

Persuade Into What? Why Human-Computer Interaction Needs a Philosophy of Technology

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Abstract. Persuasive interfaces in a class of interfaces belonging to a trend in contemporary HCI where user experiences matter more than for instance user performance. In this paper, we argue that in this shift there is also a shift in accountability, but that this shift tends to remain implicit in HCI. What makes a good user experience? To deal with these issues, we argue that HCI needs to develop a philosophy of technology. Two candidate accounts of contemporary philosophies of technology are introduced and discussed. First, Don Ihde develops a phenomenology of relations between human users, artifacts, and the world and technologies are seen as inherently non-neutral. Second, Albert Borgmann argues that we need to be cautious and rethink both the relationship as well as the often assumed correspondence between what we consider as useful and what we think of as good in terms of technology.

Keywords: Philosophy of technology, HCI, social implications, culture.

1 Introduction

In traditional Human-Computer Interaction (HCI) a common methodological practice, adopted primarily from the cognitive sciences, has been to perform various kinds of lab-based quantitative experiments to gain empirical insight into some aspects of a particular design's usability, typically in comparison with a different design. This practice continues a long tradition in HCI of empiricism, objectivism, and cognitivism. While few would probably argue against the value of improving the usability of interactive systems, a number of conceptual frameworks and associated methodological approaches have recently been proposed as post-cognitivist alternative approaches to HCI that would be aimed towards and better suited for capturing various aspects of interactive experiences. These include ethnography and ethnomethodology [15, 3], phenomenology [3, 16], distributed cognition [6], and activity theory [13]. A recent trend in HCI is also to seek inspiration in design methods, theory, and practice [4, 10, 5] rather than in formal methods of evaluation. These researchers tend to be interested in the relationship between user and artifact in terms of for instance that relationship's *affective qualities* rather than efficiency; *meaning* rather than various performance metrics; *fun* and *playability* rather than error rate; and *sociability* rather than learnability, and so on.

1.1 From Usability to User Experience

Traditional HCI typically relies on the ‘five E’s’ of usability, i.e. that designs should be effective, efficient, engaging, error tolerant, and easy to learn. Among other things, this means that when only usability is concerned, i.e. within the *usability paradigm*, it is quite easy to say whether or not something is ‘a good design’, as it can be measured, analyzed, debated, and assessed according to a whole battery of methods, practices, and techniques that has been developed within the paradigm. With the shift to issues like user experience, affective qualities, playability, and sociability however also comes a shift in *guarantor* and *accountability*—a shift in ‘good’. What makes a good user experience? When is a user experience successful or a failure?

We argue that these issues have the possibility to open up and make explicit a dimension of HCI design which has so far been largely deemphasized. This is the dimension of the nature of the technologies that HCI develop and the human, social, cultural, ethical, and political implications of those technologies—it is a *philosophy of technology* for Human-Computer Interaction. This is obviously of particular concern when it comes to persuasive interfaces. Persuasive interfaces opens up a lot of such social, ethical, and political dimensions: if a web site can persuade you to become an instant buyer, is it ethical for a HCI designer to develop such a web site for anyone? If your mobile phone can motivate you to exercise more, will that increase anorexia among young girls? If instant feedback on gasoline use will change how people drive so they use less gasoline, will that come to slow down the development of electrical and hydrogen-powered cars? If online rating systems inspire people to behave better online, what do we really mean by *better*? What is a good persuasive interface? One that persuades one *more* or one that persuades one into something *good*? Who is to decide?

If interactive systems are knowingly designed to change human attitudes and behaviors, we would also need a philosophy of technology that provides us the means for revealing, analyzing, and discussing the human, social, cultural, ethical, and political implications of these changes—that helps us understand ‘the new good’. In this paper, we have first introduced the idea of a philosophy of technology for HCI. Next, we will provide two examples of some prominent contemporary thinking in the area, and conclude by discussing these accounts in the context of HCI and persuasive interfaces.

