

# **The Stranger**

**- On the Understanding of,  
and Socialising With,  
the Stranger in a Globalised  
and Constantly Changing World**

**Søren Nagbøl (ed)**

## **CURSIV**

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# Makers not Users

- The Material Shaping of Technology Through use

**By Jamie Wallace**

## **Abstract**

Although humans appear to be natural makers of things, when referring to our interrelation with technologies, we refer to ourselves as ‘users’. The term user implies that technologies are prescribed, finished artefacts and consigns us to the detached role of learning how to adopt them as the designer intended. This reductive conception prevents any view of how technological-human relations rely upon moments of material interaction and it says little about the creative aspect of such interactions necessary for any technology to successfully contribute to human practice. In this chapter, I wish to consider the separation of use and design together with what is perhaps a fading understanding of making; in doing so, I aim to gain a better understanding of how we engage with technologies as changeable and material things.

Stressing the transformative actions of our everyday practice provides an inclination towards ideas of production and making not found within notions of use. Similarly, by conceiving of users of technology as equally makers of technology, we can dissolve the distinction between users and makers and adopt an analytical stance related to direct engagement and change. Central to this approach is Gibson’s notion of affordance (1979), which describes the mutual relationality between humans and technology that constitutes the foundation for perception and action. Relating affordances to actions of making rather than use reveals them, not as predetermined through processes of design, but as disruptive,

changeable, elusive, capricious, inarticulate, and enacted during situations of practice. On the one hand, this reveals users as actively reconfiguring technologies as they become part of practice, and more importantly, it identifies the extent to which this reconfiguration is an exploration, not of a finished artefact, but of the possibilities for material engagement.

*Keywords:* makers, things, materiality, users, technology, engagement, affordance

Before examining the ways in which we materially engage with technologies by considering humans as essentially ‘makers’ rather than ‘users’, I will outline a recent experience involving three technologies of drawing.



## Three technologies of drawing

Following the purchase of my first digital tablet, I was attracted by the idea of being able to use it for drawing and sketching. It seemed so convenient; with no more need for paper or sketchbooks, as well as having an endless supply of different colours and not to mention the opportunities for digital editing and the advantage of being able to send drawings directly via e-mail. However, from the outset the experience was very different from drawing and sketching on paper. It wasn't so much the difference between the tablet's touch sensitive screen and qualities of paper or the illuminated surface that struck me; instead, it was the implement – or lack of implement – used to draw with. Until having to use my forefinger to make contact with the screen, I hadn't realised how much of my drawing practice had relied on holding an implement between my thumb and forefinger. What I imagined would be an insignificant change – with almost no difference in the orientation or positioning of my fingers (merely the absence of a thin wooden object with a core of graphite) – actually altered my whole drawing experience. To compensate, I tried a series of hand positions and techniques to reproduce the natural feel I had when holding a pen or pencil. I tried holding my hand stiff as though my forefinger were an inanimate object and I also allowed my finger(s) to dance and flow uncontrollably; however, both the experience and the effects of the drawing remained alien.

Luckily, all was not lost, because I became aware of a range of styli specifically 'designed' for drawing or handwriting on tablet devices. It appeared there was a solution at hand. After making a careful selection based on online reviews, I was soon using what appeared to be an ergonomically designed stylus that even boasted a design award. Although the rubber tip created a disconcerting level of drag on the screen, my hand was able to assume its customary grip and my sketches began to acquire something of the distinction I liked when using paper. This was, after all, a process mediated by digital algorithms rather than the subtle variations of graphite or crayon on paper, so I couldn't expect it to be as good as the 'real thing'. After several weeks of drawing practice and settling in to using the stylus, I was surprised when the rubber tip suddenly sheared off, rendering it useless. Realising it would be some days before I could replace the stylus, I began to search for possible ways to mend it. After cutting up bicycle inner-tubes and wrapping a film of rubber over the end or attaching small pieces of household sponge, it became possible to generate intermittent lines on the tablet; however, I was unable to recreate its earlier effect.

