CHAPTER 6

Contemporary Theory

A distinguishing feature of Contemporary art that set it apart from Modernism was that much of the work was considered socially conscious, being interpreted and construed from cultural perspectives, such as feminism, multiculturalism and globalization. A wide range of ideals, methods and practices were promoted, explored and pursued, incorporating a number of philosophical and critical methods that collectively became coined as "postmodernist." A "theory industry" was born (Stiles, 1996) where many new modes of theoretical debate and scholarly discourse took shape. Critical theory, in its various manifestations, took center stage, questioning the status of texts and the role of the authors who speak through them.

There are similar parallels that took place between the shift from modern to contemporary HCI, with the emergence of a more self-conscious reflexivity and social conscience, as exemplified by the third paradigm (Harrison et al., 2007). Different human values came to the forefront, extending and superseding previously mainstream HCI goals to improve efficiency and productivity. Cultural perspectives, such as feminism, multiculturalism and critical theory, were also promoted.

6.1 HUMAN VALUES

Contemporary HCI theory began in the mid to late 2000s. Debates surfaced about what HCI researchers do, what practitioners should be doing, whether they should be doing it and what their respective social responsibilities ought to be in a changing world of increasing technology use and dependency (see Blythe et al., 2008; Dourish et al., 2004b). The manifesto "Being Human: Human-Computer Interaction in the Year 2020" paved the way for a different kind of value-driven agenda. Concerns were voiced that if HCI was to continue to be of relevance in the 21st Century, it needed to change tack (Harper et al., 2008). New directions proposed included operationalizing contemporary society's aspirations and desires for self-understanding and expression. But to do so, needed a different set of conceptual tools that could tackle the empirical, philosophical and moral investigation of technology.

Given the pace at which HCI has moved forwards in its short history (Grudin, 2012), and its propensity to join forces with other disciplines, it seems well positioned to take on this new set of social, moral and cultural challenges. Not being strongly wedded to a particular set of techniques or paradigms that are steeped in tradition, means it can rapidly change course, abandon "old" ways of studying and embrace the new.

Indeed, a new set of concepts, tools and methods is beginning to appear that are intended to address the wider range of human values, rather than well versed human needs (e.g., computers should

be easy to learn, easy to use, etc.). They include getting to grips with *life* goals (cf. to *user's* goals), such as how people can pursue healthier, more meaningful and enjoyable lifestyles; and probing technology's underbelly as it becomes more insidious; including looking at how governments and organizations have become more reliant on computer technology to control society while individuals have started to use it in more criminal ways, making people worry more about what information is tracked, analyzed and stored about them.

Action Research is one such socially responsible approach that is being promoted in HCI. It provides methods and approaches for conducting democratic and collaborative research with members of a community (Hayes, 2011). In particular, it offers theoretical lenses, methodological approaches, and pragmatic guidance for conducting socially relevant, collaborative and engaged research (Stringer, 2007). Where it differs from previous participatory design approaches, is that while primarily seeking to help with practical concerns, it also aspires to scientific rigor and the promotion of sustainable social change. To achieve these three goals, a cyclical methodology is followed, with an emphasis on problem formulation, intervention design, deployment (i.e., "action"), observation of the effects of the action, reflection and then redefinition of the problem. A further distinction is to come up with a solution that improves on previous ones and which helps all those engaged in the project learn through the actions they take.

Being engaged in socially aware and responsible research involves asking different questions, such as what are culturally appropriate technologies for the home (Bell et al., 2003). A range of contemporary topics have begun to be explored with quite different questions being asked than previous usability or hedonistic ones, including health and well-being, climate change, feminism, multiculturalism, globalization, world peace and poverty (Shneiderman, 2011).

