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THEORETICAL / PHILOSOPHICAL PAPER

Why Disability Is Technologically Mediated?

Ehsan Arzroomchilar[1]

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Abstract
The social model of disability is predicated upon the dichotomy of disability and impairment, which proves vulnerable to objections. Phenomenological approaches to disability in particular found this sharp distinction contrived, and accordingly implausible. Moreover, the social model ignores lived body of individuals and the inside-out perspective on disability. A phenomenological approach thus places the emphasis on the embodied nature of being-in-the-world. Yet, when it comes to the role of technology in disabled people's life, and in particular assistive technologies, it does not do justice to the role they play, and as a result, technology is treated predominantly as instrumental. In this article, I suggest taking a more systematic approach to technology in disability studies and bringing its role into an interrogation. To that purpose, I will draw from the postphenomenology movement to show how technology may actively mediate individuals' life and, perhaps more importantly, how disability is technologically mediated.

Keywords Disability · Social model · Technology · Assistive technology · Postphenomenology

Introduction

While medicalization of disability tends to understand disability solely as a functional problem (Oliver, 1998), and in this sense, all deficiencies are placed on the body of individuals, in the social model of disability, social and political factors are highlighted. Here, disability is understood as social exclusion (e.g., Shakespeare, 2017) and accordingly, structural as well as attitudinal barriers are thought of to be

✉ Ehsan Arzroomchilar
ehsan.arzeroomchilar@gmail.com; arzroe00@tf.jcu.cz

[1] Faculty of Theology, University of South Bohemia in Ceske Budejovice, Kněžská 8, České Budějovice CZ-370 01, Czech Republic

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the prominent roots of oppression. Even though currently disability is still understood predominantly as one's own– biological or otherwise– deficit rather than a social structural creation (Goodley, 2014; Roulstone & Prideaux, 2012), the social model was conceived to be a solid conceptualization of disability to mitigate the shortcomings of the pathological model.

However, the social model too came to be called into question on several fronts. But all of them share a core contention as to the observation that there is no obvious boundary between impairment and disability, an assumed duality upon which the social model builds its argument. Moreover, many argued that humans and the environment are not detached either, but rather interconnected and intermingled. Wasserman and Campbell (2018) for instance object that the sharp distinction between individuals and environment, promoted by the social model, gives rise to the prescription of modifying either individual (therefore the revival of the pathological model) or (merely) environment (prescribed by the social model). But there cannot be such a sharp gulf in reality, they claim. Rather, individuals and their surrounding environment are interdependent. The authors classify all possible kinds of enhancements into three categories; using 'assistive technology' such as mobility devices like wheelchairs, attaching a 'prosthetic, extender, or exoskeleton,' where they can be conceived of as the 'extension' of the body, and, lastly, 'brain-computer interfaces' (BCI). All three, they argue, suggest the faulty nature of the body/environment dichotomy on the ground that in implementing all methods, both the body and environment need to undergo modification, and therefore, enhancement is not a matter of either /or.

In a different yet relevant vein, Garland-Thomson (2011) introduces the concept of 'misfitting' as an alternative to both the medical model and the social model. As she expounds, a 'fit occurs when a harmonious, proper interaction occurs between a particularly shaped and functioning body and an environment that sustains that body'. In contrast, a 'misfit occurs when the environment does not sustain the shape and function of the body that enters it'. In this sense, her proposal 'emphasizes context over essence, relation over isolation, mediation over origination'. Additionally, fitting implies 'a generic body,' namely, 'bodies considered in the dominant perspective as uniform, standard, majority bodies'. But, misfitting refers to the 'particularity' of a body 'by focusing on the specific singularities of shape, size, and function of the person in question'. In this sense, disability and ability, articulated in terms of misfitting and fitting respectively, are taken to be 'relational' terms rather than characteristics intrinsic to either body or environment. This critique, inspired by a phenomenological lens, provoked more systematic attempts to articulate disability without falling into the trap of the aforementioned binaries.

Phenomenological Approaches to Disability

Hughes and Paterson (1997), and Paterson and Hughes (1999) took issue with the social model on the account that it is rooted in the 'radical separation of impairment and disability' which leads, according to them, to the ruling out of the former on the basis that 'impairment… is usually conceived in naturalistic and essentialist terms as

a pre-social Given' (Paterson & Hughes, 1999). Drawing upon phenomenology, and in particular Sartre's teachings, they try to explicate how modernity, with its 'ocularcentric' tendencies, 'has a particularly pervasive capacity to produce strangers,' that is, those who 'disturb its fragile cognitive, moral and aesthetic boundaries and challenge its rather overbearing sense of order'. In doing so, impairment comes to be conceptualized in terms of alterity leading to relegation. In contrast, 'impaired body' they argue, 'has a history and is as much a cultural phenomenon as it is a biological entity'. When, for example,

