, using NVivo 12, we compared and sorted these instances by means of inductive coding (either in vivo codes or simple descriptive phrases) and categorisation, in order to indicate more general empirical patterns of embodied interaction. During this stage, we primarily identified empirical material for the typologies in Tables 2 and 3. For example, a wide range of bodily activities were sorted under the following codes: ‘arms attach equipment brusquely’, ‘legs resting on floor’, ‘hand grips incorrectly’, ‘head directed face-on’, ‘irresolute physical touch’, ‘torso turned away from consumer’, and ‘jostling of shoulder’. These seven codes were all together categorised as ‘body’ and together with other categories on the same level, such as talk, gesture, mimicry, etc. formed a main category labelled ‘action complexes’. Correspondingly, other identified instances were sorted into codes and categories as finally represented in the typologies in Tables 2 and 3. Thirdly, we reflected on these patterns and tried to unearth any underlying mechanisms and structures, explaining why embodied interaction is represented the way it is in the context of disabling marketplaces. Fourthly, we were able to both conceptually reconstruct the basic conditions, that enable these phenomena to be what they are, and suggest a theoretical conceptualisation of the embodied interaction in the material world of services.

During stages three and four, much of the conceptualisation found in Table 4 was enacted as we were in a position to relate embodiment and materiality to disabling market interactions and identify three main themes and ten sub-themes as well as types of vulnerabilities. Some scholars, having a critical realist understanding, label this way of inferring as retroduction (Bhaskar, 1989), i.e. a methodological approach whereby we as researchers, through counterfactual thinking, beyond what is clearly visible, unearth the transfactual conditions of the studied phenomenon. Other scholars view such structures instead as intrinsic to locally situated activities (Garfinkel, 1967), searching for the
Table 2. Typology of embodiment – grounded in a disabling marketplace context.

<table>
<thead>
<tr>
<th>Main forms</th>
<th>Characteristics</th>
<th>Types</th>
<th>Description</th>
<th>Empirical examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action complexes</td>
<td>A wide range of interlinked modes of activities (multimodal) used for interaction and communication purposes.</td>
<td>Talk</td>
<td>Utterances</td>
<td>Irrelevant comments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Body</td>
<td>Bodily movements, positions, and orientation, typically involving upper and/or lower parts of body.</td>
<td>Asking questions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Giving answers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Arms attach equipment brusquely</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Legs resting on floor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hand grips incorrectly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Head directed face-on</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Irresolute physical touch</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Torso turned away from consumer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Jostling of shoulder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gesture (symbiotic)</td>
<td>Movements, positions, and meanings related to hands, arms, head, and face in relation to environments.</td>
<td>Pointing at floor or bag</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mimicry</td>
<td>Facial expressions displaying negative emotions, stress, or tiredness.</td>
<td>Inexplicit in showing the way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paralinguistics</td>
<td>Prosody, intonation and rhythm of speech.</td>
<td>Consequential hand motion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other customers’ (co-) actions</td>
<td>Simultaneous movements and symbiotic gestures on board the vehicle.</td>
<td>Intimate location of driver’s hand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Artefacts</td>
<td>Physical man-made representations, having information and communicative properties structuring service production.</td>
<td>Uncomfortable belting out</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Signs that demarcate a certain area or place (brand, logo) and embodied meaning, function, or instruction.</td>
<td>Trajectory of wheelchair removal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Embedding acoustic environment (natural and artificial) as perceived by humans in the service context.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Items covering the body, typically made of fabrics or textiles, expressing gender, social order, or concrete protection from rough surfaces.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Uniforms of drivers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Working gloves</td>
</tr>
</tbody>
</table>
constitutive conditions making a certain interaction what it is (Boden & Zimmerman, 1991), which are aspects that maintain social order and stability, in our case embodiment and materiality during social interaction.

These four stages brought sensibility and preciseness to our analysis and made it possible to identify codes, categories, and themes of embodiment and materiality, grounded in the empirical data, enabling us to first distinguish conceptual typologies (Tables 2 and 3) and, later on, an in-depth understanding of how embodiment affects vulnerable customers and their interlocutors when handling disabling marketplaces (see discussion related to Table 4).

**Findings**

Our findings consist of two parts. First, we present the aforementioned conceptual typology of embodiment (Table 2) and materiality (Table 3) in disabling marketplaces. This includes a description of the main forms of embodiment and materiality, their respective characteristics, and the types identified. Second, building on the typology, we present a thematic analysis of disabling marketplace interactions (Table 4) in which we identify three main themes and ten sub-themes of embodiment and materiality that capture how service providers coordinate and adapt their bodily movements during interaction as a device for enacting service; in particular, how consumers perceive situations that give rise to vulnerability. In doing so, we systematically address a wide range of embodied interactions.