2 Philosophy of Technology

The *philosophy of technology* is the field of philosophy dedicated to studying the nature of technology and its implications. What separates a philosophy of technology from other kinds of philosophies is often debatable, but Ihde argues that “to qualify as a philosophy of technology ... the philosopher must make technology a foreground phenomenon and be able to reflectively analyze it in such a way as to illuminate features of the *phenomenon of technology itself*” [9, p. 38]. Understanding the importance of technology in our lives, and thinking about it philosophically, has however a very long history and tradition within Western thinking, dating at least back to the Greeks. Whereas many philosophers before them take great interest in

technology, it is not until the 20th century—with John Dewey and Martin Heidegger—that it makes sense to talk about any real philosophies of technology. Both regard technology as central to modern life, where Dewey holds a largely optimistic outlook towards modern technologies, while Heidegger comes to develop a more dystopian view.

This basic utopian/dystopian divide is still visible within the field of philosophy of technology. In *Thinking through Technology* [12], Carl Mitcham distinguishes the engineering strand in philosophy of technology, which seems to assume the centrality of technology in human life, but also the humanities approach, which is more concerned with technology's moral and cultural boundaries. This dichotomy is however becoming increasingly questioned and refined by some of the major contemporary philosophers of technology, including Albert Borgmann, Andrew Feenberg, Donna Haraway, Larry Hickman, Don Ihde, and Carl Mitcham.

In the following sections, we will introduce and discuss two contemporary philosophies of technology that could be said to belong to each of these two strands. First, we will look at Don Ihde's view on the non-neutrality of technology, and second on Albert Borgmann's device paradigm. They appear interesting in the context of HCI for a number of reasons. First, they are contemporary in that they deal with and consider the technologies of today, the technologies that surround us and with which we live. Second, while being contemporary there are still apparent connections and legacies between their thinking and that of Heidegger and Dewey. Third, while they are two very different kinds of philosophies of technology—showing the breadth of the field—there are still a number of common denominators that render the two philosophies complementary to each other rather than excluding.

2.1 Ihde's Non-neutral Technology

In *Technics and Praxis* [7], Don Ihde brings to light the way science is related to technology as well as praxis. Focusing on optical technologies, he shows how the early use of telescopes and microscopes helped reveal worlds which until then had been inaccessible. The optical magnification did not simply provide scientists with access to previously unknown territories; it irreversibly oriented scientific inquiry towards the macro and micro worlds that these technologies exposed. This, according to Ihde, transformed not only what was seen but also the scale of what was seen, i.e. how it was seen in relation to technologically un-aided vision. From his analysis, Ihde proposes a magnification/reduction transformation to be a structural feature: "For every enhancement of some feature, perhaps never before seen, there is also a reduction of other features. To magnify some observed object, optically, is to bring it forth from a background into a foreground and make it present to the observer, but it is also to reduce the former field in which it fit, and—due to foreshortening—to reduce visual depth and background" [9, p. 111].

He argues that this kind of transformation is a structural element that belongs to all kinds of technologies, not only optical, and what is more: that the transformation is non-neutral. In his perhaps most influential work, *Technology and the Lifeworld: From Garden to Earth* [8], Ihde takes this argument further by arguing that even seemingly unobtrusive and ubiquitous technology, such as eyeglasses, have this non-neutral mediating character. Ihde argues that even though the changes brought by

wearing eyeglasses—i.e. to transform what appear as blurry objects into clear and distinct ones—are typically appreciated by their user, the change does not come without a price. First, the user needs to care for the mediating technology itself. Although most people would consider this as a small price to pay for what is gained, it is for instance possible that wearing eyeglasses may come to affect how people behave in certain situations. Eyeglass-wearing children, for instance, may choose not to enter into certain kinds of play in order not to be in danger of breaking their glasses. Second, Ihde suggests that by using eyeglasses, the world comes to one as enframed. By the back glares that occur and the dust and water spots that appear on the glasses, their user develops a fringe awareness that the world as it appears through the eyeglasses is intruded upon, mediated by a technological in-between: “for every revealing transformation there is a simultaneously concealing transformation of the world, which is given through a technological mediation. Technologies transform experience, however subtly, and that is one root of their non-neutrality” [8, p. 49].