Adding Understanding to the Mix

As part of the new agenda for HCI, the *Being Human* report (Harper et al., 2008) proposed extending the canonical 4-stage iterative model of user-centered design by adding another stage. The new stage, called *understand,* is intended to address explicitly the human values that the technology in question will be designed to serve. Depending on the values of interest, the understand stage can draw on disciplines as diverse as philosophy, psychology, art, sociology, cultural studies, and architecture. These investigations are intended to point to fundamental research that needs to be conducted, relevant research that has already been carried out, or some combination of the two.

Some researchers have gone far afield, decamping to developing countries in an effort to use and develop ICT to help reduce poverty, starvation, improve sanitation, etc. Many of these new IT projects are well intentioned. However, concerns within the HCI community have started to be

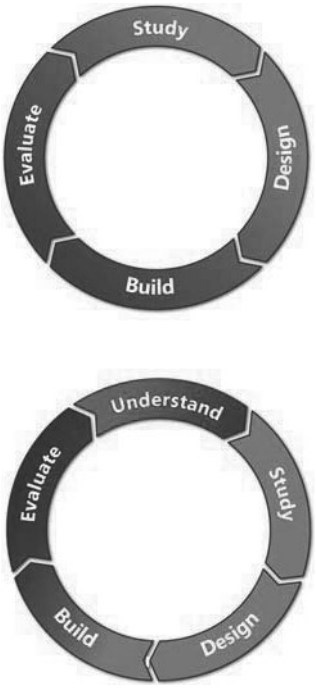

Figure 6.1: The conventional user-centered research and design process (top) and the extended five-stage research and design process (bottom) encompassing a new stage of conceptual analysis or "understanding" of human values. (From Harper et al., 2008.)

voiced about the motivations for looking "out there" (Taylor, 2011). In particular, there is a sense of unease for those who waver between wanting to make the world a better place while needing to collect ethnographic materials to publish and furnish theory building. Is it possible to do both and is it desirable? The dilemma of trying to be a participant and a researcher has ramifications for the balance of research and development. Here, I just give a flavor of the new theoretical approaches that have been selected, imported and developed within Contemporary HCI. But, it is acknowledged that many of the new theories should be viewed in the wider context of the researcher's social responsibility — and in the fullness of time it will be interesting to see how the moral narrative evolves for areas such as ICTD, HCI for peace and animal-computer interaction (Mancini, 2011).

I have chosen to select four major "turns" to characterize and distinguish between the main kinds of HCI contemporary theory. These are:

(a) turn to design

(b) turn to culture

(c) turn to the wild

(d) turn to embodiment

The rhetorical device of "a turn" has become popularized as a way of noting a change in the framing of HCI ever since the phrase "turn to the social" was coined in the 1990s. It is acknowledged there are several other turns that have appeared in the HCI literature, besides the ones listed above, such as those about particular topics or areas, such as emotion, enjoyment and sustainability, and a turn to "practice." For the purpose of this chapter, however, the turns to design, culture, the wild and embodiment are only covered.

6.2 TURN TO DESIGN

Since the early 1990s, design has been considered central to HCI, beginning with a focus on software design, user-centered design and interface design (e.g., Karat , 1991; Winograd, 1996). How to gather user requirements and developing methods that could better inform user-centered design have been two central themes. Case studies, such as the Mac interface and VisiCalc, were drawn upon to illustrate good practice in software design.

The turn to design as a more theoretical concern began in earnest during the 2000s when researchers began discussing how design theory and critical design could play a more central role in HCI. Winograd's early paper (1997) proposing that interaction design was about the "interspaces" inhabited by "multiple people, workstations, servers and other devices" in a complex web of interactions, led others to consider how to create design spaces within which people could communicate through. Shön's (1987) influential ideas on reflective practice were also brought into the mix.

A landmark book by Löwgren and Stolterman (2004) called *Thoughtful Interaction Design* drew from a range of Art, Design and Humanities theories, including English Literature. A running theme throughout was *not* about how to do interaction design but how to *think* about it. This shift from prescription to reflection drew attention to the complexity of design. Reducing it to a recipe book of steps to be followed or lessons learned was considered an over-simplification. Instead, much interpretation and understanding is needed of the choices that have to be made throughout the design process, often between trade-offs. This is where design theory can inspire; liberating "the designer from preconceived notions and conceptions of how the design process can be performed" and using it to "create new conditions for design, different patterns of thinking and acting, new design principles, and a general understanding of the conditions for creative and innovative work" (p8).