**Table 3. Typology of materiality – grounded in a disabling marketplace context.**

<table>
<thead>
<tr>
<th>Main forms</th>
<th>Characteristics</th>
<th>Types</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objects</td>
<td>Physical things that are used in connection with embodied activities.</td>
<td>Items</td>
<td>Things consumers carry while using the service.</td>
<td>Bags, Mobile phone, Hat, Jacket, Newspaper, Vehicle, Seats, Display unit, Wheelchair, Footrest, Handles, Crutch, Seatbelt, Headrest, Lock, Ramp, Lift.</td>
</tr>
<tr>
<td>Environment</td>
<td>Physical environment which conditions and in which embodied activities are embedded.</td>
<td>Spatial design</td>
<td>Tangible surroundings of elements and surfaces directly influencing embodied action.</td>
<td>Vehicle layout, Floor design, Thresholds, Pavement, Curb, Street, Ground, Traffic noise.</td>
</tr>
<tr>
<td></td>
<td>Ambience conditions</td>
<td>Background environmental stimuli, or atmospherics as prerequisites for embodied action.</td>
<td></td>
<td>Temperature inside vehicle, Odour of driver.</td>
</tr>
</tbody>
</table>
Table 4. Themes of disabling marketplace interactions.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Definition</th>
<th>Sub-themes and examples</th>
<th>Embodiment and materiality</th>
<th>Vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td>The invisible body</td>
<td>The service provider acts out of sight, or suddenly, without signalling intentions, making it difficult for the consumer to communicate with the provider, to see what is happening, or to foresee what is going to happen.</td>
<td>Grabbing&lt;br&gt;- grabs the consumer's wheelchair handles and starts pushing wheelchair without the consumer being ready&lt;br&gt;Securing&lt;br&gt;- operates behind the consumer (e.g. strapping wheelchair to floor) making it difficult for the consumer to communicate their preferences&lt;br&gt;Leaving&lt;br&gt;- leaving the consumer alone for a longer period of time in the vehicle, not knowing when the service provider will be back, e.g. when going to pick up another consumer</td>
<td>Body/Bodily movements, positions, and orientation&lt;br&gt;- Arm, Hands, Fingers, Legs, Upper/Lower body&lt;br&gt;Body/Bodily movements, positions, and orientation&lt;br&gt;- Utterances&lt;br&gt;- Utterances&lt;br&gt;- Non-verbal sounds, Exhalation, Groan&lt;br&gt;Body/Bodily movements, positions, and orientation&lt;br&gt;- Wheelchair handles and frame, Seatbelt, Straps, Hooks&lt;br&gt;Body/Bodily movements, positions, and orientation&lt;br&gt;- Curb, Pavement, Street, Heat, Cold</td>
<td>• Loss of control, power, security</td>
</tr>
<tr>
<td>The invading body</td>
<td>The service provider, without explicit permission, enters the physical/private space of the consumer.</td>
<td>Enclosing&lt;br&gt;- gets too close physically for the consumer to feel comfortable, triggered by the consumer’s individual characteristics or by the service provider’s physical appearance, including emitting body odour, having dandruff, or smelling of perfume, food (e.g. garlic) or cigarette smoke&lt;br&gt;Being intrusive&lt;br&gt;- does things that the consumer can/wants to do&lt;br&gt;Crossing the line&lt;br&gt;- asks questions considered too personal or private by the consumer&lt;br&gt;Harassing&lt;br&gt;- verbally or physically trying to initiate an improper relationship with the consumer</td>
<td>Body/Bodily movements, positions, and orientation&lt;br&gt;- Arm, Hands, Fingers, Legs, Upper body/Lower body&lt;br&gt;Body/Bodily movements, positions, and orientation&lt;br&gt;- Utterances&lt;br&gt;- Utterances&lt;br&gt;- Non-verbal sounds, Exhalation, Groan&lt;br&gt;Body/Bodily movements, positions, and orientation&lt;br&gt;- Wheelchair, Walker, Crutch, Seatbelt, Straps, Hooks, Seat, Door&lt;br&gt;Body/Bodily movements, positions, and orientation&lt;br&gt;- Curb, Pavement, Street, Heat, Cold</td>
<td>• Loss of control, power, security, privacy, integrity&lt;br&gt;• Imposed dependency</td>
</tr>
</tbody>
</table>
Table 4. (Continued).

<table>
<thead>
<tr>
<th>Themes</th>
<th>Definition</th>
<th>Sub-themes and examples</th>
<th>Embodiment and materiality</th>
<th>Vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td>The ignoring body</td>
<td>The service provider assists the consumer, but ignores, disregards or diminishes the consumer’s needs, wishes, health, or person.</td>
<td>Non-attentive • does not provide (enough) physical help to the consumer for entering or leaving the vehicle • does not pay (enough) attention to the customer’s wishes about driving style, seating, ambient conditions, and placing or securing the consumer’s aid equipment/bags/clothing • does not adapt their driving to road or vehicle conditions, e.g. poor suspension • does not use all stipulated safety equipment on the consumer • does not react to the consumer’s aids moving around, e.g. causing the consumer to tilt backwards in their wheelchair • does not consider the consumer’s health when working despite showing signs of illness, e.g. coughing, sneezing, etc.</td>
<td>Body/Bodily movements, positions, and orientation • Arm, Hands, Fingers, Legs, Upper body/Lower body Talk • Utterances, Verbal Face • Eyes Gesture • Arm, Hand, Finger Objects/Items Bags, Clothing Objects/Equipment • Wheelchair, Walker, Crutch, Seat, Display unit on dashboard Environment/Ambient conditions • Air conditioning, Weather</td>
<td>• Loss of control, independence, security • Increased pain, uncertainty, helplessness, ‘otherness’ • Commodification • Infantilisation</td>
</tr>
<tr>
<td>Infantilising</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red tapering</td>
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</tbody>
</table>
**Conceptual typology of embodiment and materiality**

The typology contains two main forms of embodiment: action complexes and artefacts. Action complexes are characterised as a wide range of interlinked modes of activity (multimodal) used for interaction and communication purposes. The types of modes used by service providers and consumers include talk, body, gesture, mimicry, paralinguistics, and other consumer (co-)actions. Artefacts are physical, man-made representations with information and communicative properties that structure service production. These include symbols, sounds, and clothing. The latter typology, materiality, has two main forms: objects and environment. Objects are physical things that are used in connection with embodied activities and include items and equipment. The environment, which conditions and embeds embodied activities, includes spatial design and ambient conditions. The typology provides an essence of the embodiment and materiality of disabling marketplaces.

**Thematic analysis of disabling marketplace interactions**

The described conceptual typology of embodiment and materiality (Tables 2 and 3) enabled us to identify three main themes and ten sub-themes in the datasets (Table 4). Each main theme, and its accompanying sub-themes, includes the different forms and types of embodiments and materiality triggering consumers into experiencing vulnerability. Our thematic analysis of disabling marketplace interactions is further described below. See also Table 4.

