Interface Design in Services: A Postphenomenological Approach

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1   This article explores the widespread belief among service design researchers that the "interface" (i.e., the domain of interaction between service providers and clients) constitutes an object of design activity in services. See, e.g., Birgit Mager, *Service Design: A Review* (Cologne: Köln International School of Design, 2004), 53-56; Elena Pacenti, "Design dei servizi," in *Design multiverso: Appunti di fenomenologia del design,* ed. Paola Bertola and Ezio Manzini (Milano: Edizioni POLI.design, 2004), 151-64; Daniela Sangiorgi, "Building Up a Framework for Service Design Research" (presented at the 8th European Academy of Design International Conference, Aberdeen, 2009), 415–20, http://ead09.rgu.ac.uk/Papers/037.pdf (accessed April 4, 2012); and Fernando Secomandi and Dirk Snelders, "The Object of Service Design," *Design Issues* 27, no. 3 (2011): 20-34.

2   Gui Bonsiepe, *Interface: An Approach to Design* (Maastricht: Jan van Eyck Akademie, 1999).

3   See, Terry Winograd and Fernando Flores, *Understanding Computers and Cognition: A New Foundation for Design* (Norwood: Ablex Publishing Company, 1986); Pelle Ehn, *Work-Oriented Design of Computer Artifacts* (Stockholm: Arbetslivscentrum, 1988); Paul Dourish, *Where the Action Is: The Foundations of Embodied Interaction* (Cambridge: MIT Press, 2001); Daniel Fällman, "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, 2003).

4   Don Ihde, *Technology and the Lifeworld: From Garden to Earth,* The Indiana Series in the Philosophy of Technology (Bloomington: Indiana University Press, 1990).

Introduction

Design has been a primary influence on the effect of technology in modern societies. During a period of expanding consumer markets, industrial design emerged as a distinct creative practice, organizing the mass-fabrication of a myriad of goods that have come to permeate everyday life. As we have moved past the initial influences of industrialization, however, people are finding themselves increasingly involved in the exchange of services rather than goods. How can we understand human experiences with services? And how can service design be approached?

In this paper, we look into the idea of the *interface* as a departure point for answering these two questions.[1] Our line of inquiry follows a path already delineated in the past. In his important book, Gui Bonsiepe interprets design as a practice devoted to the creation of user interfaces, by which he means the link between people, technologies, and actions.[2] Bonsiepe is in the company of others in the field of human–computer interaction who drew substantially from Heidegger's phenomenological philosophy when they took the situated actions and embodied experiences of users as foundational for the design of interactive devices.[3] Bonsiepe is perhaps unique among these researchers in extrapolating his ideas to areas beyond that of digital technologies, including book typography and product design.

Our purpose is to extend Bonsiepe's approach to interface design to the field of services, while drawing from recent refinements of Heidegger's account of human–technology relations. In the next section, we introduce Bonsiepe's conception of the user interface and his general approach to interface design. From there, we draw on Ihde's postphenomenological philosophy of technology for proposing an expanded notion of the user interface, with a particular application to service situations.[4] We then propose a comprehensive approach to the design of service interfaces, noting that Bonsiepe's take on Heidegger imposes a limited view of interface design, whereby an interface should always be experientially "transparent" for people. In response to this limitation, we argue that a postphenomenological perspective on the service interface

offers a more nuanced way of thinking about how interfaces can be designed for use. In the final section, we conclude by presenting the interface as fruitful ground for reflecting on contemporary design practices *vis-à-vis* the other professionals who also create new services.

Bonsiepe's Approach to Interface Design

Bonsiepe is usually remembered in design circles for his life-long dedication to the topic of design for development.[5] However, in the late 1980s, his interests branched into the then-emerging topic of human-computer interaction.[6] While he was working as a designer for a software development company in the United States, Bonsiepe rediscovered the work of Heidegger partly under the influence of Dreyfus.[7] Bonsiepe's Heideggerian approach to the interface is forged in a series of articles collected in the book, *Interface: An Approach to Design*.[8]

