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INTRODUCTION

Disability and technology in Africa: introduction

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An elderly lady with a limp selects her longest walking stick to help her through the mud to her garden. Deaf people watch attentively as a pastor delivers a sermon in sign language. Refugees with disabilities sit on their sacks of rations at a food distribution centre. A woman describes the difficulty in getting used to her prosthesis after she lost her leg. Assistants help to push the heavily laden tricycles of polio survivors onto a ferry. A deaf taxi passenger shows her destination to the conductor on her smartphone. The abilities of impaired bodies are often enhanced – more or less successfully – by assistive technologies. Whether these include devices, like crutches, or whether they are less material, but no less consequential, systems for enabling 'the disabled', technologies are meant to augment the functioning of bodies. Whether this happens, how, to what purposes and under what conditions are empirical questions. They are also analytical questions that require a framework for considering the relations between bodies, technologies, sociality and political economy. Addressing these questions is the task undertaken by the contributors to this special issue on disability and technology.[1]

To be effective, a technology must be incorporated. It must be embodied as a technique and enacted in ways that allow something to be accomplished. But instrumentality is only one dimension of assistive technologies. They have social consequences and social meanings. Indeed, the very possibility of accessing a wheelchair or sign language is socially mediated. Thus, it is not only technology but also sociality that is embodied. Sociality itself exists within a context of political economy where livelihoods, inequalities, power, notions of citizenship and ideals of national progress are at play. It is our ambition to explore disability and technology through a framework that encompasses the political, the social and the embodied subject. In this we loosely follow the programme of research set out in the formative period of medical anthropology. Pioneers of the field called attention to three bodies: the political, the social and the individual body-self (Scheper-Hughes and Lock 1987). Considering disability and technology in terms of these interrelated bodies raises at least three questions:

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(1) how does assistive technology for disabled people[2] figure in conceptions of citizenship and visions of progress and development?; (2) how does the use of technology affect sociality through the meanings it conveys?; and (3) how do disabled people as actors embody technology and its associated sociality?

Defining disability and technology

The term disability has an increasingly broad range of reference. According to the International Classification of Functioning, Disability and Health (ICF), adopted by the World Health Organization (WHO) in 2001, a disability is a restriction of functioning, of the ability to perform important activities in a given setting. That can arise from chronic physical or mental illness or from the frailty of old age, as well as from congenital or acquired sensory, cognitive and mobility impairments. South Africa adopts such a broad definition: disability grants can be awarded to people with HIV or psychiatric problems, although, in practice, there is disagreement about criteria (MacGregor 2006). In the global North, where the population is ageing and chronic illness is widespread, disability rates are high using the ICF definition. Reliable data on the prevalence of disability in Africa is lacking (WHO and World Bank 2011: 25), but the pattern is likely to be different because of the young population and the weight of infectious disease in addition to chronic disease. Disability in Africa is typically associated with violent conflict, occupational and environmental hazards (including dangerous traffic), and the combination of disease and insufficient healthcare. Despite the broad ICF definition, which implies that disability will happen to almost everyone as they age, there is a tendency in both parts of the world to think of it in the conventional sense of impairments to mobility, hearing and seeing that affect a restricted number of people earlier in life. With one exception (Namaganda *et al.*), our contributors have also followed this path with their studies of deaf and mobility-disabled people.

While our disability focus is relatively narrow, our conception of technology is broad as it is construed in the overlapping fields of anthropology and science and technology studies. A review of the emergence of technology studies in anthropology includes approaches focusing on devices, techniques, skills, knowledge practices, values, socio-technical systems, assemblages, infrastructures and more (Bruun and Wahlberg 2022). To start simply, we understand technologies as methods, techniques and equipment together with the people using them in purposeful activities. We are concerned with technologies that are meant to enhance the capabilities of disabled people – produced and implemented with the intention of expanding individual and social abilities. This is Beckmann's point in her somewhat unusual construal of sign language as a social technology in this issue. Sign language was introduced to northern Uganda as part of a development agenda and it had political consequences. Schuler (this issue) also considers a social technology: the protocols for determining which refugees are disabled and what entitlements to special assistance they might receive. Thus, technologies can be seen as packages of methods, techniques and

[2] While most anglophone scholars and many activists use the term 'disabled people', international agencies and NGOs often prefer 'people with disabilities'. Here and in the articles that follow, we employ both, recognizing too that very different words and categories may be used in local languages.