**The invisible body**

The first main theme is the invisible body. We define this as situations where the service provider acts out of sight or suddenly, without signalling their intentions, making it difficult for the consumer to communicate with the provider, and to see what is happening or to foresee what is going to happen. A substantial part of the service production and interaction in mobility services literally takes place behind the consumer’s back. Operating out of site of the consumer is a necessity for the service provider when it comes to conducting the service, but this also causes situations of vulnerability. It limits consumers’ and service providers’ possibilities of interacting with each other. The service provider cannot see the consumer’s facial or front body reactions, and vice versa. Sudden acts on the part of the provider may also cause an element of surprise and create situations where there is misunderstanding and confusion, leading to consumers’ experiencing a loss of control, power and even safety. Operating out of sight, not seeing each other’s faces or fronts, severely limits the participants’ ability to perform contextualised (symbiotic) gestures (Goodwin, 2003). Their ability to contextualise gestures, to include other materials and embodied resources, is severely limited, leaving the counterpart without the necessary ‘tools’ to properly understand what is happening and how they build action together. They cannot take each other’s bodies into account in order to build the relevant action in concert with each other. This demonstrates that embodiment can contain physical interaction either with or without visual clues such as gestures, but also that a lack of compensation, in terms of other modalities (e.g. speech), limits their ability to interpret each other’s actions.
The main theme consists of three sub-themes of embodiment and materiality from which vulnerability emerges. The first sub-theme, *grabbing*, includes situations where the service provider, slightly forcefully, takes command of the situation without the consumer being fully ready. This sub-theme contains elements of the service where the service provider uses most of their physical strength, most parts of their body, to physically assist the consumer. An example of grabbing illustrates the details of this kind of embodiment-based micro interaction, taken from a service situation involving getting a consumer aboard a vehicle (Observation, Dataset 2, see the sequence of Figures 1 to 4 below). While sitting in his wheelchair, waiting for a late driver (Figure 1), and holding his crutch, a consumer observes how the driver arrives, leaves the vehicle, lowers the ramp, and approaches him. The driver moves behind the consumer and abruptly takes the crutch away from him without adjusting the consumer’s legs and wheelchair brakes (Figure 2). The driver also fails to take care of the consumer’s bag (leaving him to deal with this on his own), while pushing the wheelchair too fast (Figure 3) and without talking to the consumer or bodily showing him whether or not he can be of help (Figure 1).

In the next sequence, after having stopped short of the vehicle ramp, the driver grabs the wheelchair handles (while still being behind the consumer), pushes the consumer on to the ramp, and ascends quite hastily, producing an uncomfortable bump. This was enacted brusquely, by suddenly tilting the wheelchair backwards, without any accompanying talk or observation as to whether or not the customer’s facial expression was displaying any sense of worry/insecurity (Figure 5). In this situation, the consumer has to take care of his plastic bag in order to prevent it from turning upside down (Figure 6) when the ramp is raised.

![Figure 1. Grabbing (preparing, dataset 2).](image-url)
Another example of the sub-theme of *grabbing* is the following observation of an interaction occurring between a service provider and a disabled consumer in a wheelchair:

After approaching and addressing the consumer, who has been waiting on the pavement, the driver moves, without saying anything, behind the consumer, grabs the wheelchair handles and starts pushing it forwards, towards and then off the curb (Figure 7).
The consumer looks startled and tries to hold on, locking his right arm around the wheelchair handle and saying in a slightly raised voice: ‘Wait, wait! It’s easier if we go backwards off the curb!’. However, the driver (now leaning his upper body slightly backwards to maintain his balance, while still holding the wheelchair handles) has already pushed the consumer so far off the curb that it is not possible to go back. The footrest of the wheelchair is scraping against the road surface and the consumer, now leaning forward considerably, is having to hold on even tighter in order not to fall out of his wheelchair. The driver, who looks strained...
from having had to move the wheelchair off the curb, says: ‘There you go’ when the customer is finally on the street. The customer, who looks irritated and is frowning and shaking his head, still has the driver behind him and is adjusting his legs and the things he had in his lap, preventing these from falling to the ground. (Observation, Dataset 1)

Here, the interactants are heavily engaged in using embodied resources during their interaction. Both use their bodily strength and balance to manage the situation. The consumer’s startled facial expression initially signals a lack of preparation, of not being given the time to provide the driver with instructions on how to get down on to the street from the pavement. However, the driver is working behind the consumer and does not
see this when pushing the wheelchair. The consumer loses control of the situation as the driver pushes him off the curb; verbally expressing the solution to the driver does not help either. Additionally, by placing his arm around the right handle of the wheelchair, the consumer indicates his need to hold on tighter, to prevent himself from falling forwards. This signals his concern for his own safety (or even his fear of falling out of the wheelchair). The consumer’s facial expression and head movements clearly indicate irritation when he finally ends up on the street. The driver’s initiative of pushing the wheelchair off the curb, without first signalling his intention, either verbally or using bodily positions (regardless of it being well-intended), is an example of making decisions on behalf of the consumer, an example of uninvited, unwarranted assistance, leading to a state of powerlessness and imposed dependency (cf. Baker et al., 2001).

The two situations of *grabbing*, in which the consumer becomes startled, having to hang on to his belongings, and showing signs of concern (even fear) and irritation, are examples of how the actions of the provider make the consumer’s body dys-appear (Leder, 1990). In the first example, the consumer’s facial expression displays a sense of worry/insecurity as the service provider brusquely and suddenly tilts his wheelchair backwards in order to get it onto the ramp. The loss of control and his sense of insecurity reminds him of his physical disability (as something problematic). In the second example, the consumer is reminded of his body when he needs to hold on to his wheelchair in order not to fall out of it. Also, when confronted by physical inaccessibility (the curb), a conceived space for the able-bodied (Lefebvre, 1991), he is simultaneously confronted by himself (Paterson & Hughes, 1999). The consumer appropriates this space (the curb) and ascribes meaning to that place in the form of uncontrollability, powerlessness, and insecurity (cf. Beudaert, 2020). Thus, vulnerability arises from bodily ‘dys-appearance’ that is triggered by the provider’s actions and the void of symbiotic gestures.