> one encounters prejudice in behaviour or attitude [of others], one's impaired body `dys-appears' [i.e., becomes objectified[1]]. Impairment as `dys-appearance', then, is not an intracorporeal phenomenon… but an intercorporeal phenomenon: The impaired body `dys-appears' as a consequence of the profound oppressions of everyday life. (Paterson & Hughes, 1999)

They note that in the social model, the body is granted only an objective status. But, the body is both objective and subjective. The social model discards the 'lived body' (*leib*) and, as a result, has nothing to say about the bodily point of view of disabled people or the *embodied* experience of prejudice or oppression, disadvantage, and discrimination (Hughes & Paterson, 1997: 337). In this sense, the social model is inherited from a Cartesian framework, implying divisions such as, 'biological/ social; impairment/disability; body/society; medicine/politics; theory/ emancipation; pain/ oppression; and medical model/ social model' (330).

Further phenomenological attempts[2] to rebut the social model and to suggest a positive account of disability drew on Merleau-Ponty's teachings. Merleau-Ponty's philosophy revolves around the role of the body in the human condition and thus might prove insightful when it comes to areas such as disability studies wherein the body is at stake.

Merleau-Ponty argues that rather than thought it is bodily movements, projects, and actions that constitute an 'original intentionality,' and therefore consciousness is originally not articulated in terms of 'I think' but rather of 'I can' (Carman, 2008). That implies, that our primary orientation to the world as human beings is constituted by doing, not thinking; by 'operative intentionality,' not representational intentionality. If so, human existence is inherently embodied, namely that we don't simply *have* a body, rather we *are* a body. The body is not just a causal factor in shaping our perceptions, but more importantly, it is *constitutive* of them. These notions need clarification and their elaboration is critical in Merleau-Ponty's philosophy, but also germane to our theme here which is conceptualization of disability. But to clarify these remarks we have to dive also into further notions within Merleau-Ponty's phenomenology.

[1] The term comes from Leder (1990). He, inspired by phenomenology, holds that the body in the flow of daily activities withdraws from attention and recedes accordingly into the background, and in this sense body tends to dis-appear. But, once a breakdown occurs, and for instance body undergoes pain, it starts to absorb attention, and here it tends to dys-appear. I will revert to his distinction in a later section.

[2] To see also a non-phenomenological approach, from a post-structuralist lens, look Hughes and Paterson (1997).

A highly significant notion is that of 'body schema'. The body schema constitutes our familiarity with and precognitive capacities of both ourselves and the world we inhabit. If I want to grab the cup of coffee situated on the desk I don't usually have to take a look at it first to know its place and distance to my body. Nor do I have to take notice of the locus of my own arm. Moreover, I am often aware of the strength needed to grab the cup or the force required to bring it toward my mouth afterward. All these refer to my implicit and tacit knowledge of my own body and its capacities, but also of its situation in the world. Subsequently, my knowledge of my own body is not objective, namely, I don't have access to my body in the same way that I have access to external objects. Rather, I have privileged access to my body and its relation to the surrounding world.

Crucially, not only that my knowledge of my body is not primarily objective but also my body schema does not necessarily coincide exactly with the objective body. Through the case example of phantom limb, for instance, Merleau-Ponty tries to explicate this asymmetrical condition. People with a limb amputated often find itch or tickles in the lost limb, and Merleau-Ponty takes this as evidence to prove that the body schema, although dependent on it, might transcend the objective body. In such cases, the body schema exceeds the spatial location of the objective body, and while one has an upper body limb amputated she might still count on it.

Now, Merleau-Ponty goes on to claim that our perception plays out through the body schema, meaning that, we experience the world, including our objective body (body image), based on the body schema, and in this sense, 'body is our anchorage in the world' (Merleau-Ponty, 2012). This claim has huge implications as one can guess, since if that is granted, it follows that 'all forms of human experience and understanding are grounded in and shaped by our finite bodily orientation in the world' (Carman, 2008). Merleau-Ponty is fairly clear on this when he posits that my body 'is my point of view on the world' (Merleau-Ponty, 2012). The body schema is in this sense the background, in relation to which all the particular perceptual contents and movements are organized (Halák, 2021). In other words, body schema is the norm with reference to which the world around us comes to be perceived. Obviously, here Merleau-Ponty is inspired by Husserl, as the latter took body to be the 'point-zero' of orientation (see Husserl, 1989: 165f.).