Bonsiepe's conception of the interface in the book cited reveals a marked influence from Heidegger's early philosophy of technology. In a famous passage, Heidegger had described someone picking up a hammer to perform a certain activity—say, driving a nail into the wall. In ordinary use, Heidegger observes, 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; it is "in-order-to" assign the person to another aspect of the world. The hammer "withdraws" in action and acquires a kind of perceptual transparency for its user. It is, in Heidegger's terminology, "ready-to-hand." However, if the hammer breaks down or goes missing, the user's involvement in the activity gets disturbed. When this disturbance happens, the tool, along with its referential network (i.e., the project, the material it is made of, the nails) becomes conspicuous. Now the hammer draws attention to itself, not as a useful object, but as an obstruction for the user. It becomes "present-at-hand."[9]

Bonsiepe appropriates the phenomenological insights above into his 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 artifact 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. It must now be asked how these three heterogeneous areas—a body; a purposeful action; and artifact, or information in an act of communication—are connected. They are linked by the interface.[10]

5   See, e.g., James Fathers, "Peripheral Vision: An Interview with Gui Bonsiepe Charting a Lifetime of Commitment to Design Empowerment," *Design Issues* 19, no. 4 (2003): 44-56; Victor Margolin, "Design for Development: Towards a History," *Design Studies* 28, no. 2 (March 2007): 111-15.

6   Bonsiepe, *Interface: An Approach to Design,* 9.

7   Fathers, "Peripheral Vision," 51. It is worth noting that Dreyfus was a strong disseminator of phenomenology and the philosophy of technology to computer science audiences. His interpretation of Heidegger has influenced Winograd and Flores, who were the founders of the company Action Technologies, where Bonsiepe was employed as chief designer. See Ethel Leon, *Design brasileiro: quem fez, quem faz* (Rio de Janeiro: Viana e Mosley, 2005), 88. Winograd and Flores also co-authored a seminal critique of the design of computer technologies under the sign of Heidegger. (See Winograd and Flores, *Understanding Computers and Cognition.*) As evidenced in *Interface: An Approach to Design,* 138-40, Bonsiepe admired Winograd and Flores's book greatly, and this appreciation might have led to the influence of their views on his own approach to interface design. However, Bonsiepe's take on Heidegger does not exhaust his reflections on the relation between the interface concept and design. According to Carlsson, the word "interface" appears in Bonsiepe's texts as early as in a 1973 publication, where he states: "Certainly, it is not to the development of all industrial products that the industrial designer contributes his design capacities, but to those 'interface' product types with which the user engages in direct interaction, by manipulating or perceiving them" (our translation from Spanish). For this citation, as well as an analysis of the maturation of Bonsiepe's thoughts on this issue prior to his publications inspired by Heideggerian, see Hugo Valdivia Carlsson, "La racionalidad en la obra de Gui Bonsiepe" (Master of Advanced Studies thesis, Universidad de Barcelona, 2004), 39-43.

This conception of the interface is much inspired by Heidegger's analysis of the tool, as evidenced by the following observations. First, the interface reveals how users are connected to other aspects in the world. Bonsiepe illustrates this point through reference to the interaction between a computer user and the digital information stored on that computer:

> 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 color, choice of font. All these components constitute the interface, without which the data and actions would be inaccessible.[11]

Second, the interface defines a tool only in relation to a context of action. Consider Bonsiepe's analysis 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 artifact "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. The interface creates the tool.[12]

Third, Bonsiepe understands the interface as establishing a context within which objects and data are encountered as available for use; that is, they are "ready-to-hand:"

> 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…[13]

For Bonsiepe, the interface does not rest exactly in the tool itself, but in interactions among users, actions, and tools. The main design task is to organize these relations and thus to enable the realization of actions:

> It should be emphasized that the interface is not a material object, it is the dimension for interaction between the body, tool and purposeful action….The interface is the central domain on which the designer focuses attention. The design of the interface determines the scope for action by the user of products.[14]

8   Other editions of this book were published in Italian (1995), German (1996), Portuguese (1997), and Korean (2003).
9   This passage is based on the interpretations of Heidegger by two leading post-phenomenological philosophers of technology. See Don Ihde, *Technics and Praxis,* Boston Studies in the Philosophy of Science (Dordrecht: Reidel, 1979), 103-29; and Peter-Paul Verbeek, *What Things Do: Philosophical Reflections on Technology, Agency, and Design* (University Park, PA: The Pennsylvania State University Press, 2005), 77-80.
10 Bonsiepe, *Interface: An Approach to Design,* 28-29.
11 Ibid., 30.
12 Ibid.
13 Ibid., 29.
14 Ibid.