The second sub-theme, *securing*, is when the service provider operates inside the vehicle, behind the consumer, positioning and fastening their wheelchair, or walker, to the floor with straps, in addition to securing bags, clothing and other items. Such situations make consumers unsure as regards to what is going on and whether or not the service provider has secured aids in the way they should be secured, or positioned other items how the consumer wants them. Consumers eventually learn, after having used the service for a while, where service providers place hooks and straps on wheelchairs and equipment in order to prevent them from moving around during travel. Consumers sometimes also bring medical items, liquids, etc, that need to be kept in the same upright position that they were placed in bags. The main forms of embodiment and materiality here are the service provider’s use of arms, hands, fingers, upper body and legs, together with objects/equipment such as seatbelts, straps, hooks and wheelchair frames – all of which are important as regards providing the service. However, when the service provider is largely invisible to the consumer, and when they cannot clearly see the consumer’s facial expressions or upper body movements, this paves the way for misunderstandings that risk leading to different forms of consumer vulnerability. A strap wrongly placed can cause a wheelchair to tilt backwards or sideways during transportation. Similar to the sub-theme of grabbing, consumers ascribe uncontrollability, powerlessness, and insecurity to the place (Beudaert, 2020), as they are being reminded of the limitations of their own bodies (Leder, 1990); i.e. that they lack control and power and need to rely on somebody else for their security. This corresponds to what Leder (1990)
calls ‘social dys-appearance’, which is initiated by a discrepancy in power, i.e. the consumer is confronted with a service provider who, in this situation, is using their power to decide what the consumer does.

Thirdly, we identified a sub-theme labelled leaving. This includes situations where the service provider leaves the consumer alone for a longer period of time in the vehicle, with the consumer not knowing when the service provider will return. A case in point is when the service provider leaves the vehicle to pick up another consumer. This is problematic for three main reasons: firstly, the consumer is left exposed to other people potentially taking advantage of the situation, e.g. stealing things from the vehicle or the consumer themselves; secondly, if the consumer experiences sudden health issues, there will be no one to reach out to; and thirdly, the vehicle’s engine is often turned off and, when travelling by mini bus, the back door is often left wide open. In cold weather, the consumer is exposed to the elements. This sub-theme has few forms of embodiment, none of which are on the service provider side, while the consumer is waiting in the vehicle. However, being exposed to different things causes the consumer to feel a loss of control, power, and security. They are reminded of their body as something problematic that prevent them from leaving the situation. The vehicle is ascribed a meaning of ‘captivity’.

Beside the described commonalities, e.g. bodily dys-appearance, the meaning ascribed to places, and the situations of experienced vulnerability, all three sub-themes contain more of a specific element of action complexes, i.e. more embodiment in the form of body movement, positions and orientation, than talk, gestures, and paralinguistics. The sub-themes’ main forms of materiality are objects and environmental components. The lack of visibility, hence the theme of ‘the invisible body’, severely limits the use of context-relevant modalities during the production of activities, i.e. body language or non-verbal communication (Echeverri & Salomonson, 2017b). Thus, the shared meanings of the interaction are also limited. A service provider that pushes a consumer’s wheelchair forwards, or pulls it backwards, cannot see how the consumer is reacting (e.g. from gestures, mimicry); i.e. whether the consumer is experiencing this as too fast, too bumpy or just fine. The consumer can react verbally (as in one example above) by telling the provider how they feel, but this is not always possible. The situation may be unfolding in a noisy environment, or the pushing/pulling of the wheelchair may be too fast to allow the consumer to react, or the consumer may not want to tell the service provider to be more careful. The latter reason may be because the consumer does not want to cause any potential conflicts (cf. Echeverri & Salomonson, 2019). As we have seen, materiality in the form of the objects used (wheelchair, crutch, vehicle, ramp) and the environment (pavement, curb, street, ground) that conditions and in which activities are embedded, also play an important part in disabling the marketplace. Taken together (embodiment and materiality), the consumer experiences a loss of control, power, and security in the marketplace.

**The invading body**

The second main theme identified is the invading body. We define this theme as situations whereby the service provider, without obtaining explicit permission (verbally or through body positions), enters the physical or private space of the consumer. The mobility transport service entails physical closeness between the parties, but also elements of
a more private nature. The service provider needs to be physically close to the consumer in order to assist and to make sure that they are travelling safely (e.g. is using a seatbelt, that the wheelchair in which the consumer is seated is secured to the floor) and that everything else (e.g. bags, crutch) that the consumer has brought along is positioned securely inside the vehicle. Sometimes, the service provider also needs to ask the consumer (or any accompanying assistants, relatives, or friends if the consumer is unable to answer) questions of a more sensitive, private nature in order to provide the service in the best possible way (e.g. if the consumer is experiencing pain while being assisted to the vehicle, or upon entering it, or when travelling). However, there are situations where service providers take things too far, when they get too close physically, or are too intrusive for consumers to feel comfortable, leading to vulnerability. In contrast to the previous theme, i.e. the invisible body, this theme does not have the same limitations when it comes to the participants’ ability to see each other. On the contrary, they are close to each other, which enables a more contextually shared understanding of the situation, e.g. through symbiotic gestures (Goodwin, 2003; Hutchins & Palen, 1997), including the talk and body movements that accompany these gestures, and the objects/equipment being acted upon in these situations.

We have identified four sub-themes of the invading body. The first sub-theme, *enclosing*, represents situations whereby the consumer perceives the service provider to be too close physically. This reaction can be triggered by the consumer’s individual characteristics (e.g. social phobia) or by the service provider’s physical appearance, including body odour or dandruff, or smell of perfume, food or cigarette smoke. The following observation (Dataset 1) of an interaction concerns a situation whereby a service provider is securing a consumer and his wheelchair inside the vehicle:

After positioning the wheelchair inside the vehicle, the driver leans (see Figure 8) across the consumer’s lap and starts reaching for the straps and hooks on the floor.

![Figure 8. Enclosing (securing, dataset 1).](image-url)
The driver tries to secure the front part of the wheelchair, using straps and hooks, to the floor (still leaning across the consumer’s lap, looking down) but fails. The consumer points at the small front wheel on the left of the wheelchair and says: ‘This is where they usually attach it’. The driver says ‘Yes’ (still leaning across the consumer’s lap, looking down, breathing more heavily) and, after some struggling, puffing, and mumbling, manages to secure it on both sides. During this struggle, the consumer leans backwards and away from the driver several times. The driver, now facing the consumer, and standing in front of the wheelchair, but still looking down, then uses his right arm to reach for the seatbelt by the window, then attaching it to the left of the consumer. (now using both arms and hands, leaning over the consumer, see Figure 9).