This failed attempt at a proper repair made me curious as to how a stylus works and whether it would be possible to create a home-made version. A search on the Internet provided a handful of solutions and, after watching an informative

video made by a nine-year-old boy, I had made a new stylus using a cotton ear bud and a piece of aluminium kitchen foil. This had none of the elegant lines of my purchased award winning stylus and no protective leather pouch for storage. Moreover, it certainly wouldn't have passed any uniformity or quality control tests, and it would be difficult to brand, market and sell with a reasonable profit margin. However, it did resemble – in both sensation and effect – the use of charcoal on paper. The cotton ear bud glided across my tablet screen without noticeable drag and holding such a small implement brought the movement of my wrist much more into play allowing a form of mark making that resembled the use of paper. But, above all, it was the changeable quality of the cotton ear bud stylus that began to offer my drawing something authentic. A pencil, crayon or piece of charcoal is never static. Throughout the drawing process it wears a little, responds differently depending on how it is cut or worn and provides very different strokes in different directions, pressures and even rotations. These aren't qualities I consciously bring into play, but they become active through my hand movements and leave their influence on the drawn line. As the cotton ear bud wore down or became matted and compressed, I needed to pull small hairs of cotton to encourage a line to appear or I needed to increase the rapidity or pressure of handling. As a result, I felt as though I was working with a real drawing tool again; a tool that required me to learn how its scope of variation felt in the actions and bodily sensibility of practice. Further it allowed a slight degree of unpredictability, which enabled me to maintain a reflective approach to the emerging drawing process and fostered what could be called an 'embedded creativity'. This was a technology being 'made' through material engagement in concurrence with my practice.

## **The separation of design and use**

These reflections bring forth a discrepancy between imaginings of what technologies are, and the learning process that unfolds from the initial experiences of their use. It is only once technology is materially engaged within a context of human practice that claims and expectations about the promises of technology become explicit. Without this human element, any understanding of technology remains a prescribed technical specification constructed during the design process. In light of this human aspect and our continual engagement with technology, questions of what it means to be human are never far from questions concerning our use of technology. As technologies are seen to radically influence the ways in which we interact, they become entangled with issues of anthropology; however, thus far, anthropology has struggled to fully conceptualise the way in which this occurs

(Ingold, 1997; Suchman, 2001). Steve Keirl argues that, although anthropology offers us perspectives, these perspectives “fail to locate (rather they dislocate) potential for real understandings of technology” (Keirl, 2006, p. 89). Regardless of which discipline we appeal to, it is essential that we deepen our understanding of the effects that changing technological use has upon body, culture and society.

Conceptions of technology and use are kept manifestly separate by structures of design, production and consumption. Designed and manufactured products are made available to consumers who are then seen to adopt them as artefacts for the uses for which they were intended. From the individual’s point of view, these processes of production are typically far removed from their processes of use. How many of us can fully imagine the complexities of the design and manufacturing processes that have led to the computers we adopt every day? Discourses of adoption and diffusion (Rogers, 1995; Straub, 2009) consider the routes through which technologies enter into use, whereas those of technological literacy (Dugger, 2001; Garmire & Pearson, 2006; Ingerman & Collier-Reed, 2011; Wallace & Hasse, 2014) consider the learning that occurs as a result, allowing us to “engage intelligently and conscientiously” (Yawson, 2010, p. 301) with situations of technology use.

By acknowledging this separation of design and use, we can use it to question the reasonableness of use and the ways in which those involved with processes of design are able to influence technologies once they are adopted and situated in practice (Wallace & Hasse, 2014). Several authors have appealed to the notion of a “designer fallacy” (Ihde, 2006, p. 124; Stewart & Williams, 2005, p. 195), which is intended to expunge the idea that designers can successfully design or embed explicit purposes, values and uses into a technology. While Ackerman (2000) terms this the “social technical gap”, Dourish describes it as the discrepancy “between our technological ‘reach’ in the design process and the realities of technologies-in-practice” (Dourish, 2006, p. 346). For example, the design of the digital tablet stylus may support certain ways of holding the stylus and allow predictable effects to appear on the touchscreen; nevertheless, it cannot provide a surrogate for the many different ways that variations of implements such as pencils, brushes, and pens have facilitated idiosyncratic approaches to mark-making by their particular users. It can only provide a basis for new ways of mark-making as users discover the particular means that suit them best in differing contexts.