So, once more, we have reverted to the notion that individuals don't inhabit in isolation, rather, they are inherently within the world, but that the opposite side is also true. That is, the environment is not independent of its inhabitants either, since in order to be perceived and acted upon it has to be attuned, adapted, and structured according to the individuals' body schema. Such reciprocity is well appreciated by Merleau-Ponty as he notes, 'I am aware of my body via the world,' and subsequently, I am dependant on the world, just as 'I am aware of the world through the medium of my body' (Merleau-Ponty, 2012). This lends support to the idea that we don't perceive the world from a God's eye perspective, but rather, 'we see on things what is manifestly an expression of the subject' (Merleau-Ponty, 2011, quoted from Halák, 2021). As is clear now, notions such as embodied perception, lived body, body schema, and the primacy of motor skills over mental representations, have constituted a basis on which one can build a nuanced elaboration of the interwoven

relationship between individuals and the environment and accordingly disprove the social model of disability.

Now, if Merleau-Ponty's view is adequate and thus the human experience is essentially embodied, how disability can be conceptualized? In particular, one might wonder, what the experience of disability would look like. If there is no objective reference point available and the body is the point zero reference would that make any sense to call my body abnormal or distorted under any circumstance? After all, one cannot feel how she would have experienced the world otherwise if she had had a different body. As Taipale argues, one's experience of the world cannot include the experience of the actual *lack* of a possibility say visual perception (Taipale, 2012: 58). We have ended up in a conceptual predicament it seems and the notion of disability is apparently becoming dissolved in light of Merleau-Ponty's remarks.

To proceed and find a way around it we can draw a distinction between congenital disabilities in that individuals have been born as abnormal and a condition of becoming disabled during one's life (Martiny, 2015). Those experiencing disability as non-congenital clearly can have the experience of 'before and after' the incidence and usually realize a disruption of familiarity, continuity, and normality in the way their body schema plays out; therefore, for them, the experience of disability may prove categorical and straightforward.

Congenital disability however is trickier given that one has no experience of 'before and after'. As Martiny (2015) observes, if one is born disabled she does not experience being disabled initially provided that everyone experiences herself and her (dis)abilities as their own normal point of departure. Husserl, too, verifies such intuition noting that 'I have, in the first place, normality within my solitary ego' (Husserl, 2008; quoted from Martiny, 2015), that is, we are all born into this world with an initial self-primacy, and as a result, one's lived body and experience from a first-person perspective cannot appear originally as pathological and disabled.

However, notwithstanding such a self-centeredness one should not infer that a congenitally disabled individual never would come to identify her disability. We 'don't develop our 'I can,' i.e., our intentions, performances, and field of possible actions, in a closed, individual vacuum' after all (Martiny, 2015). We are born into what Husserl calls an 'intersubjective normality,' which we habitually and gradually adjust our lives to (Martiny, 2015). That implies that gradually, as an individual lives within a social setting and particularly along 'exclusionary and negative attitudes' one can identify her congenital disability ultimately.

Here is a caveat, however. Given that the role of 'exclusionary and negative attitudes' is stressed here one might be tempted to recall the social model again. But we should not end up with the social model once more, since the fact that a disabled individual is born into social normality and accordingly social and political factors play a role 'doesn't justify the conclusion that disability is solely an extrinsic property' (Martiny, 2015). In fact, disability emerges out of the complex and interactive relationship between individuals and the environmental factors. That social and political variables are at work doesn't change the fact that one's 'experiential possibilities are structured and developed in accordance with one's… limits of body and its abilities' (Martiny, 2015), and in this light, we stay far from the social model of disability.

In sum, disability arises out of the interplay of numerous factors that influence the intermingled relationship of humans and the environment, and it is neither an intrinsic attribute of the body, as the medical model depicts, nor entirely an extrinsic one, as the social model claims. More precisely, in bringing about disability the core principle is the condition of the body schematic operative intentionality which represents itself through the 'I can' of individuals. Yet, this body schema is not shaped in a vacuum and accordingly, a wide range of factors are running around a body to emerge as (dis)abled; factors such as the condition of the objective body and the environmental physical variables on the one hand, and social and political elements on the other.

This latter point decisively implies that disability is not an on-off phenomenon, but rather, a matter of degree, and correspondingly, all individuals may feel disabled on certain occasions conditional on the capacities of the body schema, i.e., 'I can,' in a specific social and physical environment. Where I feel alien to a specific social and physical setting for instance and therefore I feel 'I cannot' fulfil what intersubjective normalcy requires I might end up experiencing a degree of disability. Interestingly, such a conclusion resonates well with the WTO's characterization of disability as 'a continuum rather than categorizing people with disabilities as a separate group: disability is a matter of more or less, not yes or no' (WHO, 2011: 5).

So far we have discussed much to showcase how the notion of body schema and its condition within the environment is paramount in a phenomenological approach to disability. But one might wonder: Is the body schema a fixed, ahistorical, and immutable structure, or on the contrary, fluid, historical, and mutable? This is a crucial question that may open up more nuanced knowledge about the role of the environment, in particular material objects, in contributing to the disability experience. In the next section, I take up this query in more detail.