When asked afterwards about the situation [by the researchers], the consumer described feeling very uncomfortable about having the driver so close to him, leaning over him for a long time. Another consumer, who finds it difficult to handle unfamiliar situations and people, describes a situation that we also categorise partly as an example of enclosing and partly as the second sub-theme of being intrusive:

I don’t like it when people get too close to me without my permission. If a person is unassuming and actually asks if he can help me, that’s great. But I find it hard when they [drivers] do things without my permission, like trying to put my belt on or something like that, because I try . . . I’m too proud to admit that I have a disability, so I try to do things for myself as much as I can. (Interview 3, Dataset 1)

This consumer feels uncomfortable having other people too close to her or helping her without asking first. The latter represents the second sub-theme of being intrusive. The consumer’s wish is related to her sense of self-esteem, i.e. that she does not want unwarranted assistance, a form of vulnerability that Baker et al. (2001) refer to as imposed dependency, i.e. when the assistance being given, in this case by drivers, is unwarranted, inappropriate or undesirable. She wants to do things for herself, or at least to be asked first by the service provider.

The third sub-theme is called crossing the line. This includes situations where the service provider asks questions considered to be too private in nature by the consumer. This can involve questions about the consumer’s disability (Why are you in a wheelchair?), family status (Are you married? Do you have children?), religious beliefs (What’s your religion?), or need for assistance in daily life (Do you have more than one assistant?). When
in a situation whereby the consumer is dependent on the service provider for assistance and to take them to their destination, such questions can be perceived as a violation of integrity. There are also situations whereby service providers not only cross this line, but even verbally or physically try to initiate an improper relationship with the consumer. We call this fourth sub-theme **harassing.** One consumer describes this kind of situation thus:

> It’s been hard to deal with the ones [drivers] who’ve been flirting too much with me … who don’t give up. It may be okay to have some flirting, but when I say ‘I have a boyfriend and I’m happy that way. I’m not having dinner with you’ and they then continue, I think it’s hard. (Interview 5, Dataset 1)

Being in a small, enclosed space (the vehicle), often unable to move (e.g. the wheelchair is strapped to the floor) and in a state of dependence (relying on the service provider to take you to your destination in a safe and timely way), makes these consumers (especially women) more susceptible, and an easy target for such behaviour.

Both embodiment and materiality are clearly part of all four of the sub-themes of the invading body. Action complexes that involve the body, e.g. bodily movements, positions, and orientation, are used more during **enclosing** and **being intrusive** as the service provider is working close to the consumer then. These sub-themes also involve materiality (mostly objects), e.g. securing things, making sure the consumer and their aids, bags and clothing do not move around in the vehicle while it is being driven. Reaching across the consumer’s stomach and chest in order to get hold of the seat belt or bending over them to secure the wheelchair to the floor, are examples of embodiment causing consumers to experience vulnerability. The other two sub-themes, **crossing the line** and **harassing**, are more based on oral action complexes, forms of embodiment, e.g. when the service provider asks questions considered too private by the consumer, inducing vulnerabilities such as a breach of consumer privacy. The four different sub-themes of the invading body are, like the first main theme, the invisible body, related to consumers’ lack of control, power, and security in the marketplace, but also to a loss of privacy and integrity. They also experience imposed dependency. Consumers that want to use this type of service cannot avoid situations whereby they are physically close to the service provider. Physical closeness is a fundamental part of the service. At the same time, there are situations where consumers experience vulnerability. They are unable to immediately leave the marketplace (the vehicle), when experiencing vulnerability, or to choose another service provider in the long-term as there is only one provider operating in that marketplace.

The four sub-themes of the invading body can all be related to different forms of organic dys-appearance and social dys-appearance (Leder, 1990). The observation related to the first sub-theme, **enclosing**, illustrates a situation whereby the consumer is seemingly ‘trapped’. They have to endure a situation whereby the service provider is physically very close to them for a long time. The consumer tries to mitigate this closeness by leaning backwards. The bodily movement can be seen as the moment when the consumer’s body dys-appears. Another illustrative example is the quote from the consumer wanting to suppress her disability in relation to the service provider: ‘I’m too proud to admit that I have a disability, so I try to do things for myself as much as I can’. This effort fails in situations whereby service providers provide unrequested assistance. Consumers are reminded of their disabled bodies when unable to avoid or leave situations whereby service providers get too close physically, do things that have not been requested by the
consumer, verbally express things that are too private in nature, or verbally or physically try to initiate an improper relationship with the consumer. The enclosed, small space of the vehicle becomes a place ascribed with (meaning of) a loss of control, power, security, privacy, integrity (cf. Beudaert, 2020). Vulnerability arises from bodily dys-appearance that is triggered by the provider’s embodied actions.

**The ignoring body**

The third theme, the ignoring body, which concerns situations where the service provider acts within sight, assisting the consumer but ignoring, disregarding or diminishing their needs, wishes, health, or person, includes three sub-themes. The first sub-theme, called *non-attentive*, is about the consumer perceiving something to be missing from the service. This may be the service provider not providing (enough) physical help when the consumer is moving to/from the vehicle or entering/leaving it. For example, some consumers need help pushing their wheelchairs while others, who may be using a guide rail or crutch, need a hand/arm to help them keep their balance when getting into and out of the vehicle. It can also be a matter of the service provider not paying (enough) attention to the consumer’s wishes regarding driving behaviour, seating, ambient conditions, and the positioning or securing of their aids/bags/clothing. Other examples of the sub-theme of non-attentive include the service provider not adapting their driving behaviour to the road conditions, or to the vehicle’s characteristics, e.g. poor suspension, not using all the stipulated safety equipment for the benefit of the consumer, not reacting when the consumer’s aids move around, e.g. causing the consumer to tilt backwards in their wheelchair, and not considering the consumer’s health in terms of continuing to work despite showing signs of illness, e.g. coughing, sneezing, etc. A service provider who, in different ways, does not pay enough attention to the consumer’s needs, or who does not adapt to the circumstances, e.g. still working despite showing signs of illness, runs the risk of causing the consumer to experience different forms of vulnerability, e.g. a loss of control and independence, as well as more pain, uncertainty and helplessness. A fibromyalgia-stricken female consumer, disabled by chronic pain and fatigue that gets worse due to strain, cold weather, etc, describes how a non-attentive service provider left her and her child to walk home by themselves in the rain:

He [the driver] arrived 20 minutes late and we’d been waiting outside. It had started to rain so I was annoyed just for that reason. We left. He drove very fast, I told him 5-6 times over a period of 30 minutes that he had to calm down. He was still driving fast. The mobility transport office hadn’t informed him [on his screen] that there was a barrier at the destination [which the driver needs a key to open]. So, he refused to drive us [all the way] to our home because of this barrier. We had to walk with all our stuff in the rain. That was really annoying. (Interview 3, Dataset 1)

Here, the consumer experiences vulnerability due to having a driver who does not heed her requests to slow down, to be driven all the way home, and finally to provide assistance with bags. Cold weather and strain cause her to experience more pain, and the fact that she has a child with her most likely also causes uncertainty and helplessness. Being ignored in several ways by the driver can also cause her to experience vulnerability in the form of commodification, i.e. a sense of being treated as an object to be transported from A to B instead of a subject in need of assistance (see Echeverri & Salomonson, 2019).
The second sub-theme, *infantilising*, concerns situations whereby the service provider does not interact with the consumer directly, instead addressing their assistant/relative/friend who is accompanying them. The consumer’s will and ability to decide and act – agency – is not recognised, leaving them with a sense of being treated like a child. The third sub-theme is *red taping*. The service provider receives information about each journey from the service organisation a moment or two beforehand. This information, which is displayed on a small unit on the provider’s dashboard, contains data about the consumer’s name, pick-up position, drop-off position, aids (e.g. wheelchair), and whether or not the consumer is travelling with an assistant. Sometimes, there is also some information about whether the consumer is to sit in the front or back of the vehicle. This can be due to medical reasons (e.g. travel sickness), their disability (e.g. has trouble getting in/out of the vehicle in other respects), or previous misbehaviour. The driver does not receive detailed information about why the consumer, for example, has to sit in a specific seat. Some consumers do not like to be told where to sit, or to be given other forms of instruction by the service provider. One consumer describes a situation whereby the driver first gets upset – following a question by the consumer about sitting in the front seat – and then starts yelling, finally referring to rules issued by his organisation by means of pointing at his display:

> It’s not that I demanded to sit in the front seat, but I did ask . . . and then he [the driver] started yelling at me straight away: ‘It says here [driver points at his display unit on the dashboard] that you’re supposed to sit in the back seat!’ And then I said: ‘Well, that’s just a . . . it’s just that I feel pretty bad’. And then he thought I was annoying. (Interview 5, Dataset 1)

The first sub-theme, *non-attentive*, despite its focus on customer perceptions of a lack, or a lower degree of, attentiveness on the part of the service provider, still contains embodiment and materiality of importance to the interaction. A service provider can be perceived as non-attentive when they remain in the vehicle instead of approaching and meeting the consumer, walking slightly ahead of them towards the vehicle instead of pushing their wheelchair, not lending the consumer their arm as support, not opening the vehicle door, or not helping the consumer with their bags, etc. In such situations, the service provider’s bodily movements, positions, and orientation are of no help to the consumer and therefore have a negative impact on their wellbeing. In other situations, the service provider’s bodily movements, etc. are physically closer to the consumer, but are impossible to change as the service provider does not alter their behaviour due to being non-attentive to any wishes on the part of the consumer. Concerning the second sub-theme, *infantilisation*, the service provider’s embodiment is manifested through talk that is not directed at the consumer but at the consumer’s assistant/relative/friend. This means that the consumer experiences embodiment in the form of talk about them, but which does not address them directly. The consumer is excluded from the marketplace. The third sub-theme, *red taping*, often occurs when the consumer is about to enter the vehicle, or has already occupied the front seat, before the service provider has said anything. Embodiment here includes the provider using extensive action complexes, i.e. voice, facial expressions, and finger/hand/arm gestures to underline the limitations imposed on the consumer by the provider organisation. Materiality is also important during the interaction. The objects and the environment condition and
embed the embodied activities. Examples of this include the service provider using his voice in combination with pointing to the display on the dashboard, or to a seat; an example of a symbiotic gesture (Goodwin, 2003; Hutchins & Palen, 1997) that provides a contextualised shared understanding of the situation. All three sub-themes represent limitations to the market which, in different forms, make the consumer experience vulnerability. As with the previous main themes, the ignoring body triggers bodily dys-appearance (Leder, 1990). Situations where service providers do not assist, pay attention to, adapt, or consider consumers’ needs, remind consumers of their bodily limitations. Their different disabilities resurface, causing them to confront the difficulties of being in bodies not in tune with situations best suited to non-disabled individuals. The service is associated with a loss of control, independence, and security, but also with increased pain, uncertainty and helplessness.

As shown in all these main and sub-themes, service interactions are highly linked to embodiment and materiality, sequentially organising different kinds of sociality into an imagined order and linking with specific social structures. Normally, interactions result in positive experiences and a sense of wellbeing for both parties. However, our empirical datasets report numerous examples where service providers’ embodiment leads to consumer vulnerability.

**Discussion**

This paper has addressed the embodied and material nature of interactions, underpinning the realisation of disabling marketplaces. In using such an approach, we provide insights that advance service and marketing theory beyond the bulk of the existing research, which is too biased by psychological and non-material perspectives, and in which those facing considerable barriers that risk excluding them from the marketplace still remain under-targeted (Pavia & Mason, 2012, 2014; Echeverri & Salomonson, 2019). We argue that research in this field has paid too little attention to what actually occurs during concrete, micro-level interactions between service providers and disabled consumers. In particular, the study unfolds the inherent embodiment of interactive activities.

What is conceptualised in our analysis is a set of three main themes of interactions linked to the body, all three including specific sub-actions as well as related elements of embodiment and materiality. To our knowledge, these action complexes are new to research on disabling marketplaces, providing explanatory power as regards how disabling marketplaces are realised and where consumers experience different forms of vulnerability (Table 4). The two typologies of the identified elements of embodiment and materiality made it possible to outline the interrelationships between the components inherent to the phenomenon. Based on this analysis, our paper makes three contributions to current understanding of disabling marketplaces in service and marketing research.