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procedures for compensating disability and promoting equality. More commonly, technology is associated with equipment, as in other contributions here: the smartphones used by Murangira's Deaf signers, the walking sticks deployed by Namaganda *et al.*'s elderly villagers, the varied mobility devices of Devlieger's urbanites, the prostheses and wheelchairs of De Silva's interlocutors. But as these contributors show, a tool used by someone with a disability is never a simple neutral artefact. It must be understood as part of an assemblage of knowledge, meaning and competence – and sometimes it includes institutions and relations to other kinds of technology.

Nearly all technologies specifically for disabled people, including social technologies, have originated in the global North (Grischow 2018; Whyte and Ingstad 2007). But to say that they were transferred to countries in Africa is misleading. 'Technology transfer' suggests a rather mechanical process, based on the premise that 'there are universal needs, and for each of these there is an ideal artefact' (Pfaffenberger 1992: 496). In this standard view, devices and procedures are designed and produced for a particular function. The assumption is that technologies can then be transferred and utilized regardless of context, culture, nature or extent of disabilities, as well as infrastructure. The functionality and usage are given by the artefact. This perspective, however, fails to convincingly explain failures of technology transfer and furthermore does not offer insights into processes of access, appropriation, adaptation and utilization of such 'travelling technologies' (Behrends *et al.* 2014). In an African context, Ingstad (1995; 1997; 2007) has compellingly shown the shortcomings of the 'universalistic assumption' based on years of fieldwork in Norway and Botswana. Muyinda (2020), too, analyses the implementation failures of rehabilitation paradigms (skills training, assistive devices) developed elsewhere and imposed top-down after the war in northern Uganda.

The term 'translation' better reflects the approaches of our contributors. They show how technologies are reworked to make sense in local settings: in Kinshasa, motorcycles are being converted to tricycles; in Kampala, Deaf people are using smartphones in innovative ways. Technologies are adapted to local situations and needs, and disabled people adapt themselves and their situations to technology. And some technologies are more or less lost in translation.

Disability in Africa

Throughout the world, political attention to disability increased dramatically between the UN International Year of Disabled Persons in 1981 and the milestone Convention on the Rights of Persons with Disabilities in 2006.[3] This was also the case in Africa, where forty-six nations have ratified the convention (Grischow and Mfoafo-M'Carthy 2022). The follow-up *World Report on Disability* (2011), produced by the WHO and the World Bank, builds on the convention and together they assert that disability is both a human rights and a development issue, since there is a mutually reinforcing relation between disability and poverty. Most African governments, many of their

[3] The Convention on the Rights of Persons with Disabilities can be found at <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html>, accessed 19 June 2021.

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development partners and a multitude of national and international NGOs affirm this position (Ingstad and Eide 2011).

Uganda, where four of the research projects reported here took place, has been a leader in promoting disability rights. Among other measures, it has reserved seats for a male and a female with disabilities at every level of local government and in the national parliament, making it one of the countries with the most elected representatives with disabilities (Abimanyi-Ochom and Mannan 2014). With its progressive policies, organizations of disabled people, emphasis on inclusive education and many donor-supported projects, it is an opportune setting in which to examine the situations of people with disabilities.