While all technologies are non-neutral, according to Ihde, optical technologies—such as eyeglasses, telescopes, and microscopes—seem to belong to a group of technologies which enhance (and by their non-neutrality also transform) our perceptual, experiential, and bodily experiences of the world. Other kinds of technologies, such as speedometers, clocks, and the buttons on a telephone, seem not to have this enhancing or amplifying character. They do not in the same way seem to directly enhance their user’s perception, but rather hold another mode of reference to observed objects; one which relies on different kinds of interpretation. If looking through a telescope is a matter of sensory perception—amplified ‘seeing’ in some sense—using speedometers and clocks may be better thought of as a matter of ‘reading’. A world object is still being referred to—i.e. in the case of the speedometer the referred-to object is typically the speed of the vehicle—but the way it is referred to is not perceptual but rather translated into some form of hermeneutic representation. According to Ihde, this kind of technology is also non-neutral. First, the translation that must occur between the signifier and the signified abstracts and hence reduces the referred-to object, where for instance the experiential concept of speed becomes reduced to a number of miles per hour. Second, the speedometer requires that the user has previously acquired the skill to interpret—i.e. read—the instrument, in order for it to be meaningful. Hence, the speedometer is highly dependent on the context in which it is designed and used; it is a culturally embedded piece of technology whose meaning is constructed.

2.1.1 Human–Technology Relations as Analytical Units

Ihde argues that technologies “insofar as they are artifactual (in a range from simple entities to whole complexes of systems), are developed, used, and related to by humans in distinct ways” [8, p. 26]. By giving prominence to the relations between technology, world, and human beings, he is able to distinguish between such issues as technologies and techniques. Ihde, who has “repeatedly insisted that the materiality of technologies be maintained” [8, p. 26], holds that if one absorbs techniques—as certain ways of practice and thought—into technology that tends to yield technology as an overly general and abstract term. If in such a way everything is thought of as technology, we become increasingly prone to make metaphysical claims [8]. Techniques may hence come with or without technology, but a technique is not in itself a technology—while techniques may still be closely related to technology.

By revealing the relations between technology and people, it also becomes possible to overcome the often suggested and presumed neutrality of technologies, where technology is seen simply as chunks of isolated, dead matter. While a gun, as an example, does nothing on its own the picture changes when the world is approached from a perspective in which the human-technology relation is the primitive unit of analysis: “[it] becomes immediately obvious that the relation of human–gun (a human with a gun) to another object or another human is very different from the human without a gun. The human–gun relation transforms the situation from any similar situation of a human without a gun” [8, p. 27].

A third advantage of giving prominence to human–technology relations has to do with the possibility of preserving in one’s analysis the dynamic and actional nature of that relationship. Even though technologies are artificial, it is nevertheless important to realize that they are part of human praxis; used, designed, developed, repaired, discarded, and so on. As Ihde notes, connecting to the thinking of Heidegger and Merleau-Ponty, “humans are what they are in terms of the human–world relation, but this relation in existence is actional” [8, p. 27]. Studying technology by drawing on human–technology relations means that one does not have to abandon the world in favor of just studying the artificial.

2.1.2 A Phenomenology of Human–Technology Relations

What possible human-technology relations are there to be found? Although not perceived as exclusive poles but rather as items along a continuum, Ihde makes a distinction between three basic kinds of relations between humans, technology, and world, namely between the embodiment relation, the hermeneutical relation, and the alterity relation [8]. First, in the discussion on the non-neutral and mediating role of optical technologies it is noticeable that eyeglasses for instance allow their users to embody their praxis through the technology, which is a relationship that Ihde thinks of as fundamentally existential. This is to say that the wearer embodies her eyeglasses in the sense that the technology in question gets in between the wearer and her world, and that she sees the world through the optical lenses of the eyeglasses: i.e. wearer–eyeglasses–world.

The embodiment relation is however not a collective name for all kinds of technologies appearing in between the user and the world. For a technology to hold an embodiment relation it must also be technically transparent—its material or physical characteristic must be such that it allows ‘seeing through’. For eyeglasses, this would imply that if the actual glass is not transparent enough, they become impossible to embody from a technical perspective. But the embodying of technology is also dependent on the human being, since it is something that has to be acquired or constituted. For someone not familiar with eyeglasses, there is typically a short period of time in which one notices their weight, possibly experiences some eyestrain, finds the back glares annoying, and perhaps one even has to make some small adjustments in spatial motility. But once the skill of wearing eyeglasses, both in terms of carrying them physically and seeing through them, has been acquired they may become almost fully transparent, or as Ihde suggests: “taken into my own perceptual-bodily self experience” [8, p. 73]. They then become part of the way in which the world is ordinarily experienced; they withdraw into an embodied relation with their user.