Tools, Technology, and Body Schema; a Brief Overview of Postphenomenology

In this section, I continue exposing Merleau-Ponty's elucidation of the body schema to investigate how it is interconnected with the environment, in particular material environment, and, perhaps more importantly, how it might be restructured by the latter. To that purpose, I spotlight his treatment of tool usage to ignite later discussions about more sophisticated technologies.

As exposed, the body schema is the norm with reference to which the surrounding world organizes itself. But, crucially, it is not a fixed and stable structure, rather, it always remains, as Merleau-Ponty points out, 'open and indefinite' (2012: 242). More precisely, the body schema is organized in relation to situational praxis tasks, actual or possible (Merleau-Ponty, 2012: 102).

In this vein, Merleau-Ponty provides several examples to show how the body schema can transcend the objective body limits and accordingly be extended into the environment. Here I would place my focus only on one of these case examples, and that is, the narrative of a blind man with his cane[3]. For him, Merleau-Ponty

[3] His other case examples are feathered hat, a car, a typewriter, and an organ.

heeds, the cane helping him to navigate the world, is not simply an object among other things, since it apparently is incorporated into the man's sensorial system. The man perceives the surrounding world *through* the *end* of the stick, much similar to how we perceive the world with our body. In this sense, the boundaries of the man's body have expanded, as it were, and the body schema has exceeded the objective body limits. Note moreover that here the cane is not perceived as an alien object, as it withdraws into the background. As such, the man's cane is a *means* through which the world is experienced and thus it plays a similar role as one's body. As elaborated above, our body is the 'vehicle of being in the world' (Merleau-Ponty, 1962: 94) and almost equally, here we have the man's cane as the medium for being in the world. The cane, furthermore, has become *transparent* and therefore does not draw man's attention, given that it is in fact part of the background against which perception flows. However, once something goes wrong and for instance, the cane starts to malfunction it returns back to the foreground of the man's experiential awareness, and this way, the body schema seemingly shrinks again. It follows that the spatial location of the body schema is not confined to the limits of the body object, the skin, and can be reconfigured contingent on its relationships with the environment.

Merleau-Ponty's depiction of the dynamics of relationships between the body schema and tools opens up a way to explore the role of tools in restructuring one's body schematic operative intentionality and accordingly its bearing on disability. Yet, he does not dive any deeper into nuanced details to develop a systematic way to deal with more sophisticated technologies and explore how they may interact with the human body. This task was taken up by the next generation of phenomenologists, within a movement called postphenomenology. In the following lines, I give pause and try to bring the relevant notions of postphenomenology into view.

Postphenomenology begins with the intuition that humans and technology are interwoven to the extent that one hardly can find any aspect of life where there is no technology or tool around. If so, the possible role of technology in reshaping the life-world should be taken into consideration. In fact, human life is technologically *mediated*. The way I described the starting point of postphenomenology already heralds that the movement is basically an *anti-essentialist* framework. That is, not only technology is constituted through human activities humans too come to be constituted along their relationship with technology (Verbeek, 2005). This non-Cartesian conception of the human condition may be well characterized by the notion of *relational ontology*, and as Ihde posits 'postphenomenology continues the phenomenological tradition of relationalistic ontology because humans may 'invent' technologies, but in use, all technologies also 're-invent' humans' (Ihde, 2009). Simply put, 'the basic contention of the relational, or relationalistic, ontology is that the relations between entities are ontologically more fundamental than the entities themselves' (Wildman, 2010: 1). Here, there is nothing taken as pre-given and everything takes on the characteristics it has through and along its relationships; relationships with other individuals, technology, and the environment in general.

The first principle of postphenomenology concerns the idea that technology reveals different variations, functions, and characteristics, as varying relationships are established in different contexts. Technology in this sense, far from having an essence, is *Multistable* (Ihde, 1990). An implication of such multiplicity of varia-

tions is that future impacts of a given technology cannot be fully anticipated, and its behaviour is highly situational and dynamic.

A core tenet of postphenomenology is that our relationship with the world is often technologically *mediated* (Ihde, 1990), as said. It implies that technology reconfigures the way the world is presented to us and that new subjectivities are constituted in the wake of our relationship with technology. Mediation of technology, on Verbeek's (2005) account, comes along two paths. The first category is the *hermeneutic* dimension of mediation, and it has to do with how a given technology restructures our perception. The second dimension, the *existential* dimension, is meant to demonstrate how technology reconfigures our actions. Put simply, whereas the hermeneutic dimension of mediation explores how the world is present in our consciousness, the existential facet is interested in how we are present in the world.

Mediation, moreover, comes in a specific structure; a structure of *amplification/reduction* (Ihde, 1990, 2008, 2009). Technology enhances parts of the world at the expense of diminishing other dimensions of it, and this is inherent to technology. Such a pattern is present in every single instance of mediation. In this sense, technology, not just restructures our relationship with the world, but it does so through a particular pattern.

