Appropriating Theory
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Eurkea! I have found it.

Many of the chapters in this volume concern the development of new theory. I want to take a slightly different tack and focus on the scholar's appropriation of existing theory. I believe such appropriation is a critical step along the way in developing new theory, and that many existing theories are underexploited. Most mature sciences, such as biology or physics, create intellectual community around a widely scoped but shared theoretical orientation such as Darwin's theory of evolution or Newtonian physics. It is unlikely that information science will achieve such convergence, but at the same time, it is important, in my view, to aim high—for theories that capture the breadth of our subject matter through attention to both the intangibles of semiosis and the tangible properties of technological artifacts (see Dillon this volume). These theories exist and can be put to work, either directly, or as scaffolding for new or modified or expanded theory. These theories include actor-network theory, activity theory, distributed cognition, and phenomenology (see Kaptelinin and Nardi 2012).

Activity theory has been my personal theoretical touchstone. In this chapter, I am not going to argue for activity theory, or even say much about what it is, but I want to explain how I came to appropriate it for my work and how it has shaped my thinking. I will describe the rewards and struggles of my journey with activity theory, and endorse a deep connection to theory as a desirable aspect of the growth of individual scholars and the growth and development of the fields in which scholars labor.

In 1993 I was working at Hewlett-Packard Labs in Palo Alto, California, conducting ethnographic studies in the human-computer interaction research group. Human-computer interaction (HCI) concerns both the usability and usefulness of computational artifacts, and entails a strong creative element in which new applications are a key output of research. The only other anthropologist in our building (who was in a product group) told me she had an article I would like, and handed me a copy of Kari Kuutti's "Activity theory and its applications to information systems research and development" (1991). I began to read the text in the ordinary desultory way one does with random articles, but I soon snapped to attention, the words jumping off the page. I was astonished to find that someone had theorized information systems as *activity systems* wherein the technical system was conceived as part of object-oriented human activity. The clarity and good sense in Kuutti's argument—that we should study what people are doing with technical systems and why!—set me off on a crash course in activity theory to determine whether my enthusiasm would withstand further exposure to the ideas.

I soon learned that activity theory is known as "cultural-historical activity theory" (sometimes "CHAT"), a significant point of common ground for me with my training in anthropology. At the time, I was experiencing some frustrations with my home discipline. The 80s were a period of turmoil in anthropology, and certain disciplinary moves were made that I believe have continued to stymy anthropology's influence (a story for another time). I was disgruntled with anthropology's total lack of interest in digital technology, its insular jargon, and its somewhat negative attitude. During anthropology's relentless critique of issues of race-class-gender, my head was in a different space—I was energized and excited about what I perceived to be the development of rapidly changing, life altering digital technologies. I had been aware since 1980 of the personal computers being produced by Apple Computer (when Apple was not a household name), Osborne, and Radio Shack, and I sensed the earthquake they, and their progeny, would become. I felt happier seeking a positive disposition toward my research objects; I simply did not have the fortitude to bash away at huge, pervasive problems over which I felt I had little control. (I have since developed some of that fortitude, of which more later.) I found digital technology liberating,

compelling, and so impactful on global culture that I could scarcely believe it remained outside anthropology's sights.

In the mid-80s, I left a tenure-track job in anthropology to follow my bliss and began working in the high tech industry in Silicon Valley. In 1993, when I reached the point of encounter with activity theory, it was a transformative moment of discovery revealing a whole group of scientists, who, although far away in Scandinavia, thought digital technology was as interesting as I did. Even better, they were working within a mature social scientific theoretical tradition. This tradition took culture seriously, but also had a set of shared, well-developed concepts with which to theorize human activity (something I felt anthropology lacked). Discovering activity theory was wickedly empowering: I was, unexpectedly, going to have my cake and eat it too!