While Bonsiepe at first defines the interface broadly, as the "dimension of interaction," his concrete examples also hint that the tool can be a more specific basis of demarcation. In a recent publication, Bonsiepe reinforces this ambiguity, arguing that in less complex artifacts, such as a drinking glass, the interface coincides with the whole artifact itself. However, as the complexity of artifacts grows, the interface becomes a domain of its own. Therefore, where the design of a complex artifact, such as a computer, is concerned, the interface possesses a dual meaning:

> "Interface," in the restricted sense, means the design of controlling and informative elements. "Interface," in the broadest sense, means the design of an entire product to which an interface is attached.[15]

We do not further discuss the meanings of the term for Bonsiepe here but simply conclude that the materiality of the interface, as an artifact experienced by an embodied human being, features prominently in Bonsiepe's approach to design:

> It may be maintained that all design ultimately ends in the body….the task of design is to attach the artefacts to the human body.[16]

Our contention is that designed artifacts should not always be "transparent" to the embodied experience of users, as Bonsiepe believes. But before elaborating on our critique of his approach, both in relation to service design and design in general, we first develop a postphenomenological perspective to the interface, with an application to the experience of using services.

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 development of the postphenomenological philosophy of technology pioneered by Ihde.[17] In Ihde's interpretation, Heidegger showed that a technology is never a mere instrumental object "in-itself" but always conveys for humans special ways of acting within an environment and of disclosing knowledge about the world.[18] Ihde observed that in Heidegger's tool analysis, however, the technological artifact (e.g., the hammer) is left largely implicit and is only evidenced in a negative fashion, in situations where it breaks or goes missing (i.e., where it becomes present-at-hand). In response, Ihde develops a more nuanced consideration of the ways in which technology mediates human experience of the world—one where the conspicuousness of the artifact is not necessarily the result of a "breakdown." His most extensive treatment of this topic proposes four modes of human–technology relations: embodiment relations, hermeneutic relations, alterity relations, and background relations.[19]

15 *Design, Cultura e Sociedade* (São Paulo: Blucher, 2011), 175 (our translation from Portuguese).
16 Bonsiepe, *Interface: An Approach to Design,* 35.
17 For a succinct introduction to postphenomenology, read Don Ihde, Postphenomenology and Technoscience: The Peking University Lectures, SUNY Series in the Philosophy of the Social Sciences (Albany: State University of New York Press, 2009). For a more complete perspective on Ihde's praise of and rebuttal to Heidegger's philosophy of technology, consult Ihde, *Heidegger's Technologies: Postphenomenological Perspectives, Perspectives in Continental Philosophy* (New York: Fordham University Press, 2010).
18 Ihde, *Technics and Praxis,* 103-29.
19 Ihde, *Technology and the Lifeworld,* 72-123.

Ihde's followers have held varying interpretations concerning the nature and number of human–technology relations. In Verbeek's understanding, only embodiment and hermeneutic relations are relations of technological mediation or relations where the world is experienced "through" artifacts.[20] Selinger, on the other hand, dismisses background relations from the set when human intentionality is influenced by technologies.[21] One rare exception where the four modes of human–technology relations are regarded with equal importance is Riis's analysis of architectural archetypes.[22]

However, Ihde himself highlighted the non-neutral effect of all types of relations in human experience of the world, further stating that "within all types of relations, technology remains artifactual, but it is also its very artifactual formation which allows the transformations affecting the earth and ourselves."[23] Our interest lies exactly in the "artifactual" quality of the service interface. Therefore, we depart from the fourfold classification provided by Ihde, and explain the different types of user-interface relations in services as follows.