Firstly, the findings materialise the phenomenon of embodied marketplace interactions between service providers and disabled consumers. This is not only a response to continued calls for closer empirical analysis of such everyday events, in particular the considerable barriers that still risk excluding disabled consumers from the marketplace (Beudaert, 2020; Echeverri & Salomonson, 2019; Higgins et al., 2021; Pavia & Mason, 2012, 2014), it is also an effort to account for a more embodied construct of disability that
captures the lived experience and reality of these consumers; i.e. how bodily limitations or differences make everyday life and activities more difficult or time-consuming (Anastasiou & Kauffman, 2013; Beudaert, 2020; Gottlieb, 2002; Pavia & Mason, 2014; Ware, 2002). This enables an in-depth understanding of consumer vulnerability in the marketplace that moves beyond treating disability solely as a social construct – focusing on how consumers deal with environmental and socio-political structures – and instead captures vulnerability as embodiment in a material world, seen from a practical day-to-day perspective (Pavia & Mason, 2014).

This perspective is articulated in our conceptual typology of embodiment (Table 2) and materiality (Table 3) and represents an effort to advance service and marketing research on the role of these concepts in enabling and disabling consumers as regards being active members of the marketplace. Previous research advocated the importance of studying embodiment in relation to disabilities, providing some valuable insights into fields such as bodily agency (Paterson & Hughes, 1999) and bodily dys-appearance (Beudaert, 2020; Leder, 1990). However, no previous service and marketing research has either suggested or presented a typology, grounded in embodiment studies, that specifies the key concepts to be used in research into embodied interaction and disabling marketplaces. The typology can be applied to other consumer contexts, e.g. when studying embodiment and materiality in relation to interactions between service provider and consumer in retail, hospitality, and healthcare.

The study also contributes to the notion of ‘organisational body work’, suggested by Lawrence et al. (2023). They identify a central form labelled ‘interpersonal body work’ (i.e. an identifiable actor, or actors, targeting the body or bodies of a second actor or actors, e.g. healthcare), and another form labelled ‘systemic’ (whereby organisational systems, behavioural rules and processes, operate as the agent of body work). The former, in particular, may include instances of embodied interactions. However, their notion of organisational body work is oriented towards work as mere ‘shaping’ (physical change), having the body as a target for work. However, in many cases, as is also shown in our study, body work also includes activities in which the body is used as a means which, in turn, affects something else, or as temporarily shaped, e.g. the wide range of bodily expressions as articulated in the literature on embodied interaction. In our understanding, the comprehensive conceptualisation of Lawrence et al. (2023) lacks this aspect of functionality in spite of the fact that the purpose of body work may go beyond the mere shaping of human bodies and include bodily interactions. In relation to the conceptual notion of organisational body work, we suggest that its definition should expand from mere ‘shaping’ to include the ‘enabling’ of bodies, in order to articulate a wider scope of functionality, bridging and including the literature of embodied interaction. In doing so, the notion of organisational body work may be expanded with an additional ‘form’ of body work – i.e. ‘interactive’ – separate from interpersonal and systemic.

Secondly, our finding that three main themes of embodied interactions and ten sub-themes of sub-actions are disabling the marketplace for consumers, brings a more fine-grained and contextualised understanding of the key role of embodiment in triggering consumers to experience vulnerability (see Table 4). In contrast to previous research into embodiment during interactions between service providers and disabled consumers, by Echeverri and Salomonson (2017a) among others, these themes illustrate how service providers’ use of facial expressions, gestures, talk, objects, artefacts, and environment, as
well as bodily-based movements, positions, and orientation, all contribute to vulnerability. A closer reading of the findings shows that most of the service providers’ problematic forms of embodiment are centred on the body (movements, positions, orientation), and the use of objects, artefacts, and environment. This reflects how important physical actions and resources are to the work of providers, but also how the deficiencies of this kind of embodiment, illustrated in the different themes, lead to consumer vulnerability. Similarly, the findings also show how a lack of embodiment (the invisible and the ignoring body), or too much embodiment (the invading body), in the form of talk, facial expressions, gestures, and paralinguistics, when performing physical acts, may also lead to vulnerability. The service providers are there to assist the consumers (to help them physically to/from and to enter/leave the vehicle, to carry bags and aids, to drive them to their destinations, etc.), and to ensure they have a safe and pleasant journey. However, when they act in the way that this study has revealed, they instead become marketplace barriers to disabled consumers.

Our study thus reveals how dysfunctional, embodied interactions transform a marketplace that is supposed to be a safe haven for disabled consumers into a place of insecurity and pain, and one where these consumers even fear for their own safety. This contributes to Beudaert’s (2020) call for more research into how a more embodied perspective could strengthen our understanding of how consumers with disabilities appropriate space and ascribe meanings (e.g. secure/insecure, ordinary/extraordinary, welcoming/unwelcoming) to places. Our findings highlight a marketplace where consumers’ perceptions of the services offered are highly dependent on service providers’ embodied actions and resources. The equipment available is largely the same, independently of whichever consumers are doing the travelling. The environment varies in terms of where the provider picks up or drops off the consumer, but the provider can adapt the position of their vehicle to the pick-up site. What is causing consumers to instead experience vulnerability in the marketplace is the service providers’ embodied actions and resources. Our findings extend the study of Baker et al. (2007) of disabled consumers’ interpretations of feeling welcome/unwelcome in retail servicescapes in that we advance the three main themes of embodied interaction and ten sub-themes of actions regarding disabling mobility service interactions whereby service providers’ embodied treatment is key to consumers’ perceptions. These themes show a wide range of embodied interactions that impact consumers’ sense of being in an unwelcoming, disabling marketplace.