Crucially, while this pattern remains ever relevant, every single technology mediates our relationship with the world in its particular manner. One implication of the latter point is that the mediation of every technology should be studied in its *specificity*. The next implication is an emphasis placed on the *empirical* approach to make sense of technology in a real-life setting (Rosenberger & Verbeek, 2015; Verbeek, 2005).

Relationships, as mentioned, are of critical significance for postphenomenology. Hence, an attempt is made to bring the subtleties of the human-technology relationship into view. There are various possible relationships one might develop with technology, according to Ihde (1990). I won't go into the details of each; rather, just two types of them will capture my attention in this work. The first is an *embodiment* relationship in that technology is apparently integrated into one's body schema, and as a result, it becomes *transparent*, or quasi-transparent, and accordingly does not absorb any attention (such as Merleau-Ponty's cane). The second kind, a *hermeneutic* relationship occurs wherever a readout is involved and users have to decipher some codes to make sense of the world (e.g., reading a glucometer to determine the approximate concentration of glucose in the blood). In the latter type, one's relationship with the world is *indirect*, as one first has to make sense of a *representation* of the world which is displayed, say, on a screen.

In the next section, I try to show how postphenomenology may enrich phenomenological accounts and help us illustrate the mediation of disability.

Technology and Mediation of Disability

In this section, I start with the (post)phenomenological principle that humans and technology are intertwined. This perfectly squares with the phenomenologically-formed critiques of the social model, exposed so far, as there cannot be any sharp

distinction between impairment and disability, or between natural and physical versus social and political.

Technology, according to postphenomenology, mediates our relationships with others, ourselves, our bodies, and the environment, and in other words, it reshapes our being-in-the-world. Here Verbeek's case example (2005) could be instructive. Just imagine how the availability of technologies like sonograms has equipped human beings with the possibility to choose whether to deliver a baby with, say, Down syndrome or terminate it (see Verbeek, 2008, 2011). Thanks to this tool all the players involved undergo significant reconfigurations, ranging from the *transformation* of the man and woman into an expecting father and mother, to their relationship with the unborn baby. Noticeable here is that thanks to technology an appeal to the notion of destiny is replaced by a naturalistic explanation with a choice of (technological) intervention. Parallel to the shift of explanation we are in fact moving from considering a circumstance conceptualized as a mystery to a pathological condition where we might be able or not to heal the infant's disease. Here, the conceptualization of a phenomenon (in this case, Down syndrome) and its transformation from destiny to pathological hinges on a particular technology, and in this sense, the possible emergence of the disability involved is technologically *mediated*. Note that we are not encountered simply by a *discovery*, i.e., uncovering a pre-given *fact*; rather, it's the matter of reconceptualization of apparently the same phenomenon in the wake of a change in the existing technological tools. As Paterson and Hughes (1999) have truly pointed out 'body has a history and is as much a cultural phenomenon as it is a biological entity,' and as a result, one cannot purify natural dimensions of a dysfunction from cultural ones.

Further evidence demonstrating how technology bears on the notion of disability, is cases of embodiment relationship with technology. As illustrated, sometimes a particular artefact becomes incorporated into one's sensorial system such that it rearranges the body schema. Merleau-Ponty's blind person's cane, my eyeglasses, a paralympic runner's prosthetic limb, a disabled person's wheelchair, one's bicycle, and so many other artefacts, can be assimilated into one's body schema. Ihde (1990) schematizes an embodiment relationship as follows:

Embodiment relation: (I– technology) → world.

Here, the arrow, between (I– technology) and 'world,' symbolizes *intentionality*. It follows that Ihde has pushed Merleau-Ponty's phenomenology one step further. For Merleau-Ponty, intentionality is embodied, that is, it materializes in bodily motor skills and such motor-based engagements therefore are what constitutes the 'original intentionality' (Merleau-Ponty, 1962). This shift from confining intentionality to the skull within the Cartesian framework to distributing it across the body was already a break from the dominant modern thought by Merleau-Ponty. But Ihde takes it even further and openly talks about 'technological intentionality' (Ihde, 1990: 141). Our body is not separate from technology, and therefore, intentionality is technologically mediated. In our embodiment relationships, as the diagram suggests, our (embod-

ied) intentionality has to pass through the technology involved[4] (wheelchair, glasses, and such) toward the intentional objects. And, clearly, technology is not a faithful and neutral transmitter, but rather, modifies intentionality. In a similar vein, Verbeek (2005, 2011) argues that intentionality is not the characteristic of humans in isolation, but, a 'distributive' property of the ensembles of humans and technology[5].

