

Furthering interface design in services

Fernando Secomandi

Delft University of Technology, Delft, The Netherlands

Dirk Snelders

Eindhoven University of Technology, Eindhoven, The Netherlands

Aalto University, Helsinki, Finland

Abstract

*This paper critically discusses ideas from the book *Interface: An Approach to Design* (Bonsiepe 1999) as a springboard for thinking through the design and use of services. We introduce Bonsiepe's take on phenomenological philosophy of technology in his conception of the user interface. Next to that, we extend his interface concept to the field of services while expanding on it based on advances originating in postphenomenology. Our revision of Bonsiepe's approach to interface design allows for a better integration of practices involved in the creation of interfaces, in services and possibly other domains of design activity.*

1. Introduction

Designers have arguably been prime contributors to the impact of technology in modern societies. At a period of expanding consumer markets, industrial design emerged as a distinct making practice helping to organize the mass-fabrication of a myriad of goods that came to permeate everyday life. Moving past the initial influences of industrialisation, a growing part of contemporary life is becoming shaped by the exchange of services rather than goods. How can we understand the human experience of services? And how can we reconceptualise design in the present context?

In this paper, we look to the concept of the 'interface' as a departure point for answering the above questions. Pacenti and Sangiorgi already advanced the interface as a key concept for service design (cf. Sangiorgi 2009). Often used interchangeably with 'touchpoint,' both terms denote what is designable in services: physical products, environments, personal interactions, and more (cf. Mager 2008). In addition, service researchers from diverse backgrounds have adopted comparable concepts to describe the interaction between providers and clients when a service is delivered, such as 'front-office,' 'service encounter,' 'servuction,' and 'tangible evidence.'

Elsewhere (Secomandi & Snelders, forthcoming), we have critically reviewed the service literature and argued that the interface is the domain where new services ultimately *materialize*. Critiquing the view that services are fundamentally intangible, we posited that the service interface is always available to the embodied experiences of people. Within this view, we believe it is more important to figure out how the user experience of services might differ from their experiences with goods, and the implications of this for design.

Here, we continue our inquiry by following a path that was laid out in the past. In a seminal book, Bonsiepe (1999) proposes an interpretation of design practice as dedicated to structuring the interface between technologies and their users. Bonsiepe is in the company of others in the fields of human-computer interaction and interaction design (e.g., Winograd & Flores 1986; Ehn 1988; Dourish 2001; Fällman 2003). Departing from Heidegger's phenomenological philosophy of technology, these authors have taken situated use practices and embodied expe-

riences as the foundation for designing new interactive technologies. Bonsiepe is unique among them in extrapolating his insights beyond computer technologies, potentially to encompass services. He understood design to be a general human ability that could be exercised in several domains of professional activity.

Our purpose is to consolidate Bonsiepe's contribution in the field of services and to augment it based on advances in postphenomenological philosophy of technology (Ihde 1990). As we will show below, Bonsiepe's Heideggerian framework imposes a limited view of technology, whereby an interface is considered useful only when it is perceptually 'transparent' for people. This same conviction is held by the above mentioned authors who wrote about interaction design. Based on Ihde's perspective, however, we wish to demonstrate that this belief is inadequate and has invited Bonsiepe to consider design narrowly, ignoring relevant professional practices involved in the creation of user interfaces, especially as services are regarded.

For now, we will set these objections aside and explain Bonsiepe's approach to the interface in section 2. Next, in section 3 we introduce Ihde's postphenomenological account of technology, as well as our application of this account to describe user experience of service interfaces. In section 4, we return to Bonsiepe for a revision of his approach, in order to acknowledge more diversity in the way that services are used and designed, thus helping to promote the interface concept as central to design thinking.