The embodiment relation is not limited to optical technology, it may occur for any sensory dimension; for instance in tactile motility, through Merleau-Ponty's [11] examples of the blind man's cane and the woman's feathered hat, but also through hearing aids and the like. Neither is the embodiment relation set aside for or specific to simple or complex technologies, nor is it a matter of whether these are mono- or multisensory. Ihde argues that for example the pleasure and whole body involvement in driving owes to the user experiencing an embodiment relation: "One experiences the road and the surroundings through the driving of the car, and motion is the focal activity. In a finely engineered sports car, for example, one has a more precise feeling of the road and of the traction upon it than in the older, softer-riding, large cars of the fifties. One embodies the car, too, in such activities as parallel parking: when well embodied, one feels rather than sees the distance between car and curb—one's bodily sense is 'extended' to the parameters of the driver-car body" [8, p. 74]. According to Ihde, the embodiment relation between a human user, technology, and the world can be formalized as: (*Human—Technology*)—>*World*.

Second, speedometers and clocks have earlier been proposed as two technologies requiring interpretation. However, at one level these technologies hold a similar relation to their users as do for instance telescope and eyeglasses: the speedometer also appears in between a human user and the world: i.e. driver—speedometer—world. What is different between the mediating role of eyeglasses and that of a speedometer is that in the latter case, the user's perceptual focus is not on the world but on the technological instrument itself. Perceiving the speedometer is in this sense something one does instead of perceiving the world, as one cannot see the world in the same sense through the speedometer as one sees the world through one's eyeglasses. The seeing of the world that takes place in the first case must be understood as interpretive rather than experiential. The speedometer does not enhance any of its user's innate capabilities or senses in the way technologies do which hold embodied relations to their users; it does not become transparent but rather is itself the object of focus whereas the world tends to withdraw. The speed of the car is in this way something that has to be 'read' out of the appearance of the speedometer, hermeneutically interpreted, and not something that is experienced through it. Although the driver may experientially 'feel' speed simultaneously, for instance through vibrations, sounds, and wind, the speedometer itself does not mediate this. It is rather an abstraction and a reduction of speed into a number on an agreed upon scale.

In the case of technology which shows an hermeneutical relation to its user, the actual perceptual experience is however of less importance, as it operates primarily as a kind of text (for instance, "-10° C") that hermeneutically delivers its world reference (i.e. various levels of coldness, depending on whether one's system is Fahrenheit or Celsius) to the user by means of the user reading the text and understanding its implication. The hermeneutical relationship is hence referential, in that it places the user's immediate perceptual focus on the technology in between the user and the world. In some circumstances, the user might not be able easily to experience the object of reference experientially at all—such is the case when checking the temperature of some distant city on the Web or when an operator is monitoring the temperature at the core of a nuclear power plant—but is forced to be dependent on hermeneutical instruments. This dependency is hence both on one's own reading of the instrument (that one knows how to read the instrument) as well as a dependency

on the proper functioning of the instrument itself, as there is often no way of experientially confirming that the instrument is operating properly. Even in the case of the speedometer, one has to be dependent on one's knowledge of reading the instrument (a European driver, used to kilometers per hour, may find little meaning in an American speedometer displaying miles per hour), as well as dependent on the proper operation of the speedometer (if not impossible, it is at least very difficult to know whether the speedometer is operating properly or whether it slightly exaggerates or understates the speed of one's car). As noted, what characterizes the hermeneutical relationship is not that the technology is in between the user and the world—which is also the case with the embodiment relation—but rather that the immediate focus of attention is the technological instrument itself. The instrument is only transparent in a hermeneutical sense if the user has acquired the skills necessary to be able to read it. This relationship may thus, according to Ihde, be formalized as: *Human—>(Technology—World)*.