The process of incorporation of technology into one's body schema in embodiment relationships is well documented in so many qualitative studies. Some wheelchair users for example have alluded to the same intuition. In a study conducted through interviews with wheelchair users, Romain, in reaction to the interviewer who had asked her to compare using a wheelchair with that of a car, responds: '[wheelchair] goes further than that…because somehow…It's like saying that soccer players left the pitch without their legs. They don't leave their legs! They use their legs to go to the library' (Richard et al., 2019). Abdel, a wheelchair soccer player speaks of 'feeling' (i.e., perceiving) the world *through* a wheelchair (and this exemplifies Ihde's diagram):

> after a while, you know your chair well… you even know the weight of the ball, without lifting it… depending on how it's going to bounce back, depending on the intensity you put into your hitting movement, on how the ball reacts… Depending on the impact on your wheelchair when the ball arrives quickly, you know whether it's heavy or not. You know it because you feel it. (Richard et al., 2019)

The excerpt beautifully points to the fact that artefacts can become part of the body schema and extend the limits of the body object.

Crucially, the mediation of technology, as said, is not limited merely to our perception of worldly objects. It also reorganizes our relationship with ourselves, our bodies, and others, and in this sense, it has political and social ramifications as well. A further player continues:

> We live in a society where we are not perceived as productive…. But all of a sudden… you are active, you do something, you score a goal, you help your team win. You are a defending player, you try and stop goals, you take part in a collective action, you create something… And all of a sudden, the image you have of yourself, and of your partners, changes. (Richard et al., 2019)

[4] In this article, I use the terms 'tool,' 'artifact,' and 'technology' interchangeably. I am aware that one can draw distinction between them. For my purpose however, their difference is irrelevant.

[5] I am quite aware that the transition from classical phenomenology to postphenomenology is not smooth and seamless. Not only Ihde, as the founder of postphenomenology, is a pointed critic of Husserlian variation of phenomenology on the ground of the latter's subjectivist, transcendental, and essentialist approach, but he also takes issue with Merleau-Ponty whom he feels more affinity with (see for example Ihde, 2002) on the ground that even Merleau-Ponty has not managed to fully replace 'subjectivity' with 'embodiment,' and still, 'consciousness' remains in his vocabulary and thus carries with it the echo of 'subjectivity' (Ihde, 2009). Such divergences however are not addressed in this article provided that it is not directly relevant to the purposes of this article. As far as my concern is the role of technology in mediating disability phenomenology and postphenomenology cannot be in disagreement.

Here, the wheelchair has paved the way for alleviating exclusion, and consequently, the relationship of one with others has been mediated. In other words, the embodiment of the wheelchair has reshaped the operative intentionality of the latter interviewee, and after a long period during which playing soccer and engaging with others had not been at the repertoire of his bodily capacities, all of the sudden, he has come to feel 'I can,' and in other words, a 'misfit' has turned into a 'fit'.

So far we have seen only cases of embodiment relationships that have their root in Merleau-Ponty's thought and it might be tempting then to conclude mediation of disability comes about merely across embodiment relationships. But this is a wrong conclusion because even in a hermeneutic relationship we might witness similar restructurings. An example of that is where individuals - elderlies or otherwise - use wearable tracking technologies to monitor their health conditions, that is, telemedicine technologies. Such engagements are, or at least involve, hermeneutic dimensions, given that data associated with the health condition displayed on a, say, screen, should be first interpreted to become intelligible.

Crucially, these hermeneutic dimensions of technologies tend to *objectify* the body and mediate accordingly how individuals relate to their own bodies. Here is of great relevance the work of Leder (1990) and his distinction between 'dis-appearing' body and 'dys-appearing' body. In the flow of daily activities, Leder notices, our body often *disappears* from our immediate awareness and recedes into the background. In phenomenological terms, one can say that the body, most often, remains *transparent*. But, in contrast, once we find ourselves in a state of illness or episodes of pain, the body moves from the background to the foreground of our consciousness, and the latter emerging body is what Leder calls 'dys-appearing' body. In these malfunctioning moments, the body becomes *opaque* and draws attention accordingly[6]. In light of this, one may suspect that self-tracking technologies can lead to a shift in the embodied being-in-the-world from a *subjective*, *transparent*, and *disappearing* body into an *objective*, *opaque*, and *dysappearing* one[7]. This shift in one's relationship with the body in turn might contribute to the co-constitution of disabling situations, i.e., 'misfitting' conditions, given that it can upset the 'fit' between individuals and their environment. In a study to identify the impacts of heart rate monitoring on individuals many of the participants alluded to developing new types of relationships with their own bodies, as one participant recounts how, right after receiving alarms, he became shocked and wondered 'is my heart rate fast?… oh, is my heart rate too fast? Am I concentrating too hard at work… what's going on?' (see Arzroomchilar, 2024; Toner et al., 2022).