Irrespective of the potential consequences for designers or users, it remains an undeniable fact that processes of design and processes of use have become firmly dislocated from one another. It follows from this split that notions of creativity and improvisation are largely associated with processes of making and design and that processes of use are rendered passive and predictable.



Daniel Charny takes up this historical view and associates it with an increasing loss of understanding that relates the making of things with the substances from which they are formed:

*... despite all the value that exists in making, fewer and fewer people know how to make the things they use, need or want; or even how these things are made. This is one of the unfortunate legacies of the Industrial Revolution that has shaped the world we live in. The distance between the maker and the user is growing and, with it, knowledge, understanding and appreciation are diminishing (Charny, 2011, p. 7)*

In this way the developing gap between practices of use and making can be seen to stem from the late modern period. Having been studied from a number of perspectives, including that of ethnology, there is a movement from ‘folk’ traditions to those dominated by cultures of functionality. This can lead to questions of whether ‘folk’ making traditions are obsolete, or are merely hidden amid the complexities of contemporary life. As pointed out by Orvar Löfgren (1997), views of the materiality of family life, such as Annette Rosengren’s (1985) study of working-class Swedish households, show practices of repair and making to be alive and well. Not in ways we might immediately recognise as part of a tradition, but rather through attention to the home as “a family project, where love, solidarity and care are materialized in the continuous ambitions of home improvements” (Löfgren, 1997, p. 100),

Viewing the user as a maker aligns with notions such as the domestication of technology, which has emerged from Science and Technology studies and ideas related to the ‘social shaping of technology’ (Silverstone & Mansell, 1995; Had- don, 2006). Taking this view, design and use are coupled from the viewpoint of practice, allowing an analysis of processes of technology’s acceptance, rejection and use seen through the consideration of individual situations. Of central interest here is the adoption of a mutual ontology in which the technology setting and the user setting influence each other. As Ihde argues, “*all technologies display ambiguous, multi-stable possibilities*” (Ihde, 2002, p. 106); in this way, the technology and its context are, as witnessed in processes of making, in a constant state of interplay and mutual influence. Had my tablet stylus been constructed in a different way and not broken, I would not have pursued a course to find an alternative. Questions of how such relationships are formed reside as much within the domain of learning and our processes of becoming as they do within the complexities of our sensibilities of engagement.

## A discourse of making

In its simplest sense, 'the maker' is usually viewed as somebody who forms raw materials into new objects. This is typified through activities such as metalworking, woodworking, and traditional arts and crafts, though it could equally apply to complex processes of industrialised production. Metalworking and woodworking may not be as prevalent as they once were, having been displaced by computerisation (Crawford, 2009); nevertheless, in present times, the centrality of making processes to human activity is reflected in the extent to which the Internet and digital media have fostered an explosion of the production, processing and sharing of digital artefacts.

Several authors have turned their attention to the importance of the maker in an attempt to understand technology (see Schiffer, 2001). However, by and large, this only sheds light on the *"significance of the perspective of the producer"* (Keller, 2001, p. 36) and does not facilitate a deeper understanding of how technologies ultimately become significant, and thereby 'complete', when situated in practice.

Discourses of making emphasise the emergent nature of the process as new things are discovered through various attempts, explorations, and wonderings. Above all it is the maker existing within his/her practice of enquiry in tacit and explicit forms of dialogue, linked with the changing nature and transformative aspects of their materials. This is what Donald Schön coined the maker's *"reflective conversation with his materials"* (Schön, 1983, p. 44). These materials do not exist in an open attitude to all possibilities but are rather a play within a ceaseless critical evaluation amid *"situations of uncertainty, instability, uniqueness, and value conflict"* (Schön, 1983, p. 49). This is reflected in the incongruity of adopting a cotton ear bud and aluminium kitchen foil to augment the use of computer hardware. In contrast to my makeshift stylus, digital hardware materialities are carefully finished and only alterable, if at all, with specialist tools in the hands of experts, often in carefully controlled environments (not often at the kitchen table with things ready to hand).