2. Bonsiepe's approach to the interface

In the late eighties Bonsiepe accepted an offer to work as a designer for a software development company in the United States. This represented for him an opportunity to work in the then emerging topic of human-computer interaction. During that time, he rediscovered Heidegger's work under the influence of Hubert Dreyfus (Fathers 2003, p.51), who was a strong disseminator of the philosophy of technology and phenomenology within computer science audiences. It is likely he also came across Winograd and Flores's influential *Understanding Computers and Cognition* (1986) before, by the early nineties, forging his own phenomenological perspective to interface design. His ideas were presented in a series of essays collected in the book *Interface: An Approach to Design* (Bonsiepe 1999) [1].

Heidegger's early philosophy of technology had a decisive influence on Bonsiepe's approach. In an often cited passage, Heidegger described someone picking up a hammer to perform a certain activity, say, to drive a nail into the wall. In its ordinary use, Heidegger observed, the hammer does not draw attention to itself, but rather to what is reached through it (in this case, primarily the nail in the wall). It functions as a *tool*; it is useful, 'in-order-to', something that assigns the person to another aspect of the world. The hammer 'withdraws' in action and gains a sort of perceptual transparency for its user. It is, in Heidegger's terminology, 'ready-to-hand'. Yet, if the hammer breaks down or goes missing, the user's involvement in the activity gets disturbed. When that happens, the tool, along with its referential network (the project, the material it is made of, the nails, etc.) becomes conspicuous. The hammer now draws attention to itself, not as a useful object, but as an obstruction for the user. It becomes 'present-at-hand'.

Bonsiepe appropriated the insights above for his interface concept in the form of a tripartite 'ontological design diagram', which he describes as follows:

Firstly we have a user or social agent who wants to realize an action effectively; Secondly we have a task which the user wishes to perform, e.g., cutting bread, putting on lipstick, listening to rock music, drinking a beer or performing a root canal operation; Thirdly we have a tool or artefact which the active agent needs in order to perform this task effectively—a bread knife, a lipstick, a walkman, a beer glass, a high precision drill rotating at 20,000 rpm. (1999, p.29)

The interface, for Bonsiepe, does not rest exactly in the tool itself, but in the domain of interaction involving users, tasks and tools. This conception of the interface owes thoroughly to a Heideggerian tool analysis, based on the following observations:

First, the interface reveals how users are connected to other aspects in the world, which in the case of software mainly comprises digital data:

The digital data stored (on a hard disk or a CD-ROM) are coded in the form of 0 and 1 sequences and have to be translated into the visual domain and communicated to the user. This includes the way commands like 'search' and 'find' are fed in, as well as the design of the menu, positioning on the screen, highlighting with colour, choice of font. All these components constitute the interface, without which the data and actions would be inaccessible. (1999, p.30)

Second, the interface defines a tool only in relation to a context of action. Consider his example of the scissors:

An object only meets the criteria for being called scissors if it has two cutting edges. They are called the effective parts of the tool. But before the two cutting edges can become the artefact 'scissors' they need a handle in order to link the two active parts to the human body. Only when the handle is attached is the object a pair of scissors. (1999, p.30)

Third, tools are made ready-to-hand when located in the interface amongst users and the world:

The interface reveals the character of objects as tools and the information contained in data. It makes objects into products, it makes data into comprehensible information and—to use Heidegger's terminology—it makes ready-to-hand....as opposed to present-at-hand... (1999, p.29)

The design objective, according to Bonsiepe, is to organize the interactions of users, tasks and tools in order to enable the effective realisation of actions [2]. Before commenting on the relevance of this approach for service design, we will first elaborate on the interface concept with respect to the use of services along postphenomenological lines.

3. A postphenomenological approach to the service interface

Heidegger is considered to be a key philosopher of technology, and the insights of his tool analysis were seminal in the advancement of a new style in phenomenology propounded by Ihde, named postphenomenology [3]. In Ihde's (1979, pp.103-129) interpretation, Heidegger showed that a technology is never a mere object 'in-itself', but always conveys for humans special ways of acting within an environment and of revealing knowledge about the world. However, Ihde soon noted that in Heidegger's hammer analysis the technological artefact was left largely implicit, and was only evidenced in a negative fashion, in situations where the hammer broke or went missing (i.e., became present-at-hand). In response to this, Ihde developed a less dichotomous consideration of the ways in which technology mediates human experience of the world, one where the conspicuousness of technology was not necessarily the result of a 'breakdown'. His most extensive treatment of this topic is found in *Technology and the Lifeworld* (1990, pp.72-123), where four modes of human-technology relations are identified: embodiment, hermeneutical, alterity and background.