Activity theory's origins go back to the 1920s in Soviet Russia (Vygotsky 1978). Its importation to studies of human-computer interaction (HCI) occurred around 1987, when Susanne Bødker's thesis argued that activity theory could form a strong theoretical basis for HCI (Bødker 1987). At that time, HCI was in need of a more grounded, real world orientation to technology that would move it beyond a narrow interest in usability toward a research practice in which useful designs that met or anticipated human needs and desires could flourish. Such disciplinary development was not going to happen by relying solely on psychological theory applied in laboratory-based experimental research, which had been HCI's focal positioning (see Clemmensen 2006). In addition to Bødker, scholars such as Kari Kuutti, Victor Kaptelinin, and Liam Bannon were beginning to build on the activity theory/HCI connection.

I decided if I were to penetrate the core activity theory circle—centered in what Don Norman once called "that hardy band of Scandinavians"—I would have to make personal contact with the illustrious natives. I emailed Kari Kuutti and Susanne Bødker, and they very kindly helped me build up a network of people to contribute to an edited volume on activity theory and HCI published by MIT Press (Nardi 1996). I reasoned that if I had a bunch of papers written by activity theorists in front of me to edit, it would be a good way to imbibe its principles and concerns. (I recommend editorial work such as special issues or edited collections as a general recipe for plunging into a field or deepening knowledge of a field in which a researcher seeks to gain more understanding.)

In the best tradition of snow ball sampling, Victor Kaptelinin further aided me in reaching out to Russian activity theory scholars for the book. I ended up with a nice array of contemporary work in activity theory and digital technology, including American authors such as Rachel Bellamy and Dorothy Holland, as well as Scandinavian and Russian authors. Editing the book was a rewarding labor, and some of the contributors continue to be friends and colleagues. Victor Kaptelinin, in particular, has been my collaborator for going on twenty years, and I have come to know much about Scandinavia from Ellen Christiansen. Many of the contributors to the volume such as Bødker, Kaptelinin, Yrjö Engeström, Vladimir Zinchenko, and Kari Kuutti are key figures in activity theory. I was privileged to have the opportunity to produce their work, and help bring it to more prominence in HCI. Through this editorial project, I came to understand some of the nuances of activity theory as a perspective that "deals with purposeful interactions of active subjects with the objective world," as Kaptelinin (2003) says.

Struggles

But the move to activity theory was not without challenges. I had already ventured from the familiarity of anthropology to the interdisciplinary field of human-computer interaction. Leaving the comforts of cultural anthropology, a discipline in which I never had to define ethnography, or explain why anyone would read Lévi-Strauss, in which I knew interlocutors would understand the importance of the Trobriand Islanders, took some getting used to. While theory is disjointed in anthropology, disciplinary stability and identity flow from a kernel of common experience and literature shared by nearly all cultural anthropologists. Such stability was (and is) not the case in the more tumultuous, multidisciplinary HCI. Layered on top of the shifting sands of the diverse concerns and emphases of a varied group of scholars consisting of computer scientists, psychologists, artists, and some anthropologists, was the destabilizing

fact that HCI is a field of considerable ambivalence toward social theory. HCI has strong engineering and artistic influences, and social scientific theories seem to some in the community to be superfluous and unnecessary.

I do not find this position unreasonable, though I disagree with it. We must take this position seriously however, because, from a design standpoint, it is undeniably true that the world's most popular everyday software is not based on theory but on simple reflection. Many life-altering digital applications involved no analysis beyond an ordinary person's hunch, based on personal experience or superficial observation, that an application would be useful. For example, in 1978 Dan Bricklin, the inventor of the spreadsheet for personal computers, dreamed up the idea while sitting in an MBA class. Spreadsheets advanced the personal computer from a hobbyist's toy to a powerful computational engine for small business and education. CAD systems, bulletin boards, instant messaging, blogs, computer games, Facebook, and many other ubiquitous digital artifacts were designed in exactly this way. In the case of Facebook, a few students brainstorming how to improve their social lives at Harvard spawned a service now in use by nearly a billion people. Amazon.com was founded by Jeff Bezos, who, according to Wikipedia, "learned about the rapid growth in Internet use which coincided with a then-new Supreme Court ruling [that] online retailers don't have to collect sales taxes in states where they lack a physical presence." On the basis of nothing more than these observations, Bezos wrote a business plan on a road trip from New York to Seattle, a business plan that has changed global commerce.