In tandem with political recognition, scholarly work on disability in Africa is now growing. A topical academic periodical, the *African Journal of Disability*, was established in 2012 and there is an increasing stream of articles, book chapters, PhD dissertations and monographs. Earlier research was often concerned with cosmology and the body, showing how people conceived of the forces that caused disability and how disability was perceived in local cultures (Devlieger 1995; 1999; Devisch 1990; Talle 1995). More recently, researchers have examined how political economy, historical changes and disability policy are relevant for disabled people in local worlds (Livingston 2005; 2006; Muyinda and Whyte 2011; Berghs 2016; Swartz 2014; Devlieger 2018a; 2018b; Chataika 2018). They are exploring the life worlds of disabled people with insight and sensitivity (Silva 2015; Zoanni 2019; 2021; Mildner 2021; Modern 2022).

One way to make these issues tangible is to focus on specific technologies as they pertain to sociality and embodiment in African political economies. Disability technologies allow us to link bodies politic with concrete social interaction and being-in-the-world as particular embodied actors. Even social technologies are substantial enough to grasp and follow within national and international political arenas. All disability technologies are enacted socially and may have existential implications for those who live with them. We believe that this focus on technologies provides fresh perspectives on African societies by alerting us to hitherto neglected connections between bodily difference and qualities of interaction. The moral careers of individuals as they move through their lifetimes may be traced through their incorporation of technologies. The ways in which these connections are coloured by particularities of political economy are brought into focus; we notice the implications of humanitarian assistance or relocation after war for embodied social actors.

Studying disability technology in Africa also provides a needed counterbalance to academic trends current in the global North, where innovation and individual functionality are celebrated. As stated in the entry on 'Technology' in *Keywords in Disability Studies*: 'Technology theory exhibits a ruling preoccupation with development and capacity. It emphasizes invention over the vagaries of use; moreover, it tends to neglect the piecemeal, the homemade, the low-tech, and the long-lasting' (Mills 2015: 179). Studies in African settings recognize these and other dimensions of disability and technology: lack of resources and unequal access to technology; the importance of everyday sociality where there is no welfare state; the ideology of development and progressiveness as it relates to assistive technologies.

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The political economy of assistive technology

Article 26 of the Convention on the Rights of Persons with Disabilities obliges signatories to facilitate relevant technology for disabled citizens: 'States Parties shall promote the availability, knowledge and use of assistive devices and technologies, designed for persons with disabilities, as they relate to habilitation and rehabilitation.' Yet in many African countries (with the partial exception of South Africa), it is not the state that provides for disabled people. Government efforts are supported, if not overshadowed, by donor contributions; collaboration between disabled people's organizations in Africa and the global North plays an important role. In some cases, local groups advocate for disability-friendly technology, and resources are mobilized within the country. In very many others, the provision of assistive devices or community-based rehabilitation is funded from outside, sometimes through faith-based groups, sometimes through national disability organizations. It even happens that individual politicians distribute wheelchairs and crutches as part of political campaigns (Nwokorie and Devlieger 2019; Whyte and Muyinda 2007: 297).

Two of the contributions in this issue deal with externally funded organizations providing free assistance for disabled people. The food, or now cash, distributed in the Ugandan refugee settlement described by Schuler comes from international donors; disabled recipients, like other refugees, struggle to supplement it through their own efforts. In Ethiopia, the Mekelle Ortho-Physiotherapy Centre supplies assistive devices at no cost, but it is largely funded by external donors including the International Committee of the Red Cross. In other cases, individuals receive devices through charitable donations from a variety of sources. Devlieger writes that this was common for her interlocutors in Kinshasa, but a few entrepreneurial persons managed to purchase their own, sometimes as an investment to facilitate their livelihood activities. In central Uganda, Namaganda *et al*. found that adult children in the diaspora provided their elderly parents with 'smart' sticks (canes). A fundamental theme is that disabled people are heavily dependent on others, often on disability projects, for disability devices such as wheelchairs (see also Whyte 2020). Strikingly, the situation is different for the Deaf users of mobile phones studied by Murangira. This technology is universal, not specially intended for disabled people, and it has to be purchased – with the consequence that many were excluded from using it.