Related to these ideas of enquiry are discourses of experiential knowledge (Dewey, 1938; Rheinberger, 1992). Aligned to these are conceptualisations such as 'material thinking' (Carter, 2005) and 'materializing pedagogies' (Bolt, 2006) in which materiality provides a catalyst for a particular kind of knowledge. However, viewing making as a form of knowledge is not without difficulty, since it remains tied to situations of material engagement where its codification relies upon individual experiences. This leads to a type of exclusive knowledge, such as the example given at the beginning of the chapter, where its relevance is bound to an understanding of the situation itself. Cameron Tonkinwise writes:

*Making might therefore be a type of localised knowing, but as non-abstractable, it must be kept distinct from the knowing that lies at the foundation of the university.*  
(Tonkinwise, 2008, p. 3)

The discourse of making takes ideas of the user beyond instrumentalism and the notion of technologies beyond objects or artefacts. Technology is no longer treated as a discipline with a distinct kind of knowledge (Mitcham, 1994); instead, it becomes related to human values and traits and to being an intrinsic part of culture. The central dislocation here is to view technology as the raw material for human practice. This allows technology, prior to the point of use, to be devoid of its final shape or understanding. It also allows the disclosure of a reciprocal relation between user and technology to take place in a transformative rather than static framework. This highlights technology's mutable character, not in the semiotic sense projected through approaches such as Actor Network Theory (Latour, 1987; Callon & Law, 1997), but in ways founded on material and bodily engagement within situated action. It is this middle view between the social and material worlds that Tonkinwise makes explicit as a different form of knowing. This form of knowing, whilst still problematic, escapes what is considered by Jackson, Poole, and Kuhn (2002) as the tendency for researchers to "tilt" their arguments in the direction of either material or social influence and, hence, to fail to reveal the extent and diversity of situated socio material interactions. This is not to deny that technology is an entangled cultural phenomenon comprising complex dimensions formed around strategic social action and human agency (Dobres & Hoffman, 1994); it is simply to explore the foundation of these aspects as being intrinsically tied to the exploration of the transient materiality of things. Technology is only revealed once the learning process it demands of its user, and its user demands of it, begins to unfold.

## **Makers as explorers**

By viewing users of technology as makers, users become involved with the exploration of uncertain situations, which will inevitably lead to both intended and unintended consequences (Ihde, 2006). Such consequences reflect back on the technologies themselves and reveal them as not having any predestined or ascribed or appointed authority, but, instead, as being the indeterminate raw materials of human practice. The authority with which technologies are embedded through processes of design and marketing subverts their unforeseeable nature and presents tools as reliable, stable and predictable in the face of all eventualities. In the hands of mere users, and not shapers, technologies become "deterministic" preventing any exploration of their possible in-practice relations that may reveal

them as materially unsuitable, flawed, or corrupting for the applications for which they are promoted. With no previous experience of drawing, I may have been perfectly satisfied with the purchase of my digital stylus. As it was, the stylus became part of an existing and emergent practice that disrupted any idealised claims of its capabilities and any expectations of how it might enhance my drawing activity.