As Martiny notes 'The experiences of a disabled person are typically described as an objectification, alienation, and disruption of the lived…body, and the embodiment of the disabled is understood as doubtful, problematic and, ultimately, as an inability or 'I cannot'' (2015). I argue that this is not only social 'prejudice in behaviour or attitude' that might disrupt and objectify one's body as Paterson and Hughes claimed

[6] This might remind the reader of Heidegger's hammer; once a hammer breaks down or starts to malfunction, it turns from a state of ready-to-hand into a state of present-at-hand.

[7] Leder's distinction of two bodies parallels the distinction of Leib (subjective body) and Körper (objective body) in the work of Husserl (e.g., Husserl, 1989).

(see above). Technology too can bring about similar conditions, I contend. My claim might sound more compelling and convincing as we note that such objectification or disruptions are not usually accompanied by any dysfunction in one's body, as the above example demonstrated. Rather, sometimes one undergoes 'unfounded anxieties' and feelings of a 'misfit' merely due to the reconfiguration engendered by such tele-monitoring technologies (Arzroomchilar, 2024).

Postphenomenology can still keep up illustrating more details concerning the mediating role of telemonitoring systems. It is not in the purview of this writing to go into all the details. Additionally, it needs further empirical endeavours. But just to show how it may spotlight the subtleties of the relationships between humans and technology I would like to briefly talk about the structure of such mediation. Mediation engendered by monitoring tools, like any other instance of mediation, should follow the pattern of *amplification/reduction*, according to Ihde. Now, how can we detect the pattern here? What aspects of individuals' lifeworld become enhanced, and which facets, accordingly, diminish?

Where persons, as said, are often immersed within their daily routines and thus barely attentive to their corporeal presence (i.e., the state of disappearance), the body, in the wake of a monitoring system, might come to stand out at some point (i.e., the state of dysappearance). It follows that the body of individuals has an inverse relationship with the background lifeworld; the more body foregrounds (i.e., objectifies), the less the surrounding background stands out, and vice versa. This perfectly squares with the structure of amplification/reduction of mediation. In fact, such technologies, through thematising the body, might allure individuals to keep up self-evaluation, and by tracking their body, they might find themselves 'as (un) healthy subjects' (Lupton, 1995), and this may pave the way for the constitution (i.e., mediation) of disability.

The latter argument concerning the objectification of the body and the subsequent co-construction of disability parallels arguments put forward by Paterson and Hughes (9). Drawing upon the phenomenology of Sartre and in particular his contribution to the role of gaze in objectifying the body they account for how 'gaze is profoundly socially constitutive of the praxis of oppression'. This happens, they argue, since 'bodies are not simply seen, they are also read, and read through categories which place them in a hierarchy of bodies'. In line with their argument, one might suspect that objectification of the body is the building block of the constitution of disability and attendant exclusion and oppression. Such objectification, and accordingly the 'misfit' between one and the environment, might be brought about by gaze, but perhaps more systematically, I argued, by technology.

Conclusion

In this article, the phenomenological approaches to disability are exposed. The entry point of such approaches is the intuition that the boundary between humans and the surrounding world is blurry, and accordingly, contrary to the social model's contention, there cannot be any sharp distinction between impairment and disability. More specifically, to stress the interrelatedness of humans and the environment, Garland-Thomson has utilized the notions of 'fit' and 'misfit'. Now, an individual may experi-

ence '(mis)fit' based on various variables, ranging from becoming (or not) objectified and oppressed on the ground of a special congenital condition of the body, to restructuring of the body schema (or not) in the wake of social factors or disruptions in the body. Moreover, on the occasion of a reconfiguration of the body schematic operative intentionality, the individual usually undergoes significant changes of the state as one might feel 'I cannot,' i.e., a 'misfit' situation, after a long period of experiencing 'I can,' i.e., a 'fit' situation, or the other way around.

To push the phenomenological approach one step further, I suggest taking the role of technology in contributing to the '(mist)fit' or the 'I can(not)' of individuals, more seriously. To demonstrate, I introduced the postphenomenology framework and suggested that two clusters of human-technology relationship might mediate (dis) ability through contributing to the individuals' '(mis)fit' or 'I can(not);' relating, (1) to technologies that restructure the body schema such as wheelchairs, and (2) to those fuelling hermeneutic relationships such as tele-monitoring systems. More precisely, some technologies I argued may reorganize the body-schematic operative intentionality and accordingly mediate the 'I can(not),' or the '(mis)fit' state, of individuals (e.g., wheelchairs). The second type of human-technology relationship also might mediate disability, I elaborated, by thematising the body of individuals and more generally upsetting their relationship with their own body (e.g., tele-monitoring systems).

If individuals are interrelated to the environment, and therefore (dis)ability is germane to the condition of one within the environment, and in particular, the state of one's '(mis)fit' or 'I can(not),' then technology can mediate such a condition and in this sense (dis)ability is technologically mediated.