The other economic aspect of technology addressed by our contributors is the livelihood possibilities that it facilitates. This is central for the people with whom Devlieger worked in Kinshasa, where hand-crank tricycles were necessary to engage in cross-border trade. The relation between technology and income took other less obvious forms in some cases. For the refugees in western Uganda, extra food rations were important because they could be sold. Working in northern Uganda, Beckmann found that the acquisition of sign language during displacement opened up new opportunities for small businesses. Importantly, she found that men benefited most from these possibilities, frequently cooperating with other sign language users in urban centres. Deaf women often returned to rural areas after the war, where there were far fewer chances to work together with other deaf people.

The political dimensions of assistive technology are multifaceted. By providing it, leaders may further their political projects. People with disabilities may use it to press their own agendas. In the disability literature, one of the most compelling examples is

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the discussion of the use of motorized tricycles by polio survivors in China (Kohrman 2005). The China Disabled Persons' Federation supported use of the vehicles as a way of demonstrating that disabled people could be economically active. The tricycles brought disabled men together and created solidarity that was used in political protests. In a local African setting, we documented similar political, social and economic mobilization through the use of hand-crank tricycles by men transporting goods on the Uganda–Kenya border (Whyte and Muyinda 2007). Information and communication technology was reported to enable the political participation of disabled people in Mozambique (Manhique and Giannoumis 2018).

The way in which assistive technology is used to recognize or promote citizenship (rights and responsibilities in a national or other polity) is often selective. War veterans or those injured in conflict are given priority in the distribution of devices and services (Grischow 2018; Muyinda 2013; see De Silva, this issue). Men are more likely than women to acquire and mobilize through tricycles (Whyte and Muyinda 2007); Kohrman (2005) showed that this was also the case in China. Assistive technology and the political and economic possibilities it provides are more available in urban than rural areas. And, of course, most assistive technology is impairment-specific and therefore selective.

Assistive technology has been declared a matter of human rights and thereby a political and citizenship issue. In Africa, it is also a development issue that lumps the economic improvement of society and the individual together with images of progress and modernity. Values, ideals and aesthetics are promoted by development actors together with mobility aids and sign language. De Silva (this issue) brings this out clearly in her article on devices for people with physical disability. She shows how the Ethiopian developmental state promotes prostheses and wheelchairs as technology for the 'model citizen' as opposed to 'primitive' sticks or, even worse, 'subversive techniques of the body' such as crawling. She goes on to discuss the challenges of embodying these 'high-tech' devices and using them in everyday life. Her article demonstrates how a focus on technology can link political discourse to the experiencing body.

In this issue, Beckmann pursues similar themes in her analysis of how sign language was introduced as a technology during and after the war in northern Uganda. She shows that Ugandan Sign Language was promoted as a development tool, ostensibly to improve the situation of deaf people and perhaps also as another move in strengthening the alliance between the party in power and disabled people as a constituency. It is indeed striking that African sign languages were institutionalized with the support of European development agencies and were seen as development projects (Lutalo-Kiingi and De Clerck 2015) and as a means to practise inclusive citizenship (see the contributions in Cooper and Rashid 2015).

Assistive technology is in part assessed in terms of the values of development and modernity; smartphones are desired far above ordinary phones by deaf signers in Kampala, as Murangira shows. Also, in rural settings, as Namaganda illustrates, older people in central Uganda appreciate the more 'high-tech' manufactured canes as 'smart' and appropriate for situations where they want to make a good impression. Yet, as with the prostheses about which De Silva writes, just being modern and high-tech is not necessarily enough. The device has to be easily embodied for use within the everyday lifeworld and it should not have unpleasant connotations.