Looked upon as makers, users are present in the moment they explore technologies and, by reciprocation, become constituted in the 'here and now'. Turning attention to the dynamics of human action in such situations Ingold refutes the idea of automatic actions but rather demonstrates the *rhythmically responsive* (Ingold, 2006, p. 77) nature with which we are coupled to our changing environment. He also reveals the extent of skilled makers' engagement with the ebb and flow of situated action demanding a mutual reconfiguration in an unfolding system of technology and practice. Like Ingold, Strati identifies particular sensibilities at work that are able to accumulate the multiple experiences of material engagement. He demonstrates that these are not elevated or special negotiations but are rather integrated within everyday norms and practices that don't "*separate the mental from the corporeal, routine from improvisation, tradition from creativity*" (Strati, 2007, p. 65). It is through these reconfigurations (Wallace, 2012a) that skills and experiences develop together with technologies and, as Michael claims, it is "*not simply technologies and humans that are emergent, but the combination of these*" (Michael, 2006, p. 49). Michael uses the terms hybrids and co(a)gents to shift focus onto the co-emergence of this duality. In the example I provided above, the use of a home-made stylus allowed new possibilities for digital mark-making and similarly referred back and uncovered aspects of previous practice that were previously not rendered explicit. The intimate relationship between drawing and the temporality and variegated aspect of pencils as they are manipulated, worn and sharpened were only disclosed during the handling of their digital counterpart.

In opposition to a kind of material craft, the evolution of technological skill relations is viewed by Sigaut as part of ever-decreasing cycles, which he calls the "*law of the irreducibility of skills*" (Sigaut, 1994, p. 446), in which the development of new skills around changing technologies is chasing, in Ingold's terms, an "*ever-receding goal*" (Ingold, 2006, p. 78). As users are engaged in processes of making, they remain a constantly moving target and prevent any sense of fit being established with design. Certain design approaches, such as distributed participatory design, aspire to overcome this disparity. They wish to do this through:

... the creative use of technology to improve working practices in such a way that it does not destroy the workers' skills, does not take away their autonomy, and enhances their quality of life (Beynon & Chan, 2006, p. 1)

A related and emerging field is that of Design Anthropology, which seeks to develop anthropology to build closer relations between “using and producing, designing and using, people and things” (Gunn & Donovan, 2012, p. 1). If we acknowledge these as human activities, the designing for skills of use becomes reliant upon skills of designing. Both activities are bound to the interplay between different forms of engagement patterned through unique environments and the opportunities they offer (Wallace, 2012b).

## **Affordances and the perception of making**

Reconceptualising users as makers democratises ideas of technology and allows us to take a broader historical view of technology than those associated with innovation and technological advance (Feenberg, 2006). The popular tendency to equate technologies with “high-tech” artefacts, such as computers, information and communication technologies (ICTs), and other electronic media, overlooks the vast array of cultural and indigenous objects that have all emerged as innovations or inventions at some point in the past, such as books, hand tools, or even clothing (Kahn & Kellner, 2006). Ideas of making are more easily associated with these types of established, or what may be seen as out-dated, technologies in which the materials and methods of production are more familiar and understandable. Just like cotton ear buds and aluminium kitchen foil, these are everyday artefacts that are continually being ‘remade’ through well-practiced skills that allow us to trust our direct perceptions and engagements as tacit and bodily.

According to Heidegger, we remain bound to technology and, in the worst case, we view technology as something ‘neutral’ and are therefore blinded to its essence (Heidegger, 1977, p. 4). In contrast, viewing technology as a raw material provides an active standpoint from which to award it shape and significance. It also highlights the opportunities and possibilities technologies provide not as reductive properties of matter but through what Ingold describes as “*an emphasis on materiality that prioritizes finished artefacts over the properties of materials*” (Ingold, 2012, p. 427). This doesn’t describe a symbolic or semiotic consequence of materiality but one liberated by the processes of making and expressed through the notion of ‘affordance’ (Gibson, 1979).