So it is not surprising that social theory in HCI is regarded with a certain ambivalence. It is not uncommon for members of the HCI community to express not only ambivalence, but exasperation with theory. The poem below was written by Tom Erickson for a special issue of the *Journal of Computer-supported Cooperative Work,* "Activity Theory and the Practice of Design," that I co-edited with David Redmiles (Nardi and Redmiles 2002). Erickson is too compassionate and thoughtful to approach a critique of theory with graceless denunciation, but in his poem he speaks honestly of being "theory leery":

Theory Theory: A Designer's View

by Thomas Erickson

> Theory weary, theory leery,
>
> why can't I be theory cheery?
>
> I often try out little bits
>
> wheresoever they might fit. (Affordances are very pliable,
>
> though what they add is quite deniable.) The sages call this bricolage,
>
> the promiscuous prefer menage...
>
> A savage, I, my mind's pragmatic
>
> I'll keep what's good, discard dogmatic.
>
> Add the reference to my paper,
>
> watch my cited colleagues caper,
>
> I cite you, you cite me,
>
> we've got solidarity.
>
> (GOMS and breakdowns, social network, use those terms, now don't you shirk!) Clear concepts clad in fancy clothes,

bid farewell to lucid prose.

The inner circle understands

but we overlook the hinterlands

Dysfunctional we are, it's true,

but as long as we're a happy crew,

if strangers stare and outsiders goggle,

or students struggle, their minds a'boggle (Dasein, throwness, ontology ethnomethodology)

A pity 'bout that learning curve

but whose to blame if they lack verve? A ludic take on structuration, perhaps this causes consternation?

I see four roles that theories play:

They divide the world, come what may, into nice neat categories,

enabling us to tell our stories.

(Info scent sure is evocative,

and cyborg theory's quite provocative)

Our talk in turn makes common ground, where allies, skeptics may be found Prediction's theory's holy grail,

most that seek it seem to fail.

The world is messy, fuzzy, sticky, theoretically 'tis all quite tricky. Theories keep it at a distance, cov'ring up the awkward instance. (Objects, agents, actor networks, banish life with all its quirks)

But when edges grate and things don't mesh, that is when I think my best.

So let not theory serve as blinders,

welcome disruptions as reminders!

Oddly now, I'm theory cheery

I find I have a theory theory!

Neither holy grail, nor deep disgrace, theory's useful in its place,

(Framing, talking, predicting, bonding, evoking discourse--Others responding) Like goals and methods, plans and actions, theory's situated, not pure abstraction.

So make your theory a public way,

where passers by may pause and stay.

Without doubt, it takes effort to educate oneself about theory, to set our minds a'boggle, as Erickson put it. Buckland (this volume) observes that "[theory] can be intimidating" [fix quote as needed.] At times it all seems a confusing, ever shifting kaleidoscope of puzzling shapes and forms that one could well do without (certain French theorists continue to provoke this reaction in me). Erickson writes of his impatience with theory—it can be pretentious, obscure, simplistic, dogmatic. But he ends by proposing a truce in which

theory has a place, and, and at its best, serves to promote dialog, create community, and illumine the world through conceptual richness. Those are exactly the advantages I too see in theory.

Rewards

Despite struggles, for me there have been very personal rewards of engaging with theory. The possibility of such rewards may not visible at the outset (e.g., to a student mired in the difficulties of trying to make sense of the kaleidoscope). These rewards consist primarily of: more theory, and excellent colleagues. It may seem there is a circular argument here, but let me explain.

In my early studies of anthropology I began to read theory. A somewhat dismal string of uninspired theories goes back a long way in anthropology, and undergraduates may still learn them as part of understanding the discipline's history (Kroeber's theory of the superorganic comes to mind). But the beauty of toiling to comprehend even bad theory is that you begin to see how satisfying it would be to explain something of the "messy, fuzzy, sticky" world that is human life, and how theories are sets of logical propositions that begin to do this work. Once you have managed (if not mastered) one theory, it becomes easier to move to another theory and grasp its essentials. And, comparing theories becomes quite interesting! Seeing theories in relation to one another shows off what each reveals and each conceals. Putting theories side by side discloses the epistemology and ontology of a given theory that may not be quite as visible until the theory is seen in comparative light.