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Representation and social significance

Most assistive technology is immediately visible (with the exception of high-tech devices such as cochlear implants) and therefore draws attention to a person's disability. This is one of the reasons why such technology always has social significance in addition to its practical uses in enhancing a person's ability to perform mundane tasks. As Lupton and Seymour (2000: 1861) found in their study from Adelaide: 'Technologies were conceptualized in two dominant ways by our participants: as tools assisting bodily function and as contributing to the body/self as it is experienced and presented to others.' Whether the meanings attributed by other people are positive or negative is an empirical question; while 'smart' sticks were admired in central Uganda, wheelchairs were seen as indications of frailty and decline. Namaganda *et al.*'s interlocutors were keen to show her the canes their salaried children had provided; although the canes were a direct recognition, even an affirmation, of disability, they also carried other meanings of care and modernity. The wheelchairs seemed to confirm frailty and helplessness, especially in the absence of smooth surfaces that might have allowed them actually to facilitate mobility.

The social significance of assistive technologies goes beyond what they represent in the eyes of others (Pedersen *et al.* 2019). There is always an interplay between how people see me and how I see myself. People's perceptions of *me* and my device have implications for how *I* act and understand myself. And how I use devices influences how others see me. As George Herbert Mead (1967 [1934]) established long ago, the self is both the subject of action and the object of others' attitudes, which the individual assumes. This double aspect of identity runs through all of the articles in this special issue; it is especially clear in Devlieger's piece on the moral careers of mobility-impaired people in Kinshasa. She shows how different devices move people along trajectories of personhood in the eyes of others and are linked to changes in their own subjectivity. When JP Nzete became chairman of the union of disabled border workers, he replaced his stick with crutches, which were more appropriate to his new respectable status. Having or losing 'complexes' about being disabled (denial, anger, shame) is associated with the use of assistive technologies, which indicate acceptance and willingness to deal with one's condition. Devlieger shows how the social significance of devices is related to livelihood possibilities, which in turn are shaped by political economy.

Social technologies such as the procedures for food distribution in refugee settlements shape personhood and subjectivity as well, but in different ways. In her article, Schuler analyses the policy and practice of food aid for refugees with disabilities. Based on ideals of promoting equality and independence, food-aid technology comprises a set of vulnerability categories that determine the amount of rations given. The categories represent disabled people as needing extra food in compensation for not being able to work. But those with able-bodied spouses and adult children are not entitled to extra rations; thus, not only are they made more dependent on family members, but they are also unable to provide anything extra to those who support them. The social technology makes disability visible in a very consequential way; it presents disability as a social as well as a bodily condition. The people on whom the categories are imposed experience them as deeply unfair if they are excluded in spite of bodily impairments. In contrast, those who are included as vulnerable because of

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their disability are able to provide more to their family and neighbours, thereby practising interdependence.

Embodied technology

To use crutches with ease or to communicate fluently in sign language requires bodily techniques that are learned, sometimes through mimesis, sometimes through explicit instruction, and very often through practice – that is, trial and error, persistent repetition until the techniques become 'second nature'. At that point, we can say that assistive technologies are embodied. As our contributors show, such embodiment is not necessarily either/or; sometimes it is more or less, and sometimes it fails.

The human–technology interface is often characterized by ambiguity, as Jackson has argued. When the other, including the non-human other, offers constructive engagement under our control, we experience that it can become part of us. '[T]echnologies are sometimes seen as extensions of ourselves – and as such, subject to our will. But at other times they are felt to be alien, invasive forms of non-Being that subjugate us, undermining our very notion of who and what we are' (Jackson 2002: 336). When technologies are refractory, when we cannot understand or manipulate them, we treat them as outside ourselves, as foreign, and we may exert our sense of control by denigrating them.