The idea that interaction design be informed by theories from aesthetics, ethics, politics and ideology was a radical departure for many in software design. Instead of thinking in terms of which methods to use *per se*, another push was towards thinking about how to use them *responsibly*, by applying them sensitively, skillfully and appropriately. Concepts such as pleasure, user experience, enjoyment and play provided much new food for thought, enabling designers to contemplate what it means to design for lifestyles — and as something we *live with,* not simply something we *use* (Hallnäs and Redström, 2002).

More recently, there has been a move towards accountability: it has been increasingly argued that designers have a responsibility towards what they choose to examine, analyze and design for. Debates about what this might entail have been aired; new terms have surfaced, such as design activism (Light, 2009), sustainable design (Blevis, 2007), inclusive design (Vanderheiden, 2008), value-sensitive design (Friedman et al., 2006) and worth-sensitive design (Cockton, 2006).

As part of the trend towards more critical reflection, researchers have also looked to various forms of philosophy that they see as providing deeper ways of understanding technology-mediated experience. For example, Fallman (2011) has presented the philosophies of technology by Borgmann (1992) and Ihde (1993) to the HCI community as a way of helping them articulate the range of human values in relation to technology: introducing notions of *device paradigm* and *non-neutrality of technology mediated experience*, respectively, while Cockton (2010) has introduced Badiou's (1988) theory on *design situations* that in itself, was a response to postmodernist ontologies. These kinds of philosophical theories provide epistemologies about the state of the world and what constitutes reality. For those with a proclivity for, or background in, this kind of philosophy, they can provide alternative ways of reading and understanding the ethics of technology and the value-based choices designers make and connecting between them. For others, they can appear somewhat overwhelming.

A more accessible approach to philosophizing about HCI was McCarthy and Wright's (2004) *Technology as Experience* framework, where the *phenomenology* of the user experience was discussed and applied to design practice. A particular focus was the *felt experience*, i.e., how something is felt by the user. The ideas were drawn from Pragmatism, and in particular, the philosophical writings of Dewey that emphasize the sense-making aspects of human experiences. This understanding is applied to the whole experience of a technology that people have in terms of their interconnected aspects, rather than as fragmented aspects (e.g., its usability or utility). But defining a felt experience is very difficult because it is nebulous and ever-present to us, just as swimming in water is to a fish. Their way of tackling this was to describe it in holistic and metaphorical terms.

Technology as Experience in a Nutshell

McCarthy and Wright (2004) propose four core threads that make up our holistic experiences: compositional, sensual, emotional and spatio-temporal. The sensual thread is concerned with our sensory engagement with a situation, and can be equated with the level of absorption people have with various technological devices and applications, most notable being computer games, cell phones and chatrooms, where users can be highly absorbed in their interactions at a sensory level. The emotional thread includes emotions such as sorrow, anger, joy and happiness. Emotions are intertwined with the situation in which they arise, e.g., a person becomes angry with a computer because it does not work properly. Emotions also involve making judgments of value. For example, when purchasing a new cell phone, people may be drawn to the

ones that are most cool-looking but be in an emotional turmoil because they are the most expensive. The compositional thread is concerned with the narrative part of an experience, as it unfolds, and the way a person makes sense of them. For example, when shopping online, the choices laid out to people can lead them in a coherent way to making a desired purchase or they can lead to frustrating experiences resulting in no purchase being made. When in this situation, people ask themselves questions such as "What is this about? Where am I? What has happened? What is going to happen next? What would happen if …?" The spatio-temporal thread refers to the space and time in which our experiences take place and their effect upon those experiences, including how we talk of time speeding up, standing still and slowing down, and needing one's own space.