This way of interacting with theory is especially important to the human sciences for the obvious but usually overlooked reason that human life is so complex, indeterminate, and historical that we have not yet achieved a theory with the coherence and elegance of, for example, Darwin's theory of evolution. Explaining the diversity of species is apparently an easier task than explaining the diversity of cultures, or how the mind works, or what really drives the economy. For the foreseeable future, we will probably be engaging multiple theories, and we will need to be conversant with more than one to continue to develop theoretically. David Bawden's point that, "One of the problems of current information science is the plethora of "novel" empirical methods and models, which make comparison and cumulative progress difficult" [fix quote as needed], also applies to theory, but it is still true that we must be multilingual in theory at this stage of our development. Buckland (this volume) remarks that "There are many kinds of problem, many different reasons to want to solve them, and many different ways to look at them, so we should expect theory development to come in a variety of forms." [fix as needed]. This statement seems an eminently sensible way to look at things.

How then can we work toward cumulative science and yet recognize that theory is, necessarily, evolving, and that part of this evolution is the continual spawning of new theories, often competing theories? I think there are many good answers to this question. My own answer has been to use activity theory as an anchor—my approach to analysis has never varied from activity theory's key principles to which I subscribe philosophically and as a matter of logic—but, at the same time, to learn new theories that might enrich what I know.

So, for example, while I do not endorse actor network theory's tendency to collapse the human and non-human, I find its emphasis on the agency of technology an important part of the arsenal needed to challenge theories that ignore or downplay technology. In some instances, activity theory gets me part of way there in my analysis, but I then need to bring in other theory as well. When I was writing about the aesthetics of video gaming (Nardi 2010), I used Dewey's ideas on "active aesthetic experience," along with activity theory, to explain what I was seeing in the gaming world. Dewey and activity theory are quite compatible in spirit, but Dewey specifically addressed some issues I wanted to explore that are not well developed in activity theory. Recently I discovered the work of Laurent Thévenot and his colleagues, and I see value in their ideas on orders of worth for understanding collective activity at a larger scale than is usual with activity theory. And, last but not least, rediscovering theory learned long ago which turns out to be useful in a new way, is a bit like finding money in the bank! Weber's notion of the "ideal subject" is a construct helpful in my current work, and required only a trip down memory lane to *The Protestant Ethic*

and the Spirit of Capitalism. Theory in social science is, then, a journey. It seems to me that the more people set forth on theoretical travels, the more we will eventually converge on shared waypoints, if not final destinations, that can enable the kind of cumulative progress Bawden argues for.

So, then, the first reward of theory is more theory. The second reward is colleagues. I feel humbled and privileged to know the colleagues I have encountered through my theoretical work. Their favorable points as scholars, and as human beings, are that they never stop asking good questions, they listen well because they want to learn as much from you as you do from them, and they are often deeply caring about society, which is why they have an interest in social theory to begin with. Whether you collaborate for twenty years or simply have a fascinating conversation over dinner at a conference, it is immensely enriching to know people who have been drawn to theory. Their words stay with you, and so does a cultivated sense of keeping the world constantly in play as an object of contemplation and reflection. David Bawden used Leonardo DaVinci's "The noblest pleasure is the joy of understanding" as his chapter epigraph, and I could not agree more!