Gibson coined the term affordance as a part of the theory of direct perception, or the ecological approach, in which there exists a direct relationship between animals and their environment through the ways in which organisms, including humans, detect relevant information in the ambient array. The ambient array refers to the ambient light emitted from a structure or arrangement, such as a pattern, a texture, or a configuration. This theory differs from previous conceptions

of the relation between an organism and the environment, such as cognitivism or behaviourism (Albrechtsen, Andersen, Bødker, & Pejtersen, 2001). In Gibson's terms, it is the mutual relationality between an organism and its environment that constitutes the foundation for perception and action:

*An affordance cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behaviour. It is both physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer. (Gibson, 1979, p. 129)*

For the maker, as for the user, an affordance is an opportunity for action through a perceived ability to act on what is sensed. It isn't simply seeing a feature, but a future way of making use of that feature (Tonkinwise, 2008). This opportunity for change is precisely the non-neutral presence that provides the maker with their transformative medium linked to their skills and ways of engaging. Affordances aren't simply linked to attitudes of bodily engagement but to change and to, in Gibson's terms, the change of the environment itself. A cyclic relationship becomes established between maker and environment (or technology) in which the making process both relies upon and changes the affordances constituted at any time. As relational opportunities, affordances become changeable and possibly elusive or capricious, defying any explicit articulation, and they become enacted through the context of practice.

In his influential work *The Psychology of Everyday Things* (1988), Donald Norman presents an unfortunate interpretation of the term affordances. He considers our ability to conceive of and use thousands of artefacts and devices encountered every day, often without any prior experience of those particular objects. However, Norman doesn't interpret affordances as relations between the environment and the organism in broad terms of opportunity; instead, he conceives of them specifically as "*those fundamental properties that determine just how the thing could possibly be used*" (Norman, 1988, p. 9). Subsequently, the term affordances has often been used to denote factors of a designed object that hint to the user how it should be used. This idea of affordances as fixed entities unlinked to the skilled and creative engagements of users not only does injustice to users but also prevents an open attitude towards designing that allows for (among other things) multiple and changeable situations. Despite Norman's repeated attempts to clarify his misuse of the term, the confusion within design communities remains largely present (see Norman, 1999; 2008).

## Making and the incomplete environment

In a broad sense, as we continually produce technologies, we make our environment and adapt the natural environment to satisfy our interests and purposes (Yawson, 2010; Dugger, 2000). The sheer extent of this making discloses an extensive view of technology:

*... comprising the entire system of people and organizations, knowledge, processes, and devices that go into creating and operating technological artefacts, as well as the artefacts themselves* (Pearson & Young, 2002, p. 3).

This higher order of making goes beyond the satisfaction of our needs for survival to layers of aspirations that become inextricably linked to our ability to continually make newer technologies, thereby paving way for newer aspirations and their consequences. Referring to Huxley's novel *a Brave New World*, in which humans are portrayed as an integrated part of machinery, Feenberg writes, "*Once unleashed technology becomes more and more imperialistic, taking over one domain of social life after another*" (Feenberg, 2006, p. 12). In these terms, our making process is subverted by the seduction we feel for this ever-changing raw material and inevitably leads to a determinist account of technology.

By defining users as makers, we can highlight the incomplete and embryonic nature of the design process and the limitations it exerts on the ways technologies are enacted through practice. For Krippendorff, the idea of the user is a myth that "blinds against unintended uses and users" (2006, p. 64) and neglects the fact that users:

*... tend to be not only well-informed but also creative in their own terms; and far from the predictable and simple minded caricature that the concept of THE user makes them out to be* (Krippendorff, 2006, p. 65).

To take this one step further, even the concept of 'a' user remains an oversimplification, since even a detailed description of an intended user and his/her practice can't determine in-practice relations before they become realised in context. However, this isn't to say that design approaches that actively seek to include the 'user' (such as participatory design) aren't able to constructively inform design outcomes. This can be seen, for example, by replacing product-centric views with more inclusive perspectives that acknowledge human involvement. From a design process perspective, redefining users as makers accords not only with notions of co-creation but extends co-creation into the post-design period, which, in turn, establishes successful procedures and practices to provide feedback and inform successive cycles of design activity.

## An attitude of making

Finally, it could be argued that the pervasive use of the term user within design discourses negates the influence of technologies upon “non-users” (Wyatt, 2003) and compounds normative ideas of use. Therefore, we could call for a revision of the term user. Such a revision would need to account for “*much more complex relations between designers, technologies, and the ultimate uses of technologies in variable social and cultural situations*” (Ihde, 2006, p. 124). The thesis presented here is that a discourse of making presents the idea of the user as troublesome by calling forward an active and transformative engagement that goes beyond the routine, the automatic, and the unresponsive.