By applying Ihde's postphenomenological framework to services, it is possible to describe four different ways in which interfaces mediate user experiences of the world (see Table 1) [4].

Table 1. Different types of user-interface relations in services

embodiment relations	(user-interface) → world
hermeneutical relations	user → (interface-world)
alterity relations	user → interface(-world)
background relations	user → (interface-)world

In *embodiment relations* users engage the service interface by 'incorporating' through it the world beyond. For example, visually impaired people with a guide dog can experience an obstacle in their path as they are led around it by the animal. A considerable period of adaption is necessary for such embodied experiences to occur. But once obtained, the interface mediates experience of the world as a projection of the user's sensory capacities. The person holds the leash, yet the terminus of her perception is not precisely on what is held but in the obstacle experienced through the dog. Embodiment relation is the type of user-interface relation that sits most closely to Heidegger's notion of readiness-to-hand.

In *hermeneutical relations* users engage the service interface by 'reading' through it the world beyond. For example, a car driver can experience arrival at his destination by checking a GPS navigation device. The driver's vision is directed at the screen elements, but the experience is of his current location as presented by the device. In this case, the interface mediates perception of the world based on the user's capacity to interpret conventional signs (such as the map, icons, words, etc.). Again, learning is necessary for the constitution of such relations; once accomplished, users perceive the world for what the interface signifies.

In *alterity relations* users engage the service interface by 'interacting' with it, while the world falls to a background position. We can imagine this kind of relation developing between a beginning skier who observes his instructor going down a challenging slope. The skier is fascinated by the instructor's skilful display and immediately mimics his behaviour, never mind the steepness of the slope, the instructor's oral advice or the necessary bodily skills. The interface dominates the core of perception for the user while the world falls to field position. But however totalizing the experience of the instructor may be for the beginner, some aspect of the world is reached and transformed through it: the slope is not threatening anymore. Needless to say, this is the kind of relation most clearly opposed to Heidegger's readiness-to-hand. In alterity relations, the interface may be objectively present in a positive, useful sense.

Finally, in *background relations* users engage the service interface by 'absenting' it, while the world arises in a foreground position. A person dining in a restaurant might get so absorbed into talking to a close friend to barely notice the atmosphere created by music, furnishings, lighting and the murmurs of the other clientele. The tendency is to attend to the friend directly, while the ambiance becomes less distinct to the perception of the restaurant guest. Though in this case the world gets fore-fronted to the experience of users, the interface still mediates perception from a contextual position, for instance, by subtly influencing the person's mood and sentiment towards the friend.

As a final remark, each of the user-interface relations described above is not necessarily rigid and static. The visually impaired woman can enter an alterity relation with her guide dog as an animal companion; the restaurant guest can switch attention to the wall decoration and observe, hermeneutically, that it conveys a Mexican ambiance; and so forth. Shifts away from embodiment relations are not always a sign of malfunction, as a Heideggerian might believe, but also indicate the great expanse of users' experiential possibilities.

4. Interface design in services

In the introduction we presented two lines of inquiry for this paper. We have thus far mainly addressed the first by providing a framework for understanding the human experience of service interfaces. This leaves us with the second issue: How to think about the design of service interfaces? We must return to Bonsiepe, who, amongst the authors considered in this essay, has pressed in the most generalised form for an interpretation of design based on phenomenology. His thoughts on typography design are exemplary of this:

A typographer designing a book lay-out not only makes the text visible and legible, the interface work also makes it interpretable. Competency in handling visual distinctions like size and type of font, negative space, positive space, contrasts, orientation, colour and separation into semantic units makes the text penetrable to the reader. Typographic design is the interface to the text. (1999, p.59)

In another passage, he concludes boldly:

If language makes reality recognizable, typography in turn makes language visible as text, and is therefore a constituent part of understanding. It could be objected that the production of texts is the primary function. But the hierarchy is less important than the interrelation of two areas that are united under the arch of interpretation and understanding. (1999, p.52)

Seen against the backdrop of Heidegger's insights, Bonsiepe is arguing that the creation of interfaces by designers contributes to giving shape to how people experience reality. For him, this skill is not restricted to the traditional design professions but is extendible, not without some observations, to other domains of human activity. He writes:

There is a risk of falling into the trap of vague generalizations like 'everything is design'. Not everything is design, and not everyone is a designer....Every one *can become* a designer in his special field, but the field that is the object of design activity always has to be identified. An entrepreneur or a manager organizing a company in a new way is designing, though he probably does not realize this....Design is a basic activity whose capillary ramifications penetrate every human activity. No occupation or profession can claim a monopoly on it. (1999, pp.34-35)

Combined, the quotations above are timely remarks considering the hasty popularisation of 'design thinking' in managerial circles today. By stressing its relevance outside the realm of habitual practices, design thinking easily becomes a primarily cognitive operation that can serve as panacea for all sorts of business-related issues. Bonsiepe reminds us of the importance of grounding design thinking on the material actions of skilful practitioners.

We turn now to our critique of Bonsiepe's approach to design. As stated above, interfaces for him should be designed to enable the effective realisation of actions: handles are to move the scissors' cutting blades (1999, p.30); computer screen commands, to allow easy data navigation (1999, p.53); typography, to support the comprehension of texts (1999, p.52); etc. But the way interfaces facilitate action is somewhat peculiar; staying truthful to his Heideggerian background, interface experiences lead to a 'withdrawal' of the tool for users. This may be observed in his account on the design of an informational CD-ROM:

It is easy to formulate the function of the interface: it should permit the user to obtain an overview of the contents; navigate the data space without losing his way; and pursue his interests....Infodesign gives little opportunity to follow narcissistic inclinations. Moreover, one may assume that the public is not particularly interested in such

manifestations of the ego...It's like looking through a pair of glasses. You don't need to see the glasses—they are the tool for seeing. (1999, p.53)

In one blow, we are invited to look suspiciously to every other design practice whose products are primarily meant to stand out (fashion and jewellery design might be examples). More importantly, this approach to interface design seems inadequate even for the practices Bonsiepe selected for a closer analysis. Strictly speaking, we should interpret as 'design activity' the work of an infodesigner who organizes typographic elements on-screen (to facilitate reading), but at the same time overlook her careful placement of an advertisement banner amongst those elements (possibly, to the sacrifice of legibility). After all, it can hardly be sustained that the banner is 'transparent' for users when enabling the action of clicking on it.

To be true, Bonsiepe evades a restraining interpretation of interface design when he calls for a broader understanding of effective action:

To assess an action as effective, the implicit standards always need to be identified. To an anthropologist a lipstick is an object for the production of a temporary tattoo, which is applied as part of a pattern of social behaviour that we call seduction and self-representation. The criteria by which its effectiveness is judged are very different from those that would be applied to a text editor, a concert poster or a bulldozer used in road construction. There is no point in talking about effectiveness without also stating the scale of values by which a product is judged as effective for a certain action. (1999, pp.35-36)

However, different values for judging action are not considered by Bonsiepe in his detailed cases, and therefore those interface experiences where tools are more objectively present for users can be easily ignored.

What prevents Bonsiepe from recognizing other approaches to design could be a Heideggerian belief that technology must withdraw from the experience of people to be truly useful. And it is precisely on this point that his views on interface design can benefit from our postphenomenological amendment. In the previous section, we described in more nuanced ways how service interfaces mediate user experiences of the world. Based on that, we are able to acknowledge a wider range of practitioners who may be considered service 'designers', even though the interface they help to create is sometimes less 'transparent' to users: the trainer of dogs behaving as guides for the visually impaired; the software programmer who compiles the codes actualizing the car's position on the GPS device's screen; the ski coach who perfects the display of his skills for instructing beginners; and the operations manager who optimizes the restaurant's resources to prevent overcrowding.