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References

Arzroomchilar, E. (2024). Aging in light of digitalization of healthcare. *Social Theory & Health*. https://doi.org/10.1057/s41285-023-00202-1

Carman, T. (2008). *Merleau-Ponty*. Routledge.

Garland-Thomson, R. (2011). Misfits: A feminist materialist disability concept. *Hypatia*, *26*(3), 591–609.

Goodley, D. (2014). *Dis/ability studies: Theorising disablism and ableism*. Routledge.

Halák, J. (2021). *Body schema dynamics in Merleau-Ponty.* In Y. Ataria, S. Tanaka, & S. Gallagher (Eds.), Body schema and body image: New directions (pp. 33–51). Oxford University Press.
Hughes, B., & Paterson, K. (1997). The social model of disability and the disappearing body: Towards a sociology of impairment. *Disability & Society*, *12*(3), 325–340.
Husserl, E. (1989). *Ideas pertaining to a pure phenomenology and to a phenomenological philosophy. Second Book: Studies in the phenomenology of constitution*. Springer.
Husserl, E. (2008). Hua XXXIX. Die Lebenswelt. Auslegungen der vorgegebenen Welt und ihrer Konstitution. In R. Sowa (Ed.), *Texte aus dem Nachlass* (pp. 1916–1937). Springer.
Ihde, D. (1990). *Technology and the lifeworld: From garden to earth*. Indiana University Press.
Ihde, D. (2002). *Bodies in technology: Electronic mediations series*. University of Minnesota.
Ihde, D. (2008). *Ironic technics*. Automatic Press/VIP.
Ihde, D. (2009). *Postphenomenology and technoscience: The Peking University lectures*. SUNY.
Leder, D. (1990). *The absent body*. University of Chicago Press.
Lupton, D. (1995). *The imperative of health: Public health and the regulated body*. Sage Publications, Inc.
Martiny, K. M. (2015). How to develop a phenomenological model of disability. Medicine, Health Care and Philosophy, 18(4):553–65. PMID: 25652147. https://doi.org/10.1007/s11019-015-9625-x
Merleau- Ponty, M. (2011). *Le Monde Sensible et le Monde de l'Expression. Cours Au Collège De France, Notes, 1953*. MetisPresses.
Merleau-Ponty, M. (1962/2012). *The phenomenology of perception* (C. Smith, Trans.). London: Routledge & Kegan Paul.
Oliver, M.(1998). Theories of disability in health practice and research. *British Medical Journal, 317*: 1446–1449.
Paterson, K., & Hughes, B. (1999). Disability studies and phenomenology: The carnal politics of everyday life. *Disability & Society*, *14*(5), 597–610.
Richard, R., Perera, E., & Le Roux, N. (2019). The bodily experience of disabled athletes. A phenomenological study of powerchair football. *Sport in Society, 23*(7), 1186–1201. https://doi.org/10.1080/17430437.2019.1609948
Rosenberger, R., & Verbeek, P-P. (2015). A field guide to postphenomenology. In R. Rosenberger, & P. P. Verbeek (Eds.), *Postphenomenological investigations: Essays on human-technology relations* (pp. 9–40). Lexington Books/Rowman Littlefield.
Roulstone, A., & Prideaux, S. (2012). Understanding disability policy. Policy Press.
Shakespeare, T. (2017). The social model of disability. In L. J. Davis (Ed.), *The disabilitystudies reader, 5th edition* (pp. 195–203). Routledge.
Taipale, J. (2012). Twofold normality: Husserl and the normative relevance of primordial constitution. *Husserl Studies*, *28*, 49–60.
Toner, J., Allen-Collinson, J., & Jones, L. (2022). I guess I was surprised by an app telling an adult they had to go to bed before half ten': A phenomenological exploration of behavioural 'nudges. *Qualitative Research in Sport Exercise and Health*, *14*(3), 413–427. https://doi.org/10.1080/2159676X.2021.1937296
Verbeek, P. P. (2005). *What things do: Philosophical reflections on technology, agency, and design*. Pennsylvania State University Press.
Verbeek, P. P. (2008). Obstetric ultrasound and the technological mediation of morality: A postphenomenological analysis. *Human Studies*, *31*, 11–26. https://doi.org/10.1007/s10746-007-9079-0
Verbeek, P. P. (2011). *Moralizing technology: Understanding and designing the morality of things*. The University of Chicago.
Wasserman, D., & Campbell, S. M. (2018). A more inclusive approach to enhancement and disability. *The ethics of ability and enhancement*, pp.25–38.
Wildman, W. J. (2010). An introduction to relational ontology. In J. Polkinghorne (Ed.), *The Trinity and an entangled world: Relationality in physical science and theology* (pp. 55–73). William B. Eerdmans Publishing Company.
World Health Organization & World Bank. (2011). World report on disability 2011. World Health Organization. https://iris.who.int/handle/10665/44575