Even though our technological engagements may not directly ‘make’ anything new (in the sense of a material substance or artefact), they are employed to mediate the making of things and effects. The spirit of making allows a view of these effects through the learning that accompanies bodily actions and skills. It presents our human attitude and reinforces the idea that we are not simply cogs in a machine. In the above example, my willingness to accept the digital stylus’ poorer performance as an inevitable consequence of its use may have resulted in my viewing it as a bad purchase; something I tried once and then relegated to the back of the drawer. An attitude of making demands a questioning of the current state of affairs. It recalls invention and a cunning or canniness to reveal what is absent in the material makeup. It requires curiosity, a rejection of the authority of industrial production and a willingness to approach things in different ways; ways that take us away from the consumer and towards more archaic occupations such as the artisan, the craftsman, the inventor and the mender.

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## Dansk abstract

### Skabere, ikke brugere: Materialitetens tildannelse af teknologi gennem anvendelse

Selvom det er naturligt for os mennesker at skabe ting i vores omverden, omtaler vi ofte os selv som 'brugere' i forhold til vores samspil med teknologier. Med begrebet 'bruger' antyder vi, at teknologier er fuldendte artefakter, og at vores rolle som 'bruger' er begrænset til at lære at bruge en given genstand, som designeren havde tænkt det. Denne simplificerede opfattelse forhindrer enhver forståelse af, hvordan relationen mellem menneske og teknologi er uløseligt forbundet med momenter af materiel interaktion, og siger derudover meget lidt om det kreative aspekt ved sådanne interaktioner, som er nødvendigt for, at en teknologi kan bidrage succesfuldt til menneskets praksisser.

For bedre at kunne forstå hvordan vi tilgår teknologier som foranderlige og materielle objekter, vil jeg bl.a. kigge nærmere på adskillelsen mellem anvendelse og design kombineret med en måske aftagende forståelse af fremstillingsprocessen. Ved at fokusere på de transformative handlinger i vores hverdagsliv skabes der en åbenhed over for idéen om produktion og skabelse, som ikke findes inden for begrebet 'anvendelse'.

At betragte brugere af teknologi som værende i lige så høj grad skabere af teknologi ophæver adskillelsen mellem design og anvendelse og muliggør et analytisk ståsted, som åbner for direkte engagement og transformation. Her er Gibsons begreb *affordance* (1979) helt centralt, idet det beskriver den gensidige relationalitet mellem menneske og teknologi, som udgør grundlaget for perception og handling. Ved at betragte *affordances* (de handlingspotentialer, som en genstand giver den sansende) som noget, der skabes, snarere end som noget, der er defineret af genstandens tiltænkte anvendelse, afsløres disse handlinger som noget, der ikke forudbestemmes i designprocessen, men som noget, der forstyrrer, er foranderligt, flygtigt, impulsivt, uartikuleret, og som formes i situeret praksis. På den måde bliver det klart, at brugere aktivt omkonfigurerer teknologier, efterhånden som de bliver en integreret del af praksis, og det bliver tydeligt, i hvor høj grad denne skabelsesproces er en udforskning, ikke af færdige artefakter, men af muligheden for interaktion med materialiteten.

*Nøgleord:* skabere, genstande, artefakter, brugere, materialitet, teknologi, engagement, affordans

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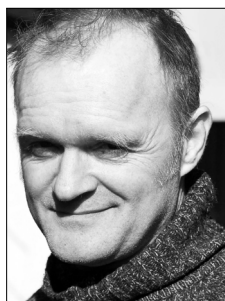
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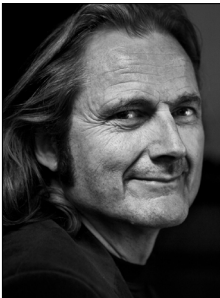
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