In *embodiment relations,* users "incorporate" the service interface into their embodied capacity to experience the world. According to Ihde, embodiment relations sit close to Heidegger's notion of the ready-to-hand and his example of the hammering practice.[24] Merleau-Ponty also described similar experiences, for instance, when explaining how a blind man extended his perception with a technological artifact, sensing the world through the tip of his cane.[25] In a variation of this example in a service situation, we note that a visually impaired person who rents a guide dog can enter an embodiment relation by incorporating the animal as a way of perceiving (and circumventing) obstacles in her path. A considerable period of training of both dog and user is necessary for such experiences to occur. However, once the training is received, the perceptual focus of the person holding the dog by the leash is not as much on what is held, as it is on the world that is experienced through it.

In *hermeneutic relations,* users rely on their interpretive capacities to "read" some aspect of the world through the service interface. One example of a hermeneutic relation described by Ihde is e-mail communication.[26] In contrast to embodiment relations, where technologies are almost completely assimilated into the sensory human body, in a hermeneutic relation the technology itself "becomes the *object of perception* while simultaneously referring beyond itself to what is not immediately seen."[27] Bringing Ihde's example to a service context, we observe that a user can enter a hermeneutic relation with a virtual helpdesk when contacting a service provider via e-mail. By writing complaints and reading replies, the client has the experience of talking to another human

20 Verbeek, *What Things Do,* 123-28. Verbeek later revised his position and acknowledged that background relations involve technological mediation, too. See Peter-Paul Verbeek, "Cyborg Intentionality: Rethinking the Phenomenology of Human–Technology Relations," *Phenomenology and the Cognitive Sciences* 7, no. 3 (June 2008): 389.

21 Evan Selinger, "Introduction," in *Postphenomenology: A Critical Companion to Ihde* (Albany: State University of New York Press, 2006), 5-6.

22 Søren Riis, "Dwelling In-Between Walls: The Architectural Surround," *Foundations of Science* 16, no. 2-3 (October 2010): 285-301.

23 Ihde, *Technology and the Lifeworld,* 108.

24 Ibid., 80.

25 Ibid., 40.

26 Don Ihde, *Bodies in Technology*, vol. 5, Electronic Mediations Series (Minneapolis: University of Minnesota Press, 2002), 82.

27 Ihde, *Technology and the Lifeworld,* 82.

being. This person "on the other side" of the interface is not immediately seen by the user but is instead presented through the text appearing on the computer screen.

In *alterity relations,* users engage the service interface by directly interacting with it. This kind of relation is most clearly opposed to Heidegger's readiness-to-hand. In alterity relations, technologies can be objectively present for a user in a positive sense, without requiring a situation of breakdown in use.[28] The term "alterity" alludes to situations where the technology becomes a quasi-other in relation to people.[29] Examples include cases where a technological artifact gains a sort of anthropomorphic quality during use, thus becoming "animated," as happens when playing with a spinning top,[30] or when playing with a toy robot.[31]

Alterity relations are likely to be common in the exchange of services when users have interpersonal contact with providers. One such situation is the transmission of bodily skills via demonstration. For instance, ski instructors rely on a range of methods for teaching people how to ski. Part of the teaching procedure typically involves asking students to follow the instructor down slopes of increasing difficulty, while trying to replicate the instructor's movements. In the process of trying to mimic, the student moves the instructor's bodily demonstration to the forefront of experience, almost to the point that it eclipses other aspects of the environment, such as the steepness of the slope, the required skills, and the instructor's oral advice. Here, the alterity relation that the students establish with the instructor implies a quasi-otherness, in that the relation is not directly with the non-reducible human other, but more precisely through the artifact created by the instructor's objectified behavior. But however totalizing this experience of the instructor may be for many beginning skiers, other aspects are reached and transformed through this human-to-human interface—new skills are acquired and the challenging slopes become less threatening.

Finally, in *background relations,* users experience the service interface as contextual for their actions in the world. One of Ihde's examples for this type of human–technology relation involves experiences with sheltering technologies, like homes.[32] Ihde observes that background relations also involve a withdrawal of technology, which is similar to Heidegger's readiness-to-hand, but of a different sort. He explains: "The technology is, as it were, 'to the side.' Yet as a present absence, it nevertheless becomes part of the experienced field of the inhabitant, a piece of the immediate environment."[33] In service situations, a background relation occurs when, for example, two friends go for a drink at a local bar. The friends can be so absorbed in talking to each other that they barely notice the atmosphere created by music, furnishings, lighting, and the murmurs of the other clientele. The tendency is to

28 Ibid., 98.
29 Ibid.
30 Ibid., 100.
31 Ihde, *Postphenomenology and Technoscience: The Peking University Lectures,* 43.
32 Ihde, *Technology and the Lifeworld,* 110.
33 Ibid., 109.

attend to each other directly, while the service interface with the bar is less distinct in the experience of the guests. Although in this case the service interface sits in the background of perception, it still is able to influence the conversation from this field position—for instance, by subtly altering the clients' moods and sentiments toward each other.