Questions and Critique

But if theory in HCI does not produce good design, then is it worth the trouble? Is it a matter only of personal satisfaction? This question must be asked in the broadest context possible. There are two answers I can begin to formulate. The first answer is that activity theory (and related approaches) have produced not the blockbuster applications that are part of our everyday lives, but instances of sophisticated systems in which there was lead time to do the needed research, and a brief to systematically feed concrete research results into design. There are many such systems detailed in Kaptelinin and Nardi (2012). For example, the research program of Jacob Bardram and his colleagues in Denmark is devoted to redesigning clinical information systems in hospitals. Bardram and his group observe that hospital work is conducted in a highly collaborative environment of multitasking, complex technical and social context, urgency, and mobility. To grasp this reality, it is necessary to design systems in which

> [C]omputational activities become first class entities that are represented explicitly in the computer system. This means that activities are seen as computational entities that can be managed by an infrastructure, an operating system, or some kind of middleware— depending on the manner in which they are implemented. Activities can be persistently saved and distributed via a computer network, and can thus migrate among networked computers. Activities are programmatically accessible through an application programmer's interface (API), which functions just like the API for an operating system. Activities are also directly accessible to users in the user interface. (2009: 10)

In other words, the system is designed from first principles as an activity system, not a collection of files, data, or other computer science constructs—exactly as Kuutti argued it should be in his 1991 article. Bardram's clinical work is under continual development and has been deployed (see e.g., Bardram et al. 2013). Many systems such as Bardram's, come, not surprisingly, from Scandinavia, with its culture of worker participation, deliberative work design, and long term thinking and resource allocation.

The second answer, which is actually a question, springs from what the Scandinavians have accomplished. What if much more design did not consist of applications a Harvard student could prototype in his dorm room (as in the case of Facebook), but was based on careful theoretical study? This is a hypothetical question of course, but I argue that many of the applications we use everyday, while indisputably useful, are also frustrating, poorly designed, lacking in respect for users (such as abrogating user privacy), and are putting in train a set of third rate systems in which we are becoming increasingly enmeshed and entrenched. The applications are free, so we use them, and they do good things, such as helping us find information. But at the same time, they are primitive. They are not designed according to deep analysis of activity, and they often ossify into applications we use only because everyone else does, making the cost of moving to something better is prohibitive (such as my own use of Microsoft Word). What the Apple

desktop can do has been the same for years, and while it is still the best desktop design of which I am aware, it is largely stagnant. It makes enough money, and Apple has other fish to fry as it expands into more lucrative markets. Viable new designs created by competitors are not easily realizable, for reasons I discuss in the next paragraphs.

Design is partially an outcome of culture, any activity theorist would aver, and, at the moment, American capitalist culture is ascendant. The general strategy of rich companies (the most aggressive of which are in America) is to gain market share through unique designs, and/or free or low cost applications; tie people to the applications through habit and sometimes the accumulation of data as in Facebook or cloud computing; and then squelch (through mechanisms such as patent litigation) or buy up competition. It works quite well! Apple, one of the most litigious companies in history, also has an enormous market valuation (at various moments it is the world's most valuable company). I have personally been involved in Apple's litigation from a patent I co-authored when I worked there, after the HP days, in 1996. I testified at several depositions concerning the "'647," which journalist Dan Rowinski has called "a big bludgeon…to bully everyone else into subservience" (2012). Needless to say, I had no idea the patent would ever be used in such a way. (I no longer believe in software patents.)

To understand design more progressively, analyses of usability and usefulness are insufficient; the entire activity system in which we are enmeshed must become the purview. As a scholar of human-computer interaction, I cannot meaningfully contemplate today's digital designs without consideration of the sociomaterial conditions in which they are produced. These conditions bear on design outcomes and constitute an instance of what activity theory means by "cultural-historical" analysis. Over the years I have moved toward more expansively critical analysis (e.g., Nardi 2010; Ekbia and Nardi 2012; Kow and Nardi 2012; Tomlinson et al. 2013), and it is central to my current work. Such analysis is exactly what I was less able to confront in the 1980s and 90s. Part of the change for me is maturity, but part of it is understanding that anthropology's blistering critiques are not the only way to question and probe, and that more nuanced positions can be developed. Activity theory has helped me in this quest by providing sound concepts such as mediation that enable us to see, for example, how a technology can be eminently useful, but can, at the same time, set in train certain consequences such as loss of privacy, alterations in social relations, degradation of academic skills, or getting stuck in the filter bubble. Such consequences need to be constantly assessed as we evaluate our human relation to digital technologies.