The threads are meant as ideas to help designers think and talk more clearly and concretely about the relationship between technology and experience. For example, when buying clothes online, the framework can be used to capture the whole gamut of experiences, including: the fear or joy of needing to buy a new outfit; the time and place where it can be purchased, e.g., online stores or shopping mall; the tensions of how to engage with the vendor, e.g., the pushy sales assistant or an anonymous website; the value judgment involved in contemplating the cost and how much one is prepared to spend; the internal monologue that goes on where questions are asked such as will it look good on me, what size should I buy, do I have shoes to match, do I need to try it on, how easy will it be to wash, will I need to iron it each time and how often will I be able to wear it. All of these aspects can be described in terms of the four threads and in so doing highlight which aspects are more important for a given product. Such interlinked facets and concerns are what most of us engage with in our everyday actions and interactions with others.

The threads may provide metaphors for thinking about design, but how well do they inform design in practice? Heather Collins and Aaron Loehrlein (`id-book.com`) describe in a case study how they used them as inputs for web design. They found the threads to be helpful in thinking about the balance of the different experiences they were hoping to elicit. Since Wright and McCarthy (2010) developed their ideas further, explicating what is meant by *experience-centered design* from a humanistic approach when designing digital technologies.

Besides social responsibility, other design values that have been promoted are ludic and playful ones that promote curiosity, exploration and aesthetic enjoyment amongst people when they encounter new technologies. The idea is to trigger more reflection in users/people on what they no-

tice and how it changes their perspective of and relation to the environment. A diversity of artifacts has been created within a playful context, including a periscope (Rogers et al., 2005), an ambient horn (Price and Rogers, 2004) and the drift table (Gaver et al., 2004) — all of which are unusual, sometimes bizarre and often strange. Gaver et al. (2003) have also argued that ambiguity can be a desirable property in interaction design; making people stop and wonder about the artifact design, and to think more generally about the role technology plays in their lives. The theoretical underpinning of these forays into more "creative HCI" is that there isn't one preferred interpretation of a system but multiple (Sengers and Gaver, 2006). This way of viewing technology design draws inspiration from Science and Technology Studies (STS), which has documented the many ways that technologies are *interpretively flexible,* i.e., lend themselves to different interpretations besides those intended by their developers (e.g., Bijker, 1995). The idea of framing HCI in the context of multiple interpretations is also behind the cultural theories that have since been imported into HCI, to which we now turn.

6.3 TURN TO CULTURE

There are many questions about how we understand, think, and interpret what we see, hear and touch around us that do not lend themselves to being addressed by scientific theories of cause and effect or social theories of accountability. Many of our concerns about human nature and conduct are about interpretation, such as what did he mean by that, why did he give me that look, why did that performance appear so sublime and so on. These kinds of questions are the bread and butter of other disciplines, namely the Arts and Humanities. They are real questions that invite disciplined answers, involving another language and another conceptual scheme, such as argumentation and intersubjectivity (Scruton, 2012).

There are many theories and approaches within the Arts and Humanities that have evolved to answer questions about the human condition. Several with a background in these fields have jumped ship and joined HCI, as did the sociologists in the 1990s, seeing opportunities to interpret and explain the user experience and other aspects of HCI using their repertoire of interpretative schemes. Cultural theory is one such approach that has made some in-roads into HCI; an umbrella term for social commentary, critical analysis and a re-contextualizing of interaction design (Satchell, 2008). The different disciplines and philosophies they bring to bear include anthropology, social theory, Marxism, feminism, language theory and critical theory. Each of these can be broken down into sub-fields or phases of their development, for example, critical theory comprises film theory, literary theory, political theory and psychoanalytic theory, while feminism has been labeled as liberal, radical, multi-cultural and postmodern among others (Bardzell, 2009). New forms have also been developed to meet the needs of interaction design, namely, *interaction criticism* (Bardzell and Bardzell, 2008).