

The importance of generalized bodily habits for a future world of ubiquitous computing

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Abstract In a future world of ubiquitous computing, in which humans interact with computerized technologies even more frequently and in even more situations than today, interface design will have increased importance. One feature of interface that I argue will be especially relevant is what I call *abstract relational strategies*. This refers to an approach (in both a bodily and conceptual sense) toward the use of a technology, an approach that is general enough to be applied in many different concrete scenarios. Such an abstract manner of approach is relevant, for example, when an interface design for a device to which users are already accustomed is applied to an entirely different device (such as a device used for a completely different purpose). To articulate this idea, I explore the history of keyboards, and consider how the habits of interface with one kind (e.g., piano keyboards) have historically enabled some users to approach other technologies fitted with similar keyboard interface (e.g., typewriters, electronic instrumentation). I conclude by brainstorming ways that abstract relational strategies, applicable to a variety of different devices, will have increased importance in a future world in which computing is even more ubiquitous than today.

Keywords Postphenomenology · Multistability · Ubiquitous computing · Human–computer interaction · Interface design · Embodiment · Philosophy of technology · Technological mediation · Moog · Electronic music

1 Introduction

I worked for a time as a customer service representative in a large call center. The job involved sitting in a small cubicle—one cubby of an expansive grid—and answering phone calls through a headset while scrolling through customer information on a desktop computer. One aspect of the job I remember well is the early training sessions. I was part of a group of around twenty in a standard classroom, each of us sitting behind a computer similar to the one we would have in our eventual cube, receiving instruction on the details of the job and the specifics of the computer interface. The training, it turned out, was not only an education; it was also an evaluation. The instructors were keeping a careful eye on the few trainees struggling to keep up. I had befriended an older gentleman who was falling behind, and I tried each day to help him get accustomed to the conventions of computer interface.

While all of us were working to learn the interface peculiar to the on-screen record-keeping programs of the job, the few trainees that were having the most difficulty were those encumbered by the disadvantage of not already being familiar with computer interface generally. On top of learning the specifics of the company's program, they also had to become familiar with procedures such as double-clicking the mouse, using the tab button to scroll through input cells, and opening and closing windows. A reason that I remember this experience so clearly is that the older gentleman I had befriended was ultimately removed from training. I can only hope (but cannot assume) to be transferred to a different job.

At issue in this kind of interface training is what in a previous article in *AI & Society* I have called a “relational strategy” (Rosenberger 2009). This refers to the understandings and the bodily habits a user develops in order to

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