Third, Ihde makes a case for what he terms alterity relations. The difference between this human–technology relation and the two previously introduced is that it is not a mediated relation with the world or with a referenced object in the world. Rather, it is primarily a relation to or with technology. Ihde argues that this is a relation between a human being and some otherness, although an otherness generally weaker than the one we find in our relation to other people and animals. But it is on the other hand an otherness which is stronger than our usual relations to objects. The alterity relation is hence, according to Ihde, a form of quasi-otherness relation to technology that in at least some limited way seems to take on a life of its own: “A widely cross-cultural example is the spinning top. Prior to being put to use, the top may appear as a top-heavy object with a certain symmetry of design ... but once ‘deistically’ animated through either stick motion or a string spring, the now spinning top appears to take on a life of its own. On its tip (or ‘foot’) the top appears to defy its top-heaviness and gravity itself. It traces unpredictable patterns along its pathway. It is an object of fascination” [8, p. 100]. Ihde also sees some aspects of the alterity relation in people's relations to computers, for instance when playing computer games or using ordinary desktop applications. Even though some of the relations involved in for instance playing a computer game could be understood along the embodiment–hermeneutical continuum, there yet seems to be a kind of otherness, a quasi-autonomy, involved in playing the game: “there is the sense of interacting with something other than me, the technological competitor. In competition there is a kind of dialogue or exchange. It is the quasi-animation, the quasi-otherness of the technology that fascinates and challenges. I must beat the machine or it will beat me” [8, p. 100–101].

The computer seems to be one of the strongest examples of a technology entering into an alterity relation. The argument is that this is not only the case for computer systems that consciously seek to place and involve the user in some kind of virtual environment—such as VR systems, MUDs, chat rooms, online computer games, etc.—but it is also something which may occur when using more traditional, tool-like applications such as word processors. When working with a word processor, the application (and the whole computer system) functions as an almost transparent tool for manipulating the document. However, in the case of a serious breakdown—for instance if a much-needed feature cannot be found or the application crashes and one loses one's work—the ongoing flow and the transparency of the tool, “the quasi-love

relationship” (Ihde, 1990, p. 106), is lost and the relationship transforms into frustration and rage which is directed towards the computer system. The relationship is now better thought of as one of “quasi-hate” [8, p. 106], it is a kind of alterity human-technology relation. A quite similar notion of on-going flow, where the user’s attention is on the content of the work being carried out, versus breakdowns, where attention becomes directed at the tool itself, is partly derived from Heidegger and has also been developed within the computer field by Winograd & Flores’s *Understanding Computers and Cognition* [16].

Obviously, the idea of autonomy or otherness of computers and robots has come to influence a number of science fiction movies, including *Robocop*, *Terminator*, *2001: A Space Odyssey*, *The Matrix*, and *I, Robot*—which are often somewhat pessimistic in their character. Dystopian outlooks like these are however not new, but in fact only continue a far-reaching strand of thinking in which any potential signs of otherness of technology is considered as negative and unwanted, supported by for instance philosophers such as Heidegger, Marcuse, and Ellul [12]. One of the interesting characteristics of the alterity relation is however that the world remains a deemphasized context or background, as the relationship is primarily a relationship to or with technology. Ihde formalizes the alterity relation as: *Human*—>*Technology*—(—*World*).

2.2 Borgmann’s Focal Things and Practices

Albert Borgmann’s philosophy of technology works with the concepts of meaning, value, and ethics in relation to technological development and use, with substantial connections to Heidegger as well as to Merleau-Ponty. At times—like Heidegger—he is seemingly dystopian when it comes to modern technology. In *Technology and the Character of Contemporary Life* [1], Albert Borgmann outlines a style of thinking in relation to technology and human life that in some respect appears very different from that of Ihde. If Ihde may be characterized as strict, practical, almost engineer-like in his approach to technology, and perhaps first and foremost by having a positive attitude towards technology and technological development in general, then Borgmann stands for a more romantic outlook, which echoes some of Heidegger’s neo-classical preferences.

Where much of contemporary technological development is focused on issues surrounding the ‘usefulness’ of different kinds of technology, for instance the usability tradition within HCI, Borgmann suggests that we need to be cautious and rethink the relationship—and the often assumed correspondence—between what we consider as *useful* and what we think of as *good* in terms of technology: “One the one hand, ambulances save lives and so are eminently useful; on the other hand, cars save us bodily exertion and the annoyances of fellow pedestrians or passengers and are thus, at least in part, a threat to the goods of community and our physical health in the form of exercise” [14, p. 21].