To conclude, by placing the interface concept at the centre of his theory and practice, Bonsiepe has presented a phenomenological interpretation of design which still has much to offer. Our intent has been to further advance this position in the field of services, while reflecting over contributions from postphenomenological thought. We believe these are important steps in making the interface a central concept in design thinking research. In addition, we need to investigate carefully the actual making practices of people involved in interface design in a world highly saturated by the exchange of services. Eventually, this will call for the integration of perspectives from professions with very long traditions, which have remained poorly represented in the extant design discourse. At least as service design is concerned, we might be able to learn as much—if not more—from the hairstylist as from the cabinet maker.

Acknowledgements

The authors gratefully thank Peter-Paul Verbeek and two anonymous reviewers for their comments on an earlier version of this paper.

Notes

1. Other editions of this book were published in Italian (1995), German (1996), Portuguese (1997) and Korean (2003).
2. This statement is actually part of a broader attempt by Bonsiepe to dissolve a wearied form vs. function debate. The particularities of his arguments are not of central interest here, but can be found on pp.132-137.
3. For a succinct introduction to postphenomenology, read Ihde (2009).
4. While Ihde presented embodiment and hermeneutical relations as unambiguous cases of humans experiencing the world “through” technologies, he also described alterity relations as those humans had “to” or “with” technologies and background relations as occasions where technologies were left “to the side”. Many postphenomenological researchers, e.g., Verbeek (2005), concluded that only the embodiment and hermeneutical relations were relations of technological mediation. To be sure, in his book Ihde highlighted the non-neutral impact of technologies in human experience also for the alterity and background relations. He furthermore stated: ‘Within all the types of relations, technology remains artifactual, but it is also its very artifactual formation which allows the transformations affecting the earth and ourselves’ (1990, p.108). In our interpretation it is precisely this artefactual quality of the service interface that evidences how mediation operates in all types of user-interface relations we describe.

References

Bonsiepe, G. 1999, **Interface: An Approach to Design**, Maastricht, Jan van Eyck Akademie.

Dourish, P. 2001, **Where the Action Is: The Foundations of Embodied Interaction**, Cambridge, MIT Press.

Ehn, P. 1988, **Work-oriented Design of Computer Artifacts**, Stockholm, Arbetslivscentrum.

Fällman, D. 2003, **In Romance with the Materials of Mobile Interaction: A Phenomenological Approach to the Design of Mobile Information Technology**, Doctoral Thesis, Umea University, Sweden, Larsson & Co:s Tryckeri.

Fathers, J. 2003, Peripheral Vision: An Interview with Gui Bonsiepe Charting a Lifetime of Commitment to Design Empowerment, **Design Issues**, 19(4), pp. 44-56.

Ihde, D. 2009, **Postphenomenology and Technoscience: The Peking University Lectures**, Albany, State University of New York Press.

Ihde, D. 1979, **Technics and Praxis**, Dordrecht, Reidel.

Ihde, D. 1990, **Technology and the Lifeworld: From Garden to Earth**, Bloomington, Indiana University Press.

Mager, B. 2008, Service Design, in M. Erlhoff & T. Marshall, (eds) **Design Dictionary: Perspectives on Design Terminology**, Basel, Birkhäuser, pp. 354-357.

Sangiorgi, D. 2009, Building Up a Framework for Service Design Research, in **8th European Academy of Design International Conference**, Aberdeen, pp. 415-420, available at: <http://ead09.org.uk/papers/037.pdf> [Accessed August 5, 2010].

Secomandi, F. & Snelders, D., The Object of Service Design, **Design Issues**, forthcoming.

Verbeek, P. 2005, **What Things Do: Philosophical Reflections on Technology, Agency, and Design**, University Park, PA, The Pennsylvania State University Press.

Winograd, T. & Flores, F. 1986, **Understanding Computers and Cognition: A New Foundation for Design**, Norwood, Ablex Publishing Company.