By choosing descriptions of interfaces that include humans, animals, tangible devices, and environments, we follow our previously made claim that services are characterized by the *heterogeneity* of their material interface.[34] Nevertheless, we recognize that the interface artifacts we describe differ significantly from the sort of technologies Ihde himself analyzes. Many user-interface relations in services involve the presence of human providers during production, which Ihde largely ignores. Still, our position is that the major structural features that Ihde identifies can be discerned in the way users experience service interfaces, even when such relations are to a large degree based on the interpersonal contact between providers and users.

To conclude, we note that from a postphenomenological standpoint, embodiment relations are not the "ideal" type of relation, around which all others gravitate. Nor is each of the user-interface relations described above rigid and static. The visually impaired user can enter an alterity relation with the guide dog as an animal companion; the bar guests can turn their attention to the wall decoration and observe, hermeneutically, that it conveys aspects of local history; and so forth. Shifts away from embodiment relations are not a sign of malfunction but instead point to the great expanse of users' experiential possibilities.

Furthering Interface Design in Services

We began this paper by introducing two lines of inquiry: how to understand the human experience with services and how to conceptualize service design. Thus far, we have mainly addressed the first by describing user experiences with service interfaces on the basis of postphenomenological accounts of human–technology relations. Now we turn to the second line of inquiry, and to do so, we must look again to Bonsiepe, who among the authors considered in this essay has pressed most acutely for a reinterpretation of design based on phenomenology. His thoughts on typography design are a good example:

> 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, color and separation into semantic units makes the text penetrable to the reader. Typographic design is the interface to the text.[35]

34   Secomandi and Snelders, "The Object of Service Design," 32.
35   Bonsiepe, *Interface: An Approach to Design,* 59.

In another passage, he concludes:

> 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.[36]

Bonsiepe contends that designers, in giving shape to interfaces, are able to influence people's understanding and experience of the world. This profound realization of the effect of design owes much to the phenomenological insights explained in this paper. Nevertheless, by developing his views in line with Heidegger, Bonsiepe ends up with an approach to interface design that is overly restrictive.

As stated, Bonsiepe's belief is that interfaces should be designed to enable the realization of effective actions: Handles are to move the scissors' cutting blades;[37] computer screen commands allow easy navigation through data;[38] typography supports the comprehension of texts.[39] In principle, his understanding of action is embracing:

> 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 behavior 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 by which a product is judged as effective for a certain action.[40]

Nevertheless, in keeping with Heidegger's conception of the ready-to-hand, Bonsiepe characterizes the ideal-use scenario as one in which enabling technologies are designed to *always* be withdrawn from the consciousness of the user. This perspective can be observed in his account of 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….It's like looking through a pair of glasses. You don't need to see the glasses—they are the tool for seeing.[41]

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36 Ibid., 52.
37 Ibid., 30.
38 Ibid., 53.
39 Ibid., 52.
40 Ibid., 35-36.
41 Ibid., 53.

From our perspective, this approach to interface design is inadequate even for the practices Bonsiepe selects for a closer inspection. Strictly speaking, we would have to interpret as "design activity" the infodesigner's arrangement of typographic elements onscreen to facilitate navigation, while we would have to overlook her careful placement of an advertising banner among those elements. In the latter case, maintaining that the banner should be "transparent" for users as they click on it to purchase something would be difficult to support.[42]

Our point is that Bonsiepe's approach to interface design is but one of several ways to enable action. Enlarging his approach to design, in general, and extending it specifically to service design requires a reevaluation of his Heideggerian belief that interfaces must be perceptually transparent to be of use to people. Precisely on this point, a postphenomenological perspective to the user interface can offer new insights.