This junction between the useful and the good—that some technologies may be both useful and good, while some technologies that are useful for some purposes might also be harmful, less good, in a broader context—is at the heart of Borgmann’s understanding of technology. Through his concept of *focal things*, Borgmann addresses that which: “of themselves have engaged mind and body and centered our lives. Commanding presence, continuity with the world and centering power are the

signs of focal things [2, p. 119]. As a primary example of a focal thing, Borgmann draws on the hearth. In a traditional, fairly romanticized depiction of what life ‘used to be like’ in a country house, Borgmann points out that the heart for the inhabitants of this house, be it settlers, farmers, or ranchers, used to be its fireplace. It was a natural gathering point around which most activities were either centered or in some way related to. To keep the house warm, trees had to be cut down, split into wood and dried, the fire had to be built and maintained, and it was here food preparation naturally took place. In this way, the fireplace as a focal thing was inseparable from our involvement and engagement with the thing in the context in which it appeared. This context, or ‘world’, is made possible and brought into being only by the appearance of the focal thing [1]. The fireplace, as hearth, hence assembles a set of focal activities; it becomes the center of what inhabiting that house means: “Thus a stove used to furnish more than mere warmth. It was a focus, a hearth, a place that gathered the work and leisure of a family and gave the house a center. Its coldness marked the morning, and the spreading of its warmth the beginning of the day. It assigned to the different family members tasks ... It provided for the entire family a regular and bodily engagement with the rhythm of the seasons that was woven together with the threat of cold and the solace of warmth, the smell of wood smoke, the exertion of sawing and carrying, the teaching of skills, and the fidelity to daily tasks” [1, p. 42].

Focal things seem to be characterized by commanding presence. A focal thing such as the fireplace puts demands on us—to cut down trees, to chop and dry wood, and to keep the fire burning—requiring patience, endurance, skill, and some amount of resoluteness. Keeping the fire alive is also a continuous activity; it is something which connects us with our other activities and with the larger context of life, one’s community, one’s place. In this way, “a focal thing is not an isolated entity; it exists as a material center in a complicated network of human relationships and relationships to its natural and cultural setting” [14, p. 23]. Focal things also have centering powers, in which the fireplace comes to affirm the place where one lives and the direction of one’s life; the fireplace provides a centering experience, a kind of long-term, growing insight that this is the right thing to do and the right way of living [14]. Hence, a key characteristic of focal things, according to Borgmann, is that they tend to unify means and ends. Achievement and enjoyment are brought together; so are individual and community; mind and body; and body and world.

2.2.1 The Device Paradigm

Nevertheless, according to Borgmann, the understanding and appreciation of the role of focal things and practices seems to have disappeared from modern technology. It seems that the latter is rather guided by another kind of promise: “Technology ... promises to bring the forces of nature and culture under control, to liberate us from misery and toil, and to enrich our lives. [...] implied in the technological mode of taking up with the world there is a promise that this approach to reality will, by way of the domination of nature, yield liberation and enrichment” [1, p. 41].

Borgmann argues that this promise has led society to believe that the good life should be technologically mediated and supported. While Borgmann does not reject the possibility of technological good—as was the case with the fireplace—he is however highly skeptical about the conventional view that technology frees us to

attend to other, more stimulating pursuits [14]. He argues, on the contrary, that we are typically not freed up at all by technology but rather made passive—and if we are freed up it is only to have time for more technology. In this downward spiral, we become consumers, increasingly disengaged from things and from each other. Technology tends to seduce us toward a focus upon material goods, quantitative thinking, commodities, and disposability, where any kind of guidance from considering issues of the good and the excellent is left out. Borgmann envisions that a particular technology could be placed along a continuum, in which a focal thing would become placed on the one end while what he calls a device would be placed on the opposite end. Devices are hence the opposite of focal things; they are disposable, often mass-produced, discontinuous and detached from any larger context, and appealingly glamorous. Devices, in their effort of being useful, are often disengaging in their attempt to do things for us; without us having to lift a finger, requiring very little of us in terms of skill, patience, effort, and attention [14].

Borgmann's point is that modern technology, propelled by the advances in information technology, tends to operate to deconstruct things and reconstitute them into devices, which contributes to the style of modern life being short of a natural center, a hearth, because of which it is short of a larger and richer social and ecological context: "In this rising tide of technological devices, disposability supersedes commanding presence, discontinuity wins over continuity, and glamorous thrills trump centering experiences" [14, p. 24].