Shouldn't the free market ensure that, if there is a need or desire for different or better applications, they will appear? I believe the answer is, increasingly, no. Mechanisms such as patent litigation tend toward the development of oligopolies, making it difficult for new companies to compete (Suarez-Villa 2013). There is a shrinkage of competition, which is, of course, the cornerstone of new and improved products. While innovative start-ups continue to produce wonderfully creative new offerings, getting them into our hands is not a straightforward process. Starting a company to compete with say, Google, would be almost impossible now. I use a search engine called DuckDuckGo that is a Google alternative. I use it because it does not collect personal data. But it is more a proof of concept than a business. DuckDuckGo has about 1.8 million direct searches a day, while Google has about 5.1 billion (Wikipedia). DuckDuckGo survives on the capital of its rich founder, some venture capital, and limited advertising. Most young entrepreneurs do not have the capital of DuckDuckGo's founder, and the best they can hope for is to be bought by a Google or Microsoft. At that point, some, or a lot, of the innovative edge is smoothed away, or the applications may even be abandoned.

But enough doom and gloom! We can imagine that at some point the world might look more like Scandinavia, or like something else altogether (see Tomlinson et al. 2013). Continuing to design in generative ways using theories such as activity theory seems a means of working toward "inventing the future" as Alan Kay long ago claimed we should. In the meantime, it is important to take seriously the cultural-historical imperative of activity theory, and apprehend design influences as flowing from global technocapitalism and sociotechnical change, as well as continuing to conduct more conventional, locally focused studies. We must do all of this if we are to fulfill our role as researchers. Kuutti observed, "If we

focus only on practical usefulness and exclude explanation and interpretation, we do serious harm to our very nature as researchers" (2010: 717). It is our obligation to engage deeply with theory in order "to develop better understanding of the world around us" (Kuutti 2010: 717).

Much of my current work on issues related to technocapitalism and the like (e.g., Ekbia and Nardi 2012) requires theorizing at scales I am not used to as an anthropologist. Having grappled with theory for a long time makes it not exactly easy to do this, but at least slightly less scary. Activity theory, with its Marxist roots, has primed me to seek a critical component in my work and to look to the economy for analytical inspiration. The journey of theory may lead to unexpected locales.

I want to draw attention to a system that is just the sort of advance in design that would improve our everyday lives. It is based on activity theory research of typical office work, and is premised on the concept of "projects"—a common way we think about work—rather than "files," the canonical computer science structure with which users encounter computers (Kaptelinin 2003). Kaptelinin's experimental system:

> (a) makes it possible for the user to directly indicate a higher-level task, that is, a project, (b) monitors user activities and tracks resources used when carrying out the project, and (c) automatically organizes and updates these resources to make them easily available to the user when he or she resumes working on the project. (2003, p. 360)

Although this system has never been actualized as a product, it is easy to imagine the utility it would provide. Kaptelinin reported that, "First experiences with the system indicate that it addresses a real need of users for a low-overhead integration of various types of information around higher-level, meaningful goals (2003, p. 361). Problems with desktop interfaces have been studied for a long time (e.g., Nardi et al. 1995), and, while incremental improvements are made, the potential profits of changing the desktop do not seem to merit attention in the private sector (or the Apple-Microsoft oligarchy makes such attention moot). From a societal perspective, the productivity gains of improved work environments would be aesthetically and economically significant.

Many good desktop designs have been proposed over the years in addition to Kaptelinen (2003), including Henderson and Card (1986), Robertson et al. (2000), and Voida and Mynatt (2009). Despite a certain pessimism I feel, continued efforts in the HCI community indicate an energetic, positive response to findings about computer usage that have accumulated regarding how the desktop affects users that suggest how to enhance its design. Mynatt and Voida, whose "activity-based computing" approach draws from activity theory, produced a useful, original design in response to their observation that, "While empirical characterizations of knowledge work [going back to 1994] have identified the importance of the spatial organization of short-term and transient artifacts in making sense of ongoing activities, in general, systems designed to support knowledge work have failed to emphasize these needs in their design" (2009: 260). They believe activity-based approaches are moving to fill gaps, noting that, "It is anticipated that as activity-based systems are adopted more widely, they will provide a variety of benefits, including better task awareness, simpler multitasking, more natural organization of electronic information, and improved online collaboration" (2009: 268). It may be just that activity theory's influence is moving more slowly than I would like!