Our contributors provide examples of devices that were almost part of the person's body, that were subject to their control and enhanced their very sense of being. Namaganda *et al.*'s interlocutor Kizito declared that he could not do anything without his cane; he even jokingly said that it was more precious than his wife. De Silva writes of Rahel, who gave her crutch a name and insisted that it should figure in the drawing De Silva made of her. It was part of who she was. And yet, at home in her own space, she did not bother with her crutch and the brace that she had to use with it in order to walk 'properly'. This ambivalent relation to technology was not unusual. Researchers show that embodiment has degrees and is situational; rather than thinking of people using assistive devices as cyborgs, with mechanically restored function that is continuous, our contributors show that the embodiment of technology may be intermittent and inconvenient. Devices that are familiar parts of the body on some occasions may be felt to be foreign in others, disregarded as uncomfortable or impractical. While De Silva's interlocutor Rahel treated her crutch as an extension of herself, at least when she wanted to go out, another woman expressed how foreign her prosthesis felt to her: '[W]hy shouldn't it be hard, when you are carrying an apparatus which isn't your own leg?'

The two contributions on deaf people bring out further aspects of embodying technology. Murangira writes of how people in Kampala access communication media. All of those he studied used sign language and reading/writing, whether looking at printed health information, watching television or having someone explain what was on the radio. The most valued medium was the smartphone. For many, this device was integrated in the mindful body; holding it in their hands extended their sociality beyond the physical body and was also a means of bringing corporal bodies together for direct interaction at meetings and events. Murangira's interlocutor Lwanga recalled his despair when he was without his smartphone for one day; he was depressed, lost and lonely. Feeling the phone vibrate in your pocket, seeing it light

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up when a message arrives, engaging in a signed video call, keying in short texts to friends are all ways of embodying technology.

For Beckmann, who did research in post-war northern Uganda, it was sign language itself that was embodied, rather than communication devices. Those deaf Acholi people who fled to Gulu town during the war acquired a new technique of the body by watching other deaf people, by attending church services and school classes for the deaf. Of course, speech is embodied too, as hearing humans learn to voice sounds in the natural process of socialization. Beckmann argues that the acquisition of sign language was different; it was introduced explicitly as a technology for development and, once incorporated, it changed the way people experienced the world. Sign language was not just a technique of the body in the sense suggested by Mauss (1973 [1934]); it was a technology of the self with existential consequences that changed the way of being-in-the-world.

Technologies must be embodied for people to use them competently and thus become more able in their daily activities. What is especially significant in African contexts is the social aspect of embodiment. While theorists of embodiment often focus on the singular body – and, in the case of assistive technology, on the enhancement of individual bodily capability – research in Africa tends to move on to relational aspects of the mindful body. This is also true of our analyses of technology and disability. As Muyinda (2013) argued, the social character of assistive technologies means that sociality is embodied at the same time. He showed that a person adept with a prosthesis or crutches incorporated not only the devices but also the social relations through which she was supported to acquire and use them. He used the term 'embodied sociality' to draw attention to this dimension, arguing that bodies revealed something of the social relations in which they existed. But it is not only the case that the appearance of the body shows evidence of the sociality that has been incorporated. Embodied technologies also affect sociality. They do so when an 'en-wheeled' or 'en-crutched' or 'digitally connected' person experiences and acts in the social world. Csordas (1999: 143) suggests that studies of embodiment are not necessarily studies of the body itself. Rather, they elucidate 'culture and experience insofar as they can be understood from the standpoint of being in the world'. That is to say, they attempt to grasp the body as subject rather than object. They take as given that 'embodied experience is the starting point for analyzing human participation in a cultural world' (Csordas 1993: 135). Our contributors show subjects interacting with others, experiencing the significance of communicating with other deaf people, or feeling respected on crutches. Taking their standpoints as embodied subjects dealing with technology reveals African social and cultural settings as they are actually lived in a diversity of ways.

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All the material presented in this special issue was assembled in the process of PhD research. The contributors are filling out a relatively new area of research, one that offers new perspectives on African societies and everyday life. In examining technologies in local contexts, they move beyond a simple instrumental view of them as enabling certain functions, important as that is. They move us toward seeing technologies for disabled people as 'total social facts', with political, economic, symbolic and existential significance.

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