Thirdly, our findings on how materiality and embodied interaction elicit consumer vulnerability substantiate and contribute to Leder’s (1990) work on ‘bodily dys-appearance’, i.e. how the body sometimes manifests itself ‘as a problematic or disharmonious thing’ (Leder 1990, p. 70). In particular, we substantiate how bodies dys-appear through interaction, where service providers’ spatially specific embodied actions and resources contribute to marketplace exclusion and vulnerability. Service providers who act out of sight, or suddenly, without signalling their intentions, thus making it difficult for the consumer to communicate with them, to see what is happening, or to foresee what is going to happen (the invisible body); or who invade the personal space of the consumer (the invading body); or who assist the consumer, but ignore, disregard or diminish their needs, wishes, health, or person (the ignoring body), make consumers’ disabled bodies dys-appear. Making consumers feel tired, afraid, sad, angry, and irritated, or making them experience pain, are ways of triggering consumers into being aware of, or remembering...
them of, their disabled bodies. For example, when a consumer who cannot escape a situation whereby the service provider is trying to initiate an improper relationship, or when a consumer has to hold on to their wheelchair when the service provider suddenly grabs the handles from behind, that consumer will definitely be reminded of their body and its limitations. The harassment and the grabbing become embodied, and part of how everyday life is experienced, i.e. something felt deep down inside (cf. Paterson and Hughes, 1999). This reflects a view of socially produced embodied norms of interaction. Disabled consumers, e.g. in wheelchairs, may be viewed as dependent on other non-disabled people’s goodwill and assistance, or even as less capable of communicating and deciding for themselves, as interactively incompetent. Thus, there is no need for the service provider to interact with the consumer, instead deciding on their behalf by, for example, grabbing the wheelchair handles without telling/asking them. Such forms of negative action during everyday interactions risk undoing any societal attempts at inclusion. Grand schemes of integration, equality, and accessible marketplaces become obsolete even before leaving the drawing board, before being implemented in practice, as the bodies of these consumers dys-appear. By elaborating and substantiating Leder’s (1990) concepts of organic dys-appearance and social dys-appearance, we add to research on consumer vulnerability and disabling marketplaces. We thus also contribute to research on ‘the embodied experience of impairment as an intercorporeal phenomenon’ (Paterson and Hughes, 1999, p. 608). The body is brought to the fore instead of being viewed as some kind of passive background component in the marketplace.

That said, we also recognise the critics of Leder’s work (e.g. Shilling, 2012) and previous research on the ‘body project’, i.e. where consumers’ experience of embodiment is central to identity and not viewed as a response to bodily dys-appearance. Our results should, in line with the work of Gimlin (2006), be viewed as a necessary perspective that can exist alongside body projects. Focusing on embodied interaction between disabled consumers and providers of different forms of transport services, we recognise bodily dys-appearance as a pervasive embodied feature of disabling marketplaces. We thus further enrich and acknowledge the work of Leder (1990) in terms of being central to understanding this phenomenon. It helps to clarify why disabled consumers’ lived experience of these marketplaces is one of vulnerability, in stark contrast to experiencing the marketplaces as fully enabling. Their corporeality cannot simply be ignored as it is continuously emerging.

**Conclusion and managerial implications**

In this paper, we have outlined the key nature of embodiment and materiality during interaction between consumers and service providers; how embodied actions and resources interactively create disabling marketplaces. We argue that interactions are always highly embodied, something that is largely overlooked in contemporary research into service and marketing that focuses on consumer vulnerability. Interactants, both service providers and consumers, use a wide range of embodiments and materialities while interacting. Our paper has contributed towards understanding how consumers’ experience of vulnerability is produced during embodied interaction, and more specifically when consumers’ bodies dys-appear, i.e. in situations whereby service providers act/
are ‘invisible’, ‘invading’, or ‘ignoring’. Here, consumers are ‘reminded’ of their disabled bodies. Simultaneously, the space is designated as a disabiling marketplace.

Based on the findings of this paper, it is possible to address some managerial implications. The provider side may need to be more aware of, and pay more attention to, the embodied, material, multimodal, and sequential aspects of interaction during employee training as these are important elements of consumers’ perceptions of the marketplace, in terms of being either enabling or disabling. The myriad of subtle, multimodal and embodied elements (hands, gestures, body positions, etc.) included in the study, and frequently used by interactants during mobility transportation, needs to be ‘orchestrated’, i.e. managed in congruent ways and in accordance with consumer preferences. We therefore propose that service provider managers engage employees in mapping/detailing the different situations (and sequences thereof) where they interact with consumers. This should be framed as a service innovation and service design process (see, for example, Bitner et al., 2008). Here, this not only needs to include the discrete actions of employees and consumers, but also to pay much more attention to details such as the mentioned embodied, material, multimodal, and sequential aspects of interaction. Our study also brings light and shade to previous findings on the outcome of embodiment during interactions, something of strategic importance to management. For example, Kuuru and Närvänén’s (2022) study of the work of (non-disabled) employees in different service industries showed that their tacit, embodied practices ‘make the encounter flourish’ (p. 322). Kuuru and Närvänén encourage managers to both observe and converse with their employees in order to identify and share knowledge of the best embodied practices. Similarly, we encourage managers to adopt such an approach, but also to be wary of the embodied interactions potentially leading to consumers experiencing vulnerability, and to the dys-appearance of consumers’ bodies, i.e. to a disabiling marketplace. We argue that this is equally important when it comes to preventing the potential value of the provided service from being destroyed and preventing consumers’ wellbeing from being diminished. Finally, managers should allow sufficient time for employees to engage in sensible, sensitive and sound embodied actions and resource use. Service employees who are stressed, and who do not have the time to think about which actions and resources would be appropriate to a specific consumer, are not likely to perform in a way that is beneficial to the long-term wellbeing of either that consumer or the employee themselves. We view our managerial implications and suggestions for improvement as a contribution to the call for more research on practical solutions regarding the reduction of inequities in the marketplace put forward by Johns and Davey (2021).

Further, our study has several limitations that could be addressed in future research. First, although based on a substantial amount of data, our study, like all qualitative research, has inherent methodological limitations, e.g. mostly in terms of the ability to generalise findings. Another limitation is the marketplace context. Our study was conducted in multiple mobility service contexts, centred on interactions between service providers and disabled consumers. As seen, embodiment and different forms of materiality are abundant and take centre stage during all interactions. Future studies would benefit from research done in other marketplaces where interactions between consumers and service providers are frequent, e.g. retail stores or the hospitality industry. Several valuable studies of disabled consumers in such marketplaces have been conducted, e.g. Baker et al. (2007), Higgins (2020), and Yu et al. (2015), but research on embodiment is still very scarce. We encourage researchers to...
increase their work on embodied interaction between service providers and disabled consumers as this is a novel area of services and marketing research, ripe with opportunities for scholars to make a substantial contribution to our understanding of disabling marketplaces.

Disclosure statement

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