The Impact of Theory on the Field of HCI

To reflect more broadly on the role of theory in human-computer interaction, I devised my own version of a popular HCI technique called "heuristic evaluation." Heuristic evaluation is based on the idea that a lot can be learned about usability from a quick, focused perusal of a user interface (Nielsen and Molich 1990). My repurposing of the method for assessing the impact of theory consists of analyzing the research contributions of a small number of members of the HCI community who belong to the CHI Academy, an honorary society recognizing HCI researchers. The CHI Academy (of which I am a member) is part of the ACM SIGCHI (Association for Computing Machinery Special Interest Group on Computer Human

Interaction), and has members "who have contributed to the advancement of the field of human-computer interaction." Members are selected by a small ACM committee. I will argue that the use of theory in research has shaped the contributions of a substantial percentage of CHI Academy members, revealing theory's perceived value to the development of the field.

The CHI Academy dates to the year 2000 (human-computer interaction being a relatively young field within information science), and, as of 2013, hosted 84 members (plus 14 members with Lifetime Research Awards coextensive with membership in the Academy). This sample of HCI researchers represents a demographic of mid- to late career professionals within SIGCHI, so while future Academy membership could skew away from current trends, the analysis will reveal something about the foundations of the field. I did a simple binary coding of Academy members whose worked materially involved either social theory or computer science theory, and those that did not. While such analysis is strictly pursuant to the limited purposes of this chapter, and I am only claiming the validity of the coding as an instance of a simple heuristic evaluation, I did attempt to code as carefully and conservatively as I could.

It could rightfully be argued that everyone has some kind of theory informing their ideas, and I would agree with that. I coded "+theory" for members whose work was explicitly responsive to theory, work in which theory was acknowledged and embraced. Some members of the interdisciplinary CHI community work in essentially atheoretical modes—within artistic traditions, or with a focus on the pragmatics of usability in corporate settings, or on the basis of the design of intuitive prototypes based on inspiration taken from everyday life or a particular passion. Since I am arguing in favor of theory in this chapter, I tried to be cautious in my judgments, scoring a "+theory" only if I could see that a body of work evidenced substantial, visible commitment to theory.

To cut to the chase, I found that the work of 63% of the Academy members showed a clear theoretical orientation (53 out of 84). This number, which might be higher in a more traditional discipline such as biology, is perhaps not surprising in the context of an interdisciplinary field with a strong emphasis on engineering, and a smaller, but important inflection from the arts. I noticed that psychological theory was predominant in the early awards, but that an influential strand of theory concerned with group action entered the research stream almost from the start. This trend has continued, and includes activity theory. I was pleased to see four authors from the Acting with Technology Series, which I co-edit for MIT Press, included in the Academy. I conclude from this "heuristic evaluation" of the discipline of HCI that theory has been foundational. At the same time, HCI is far being a discipline with unquestioned allegiance to a particular theory, or to theory in general. It remains to be seen if such eclecticism is generative, or if it destabilizes research by failing to accumulate critical mass.

Coda

The aim of this chapter has been to fulfill the editor's mandate to produce an account of my relation to theory that is "personal, and reveal[s] the struggles, challenges, successes, excitement and satisfaction in developing theory" (Sonnenwald this volume). It is my sincere hope that this account will be of use to students and others making their own way with theory, and that the somewhat fractious exercise of engaging theory, especially theories in rapidly mutating, interdisciplinary fields such as information science, will appear as a tractable exercise, and will be evident not as an obstacle, but as an encounter with intellectual objects that repay study many times over.

Sometimes poets should have the last word, and I end with two lines of Erickson's poem that invite us to theory:

> So make your theory a public way,
>
> where passers by may pause and stay.

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