In the previous section, we identified different forms of user interaction with services based on Ihde's account of human–technology relations. From this postphenomenological perspective, the interface need not always become transparent to be useful for people. In the particular case of services, we can refer back to two examples already provided. A designer striving to perfect the embodied relation between a guide dog and its user could well devise a new leash that improves maneuverability. Alternatively, in the case of the alterity relation identified, a designer could change the uniform of the skiing instructor to highlight his bodily demonstration. In the latter example, making the instructor's body stand out more (and thus be less "transparent") may facilitate the learning of skills by beginning students and sustain the fantasy that they will soon move as effortlessly as the instructor. We believe that this view more accurately accounts for experiences with service interfaces and is better suited for designers because it acknowledges the wider scope of options available when creating new user interfaces.

In sum, our approach acknowledges the effect of interfaces in shaping users' understanding of the world and the self, yet proposes a more nuanced framework with which designers can think about the kind of experiences they wish to make possible for people.

Rethinking Design through Services

By placing the interface concept at the center of design theory and practice, Bonsiepe has developed a phenomenological perspective to design that has much to offer. For him, design ability should not be restricted to the traditional disciplines but is extendable to other domains of human activity, although not without careful observations. He writes:

42 The narrowness of Bonsiepe's approach to the interface was similarly noted by Giovanni Anceschi in "The Domain of Interaction: Prothesis and Anaphora for the Design of the Interface [Il dominio dell'interazione: Protesi e anafore per il progetto dell'interfaccia]," in *Il Progetto Delle Interfacce: Oggetti Colloquiali e Protesi Virtuali* (Milano: Domus Academy, 1992), 19-21. In contrast to situations where the interface transparently enables action, which he sees as Bonsiepe's predilection, Anceschi argues that there are occasions in which the interface enters a "dialogue" with the user, who thus becomes the recipient of some knowledge. An extreme formulation of this alternative type of interface experience, he says, would be analogous to the oneirism created by watching cinema. Anceschi, however, does not challenge Bonsiepe's Heideggerian standpoint, as we do in this paper.

There is a risk of falling into the trap of vague generaliza-
tions 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....The inher-
ent components of design are not solely concerned with
material products, they also cover services. Design is a
basic activity whose capillary ramifications penetrate
every human activity. No occupation or profession can
claim a monopoly on it.[43]

Our application of interface design to services comes in this spirit
of fostering a penetrating interpretation of design, unambiguously
grounded on a particular object of study and a field for expertise
development. Bonsiepe has relied on the interface concept for posi-
tioning design expertise in relation to other disciplines—in partic-
ular, engineering:

The concept of interface will help to explain the difference
between engineering and design, insofar as both are design
disciplines. A designer looks at the phenomena of use with
interest that focuses on socio-cultural efficiency. Categories
in engineering do not include user functionality; they are
based on the idea of physical efficiency that is accessed
through the means of the exact sciences. Design, however,
builds the bridge between the black box of technology and
everyday practice.[44]

Although we might want to react against the technicist portrayal
of engineering, design's contribution to the social appropriation of
technology is unquestionable. However, inasmuch as the interface
concept may be helpful to consolidate the domain of design exper-
tise, it also prevents a permanent fixation of this practice. Within
the domain of services, we must point to the productive activities
of many professionals who create new user interfaces but are not
traditionally seen as designers. Indeed, we can acknowledge a
wide range of practitioners: the trainer of dogs behaving as guides
for the visually impaired, the helpdesk employee who answers cli-
ents' questions with specific advice, the ski coach who perfects the
display of his skills for beginners, and the manager who optimizes
the bar's resources to prevent overcrowding. Insofar as they con-
tribute to structuring service experiences for users, can these prac-
titioners be considered designers as well?

We conclude this essay with the suggestion that the inter-
face concept presents an opportunity to reflect on the evolving
meanings of design in a world highly saturated with the exchange
of services. The way is clear for designers to learn from the
other professionals with vast expertise in the service sectors. For
this learning to occur, we must reconsider the heritage of those

43   Bonsiepe, *Interface: An Approach to*
     Design, 34-35.
44   Ibid., 36.

who thus far have received little attention in modern design discourse. At least where service design is concerned, we might be able to learn as much from the hairdresser as we have from the cabinetmaker.

Acknowledgments