A key characteristic of a device is that it typically only provides what Borgmann calls a commodity, only one aspect of the original thing the device replaces. His most well-known illustration of this is the shift from wood-burning fireplaces to central heating systems. His argument is that a central heating system (a device) provides a single commodity (warmth), which in Borgmann's view is only a small part of the role and meaning of the replaced fireplace (the thing, as discussed earlier). Hence, in the switch from things to devices, the quality, context, texture, and involvement in our relationship with the thing disappear and we are left with merely a number of disengaged commodities.

A device such as the central heating system that gives us the commodity of warmth also has the character of hiding the mechanisms by which commodities get produced. While there is a strong and obvious connection between the number of wood blocks one puts in the stove, the corresponding boost in the size of the fire, after which an increase in warmth follows, the machinery that comes into operation from handling a knob on one's thermostat and the warmth produced by the central heating system is much more unclear and unfamiliar; perhaps even to such an extent that the relationship transforms into an alterity relation, where the central heating system becomes a kind of unknown 'otherness'. In this, it is obvious that the commodity of warmth as generated by the central heating system results in division between the commodity as a technological foreground and the commodity's background machinery. According to Borgmann, the resulting distance is how devices tend to split means and ends, whereas things tend to connect means and ends [14]. This implies that we can have ends without knowing, caring for, or getting in any way involved with the means. One way of interpreting this is to say that although we can have the commodity of warmth without effort, the metaphorical and literal warmth that comes from the effort itself and its social character becomes lost.

2.2.2 The Irony of Modern Technology

Borgmann uses the notion of the device paradigm to put emphasis on the ongoing transformation of things into devices and the technologization of our lives and our society that follows. This also involves what Borgmann calls the irony of technology: “The good life that devices obtain disappoints our deeper aspirations. The promise of technology, pursued limitlessly, is simultaneously alluring and disengaging” [14, p. 31].

Borgmann’s prophecy seems to be that we have become mesmerized by the promises of modern technology—“to bring the forces of nature and culture under control, to liberate us from misery and toil, and to enrich our lives” [1, p. 41]—whose devices demand less and less of our own skills, efforts, patience, and risk. But in this shift from engagement with focal things and practices to disengaged consumption of devices, his fear is that we have come to disappoint our own, deeper aspirations. Rather than the promise of technological enrichment and consumption, we have come to find ourselves disengaged, diverged, and distracted, and—ultimately—lonely.

3 Towards a Philosophy of Technology for HCI

In this paper, we have argued for why we see a need for a philosophy of technology to emerge within HCI design. HCI as a field has a strongly rooted tradition of empiricism and cognitivism, and the notion of usability is very ‘neutral’. Because of this, HCI has a tradition of being morally ignorant of its consequences. While this is common in many empirical sciences, it seems that current trends in HCI toward an increased interest in issues like user experience, affective qualities, and meaning demands HCI to become more aware in terms of its human, social, cultural, ethical, and political implications. To continue to be relevant, it is important for HCI to understand that it is also leaving the comforting moral aimlessness of traditional usability. Persuasive interfaces bring these matters to a head. Can HCI be purely ‘scientific’ in developing persuasive interfaces? Does it not matter *into what* our interfaces persuade us?

Our fear is that if HCI as a field does not start to deal with these questions—that many disciplines within the social sciences and the humanities are doing already—its perceived relevance towards users, companies, and the society may be lost, and more relevant fields of research will take over HCI’s role. In this process, the two philosophies of technology that have been introduced in this paper could be starting points for such a discussion within the field as to the role of ‘the new good’ in HCI design. Borgmann’s point that information technology tends to deconstruct things and reconstitute them into devices, making modern life even shorter of a natural center, is one such starting point for analysis and discussion. Ihde’s distinction between embodiment, hermeneutical, and alterity relations to technology is another.

To summarize this paper, we have argued that when HCI was primarily concerned with issues of usability, the question of what was a ‘good design’ could be defined clearly; the time it took to complete a task, the error rate, or the learning curve. When it comes to the new HCI however, ‘good’ is a much more complex issue that we argue can neither be neglected nor treated implicitly. To understand what makes a ‘good user experience’, HCI will need a philosophy of technology.

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