What is "Critical" about Critical Design?

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ABSTRACT
Critical design is a research through design methodology that foregrounds the ethics of design practice, reveals potentially hidden agendas and values, and explores alternative design values. While it seems to be a timely fit for today's socially, aesthetically, and ethically oriented approaches to HCI, its adoption seems surprisingly limited. We argue that its central concepts and methods are unclear and difficult to adopt. Rather than merely attempting to decode the intentions of its originators, Dunne and Raby, we instead turn to traditions of critical thought in the past 150 years to explore a range of critical ideas and their practical uses. We then suggest ways that these ideas and uses can be leveraged as practical resources for HCI researchers interested in critical design. We also offer readings of two designs, which are not billed as critical designs, but which we argue are critical using a broader formulation of the concept than the one found in the current literature.

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INTRODUCTION
The dramatic changes over the past three decades of technology in society has far more than implications for HCI theory: it has socio-cultural implications that affect many if not most spheres of human life, from public policy to the spiritual, from childhood education to care for the elderly, from our cyborg identities to globalized sociability. HCI as a field is increasingly taking seriously its own sociocultural significance: looking beyond concerns about usability and professional support tools, there has been a steady increase in focus on issues such as user experience, social justice and activism, values-oriented design, postcolonialism, etc.

In short, we are collectively asking what it means to live in this electronic world we are creating, whether this world reflects our values, who is entering into this world that we are designing and whom we are leaving behind. These questions are at least as philosophical as they are technological, and there is more than one way to approach them: science and technology studies, philosophy of technology, and similar fields offer one strategy. Another is the emerging area of research through design or constructive design [20,34], which "refers to design research in which construction—be it product, system, space, or media—takes center place and becomes the key means in constructing knowledge" [29, p.5].

One form of constructive design is critical design, a term coined by Anthony Dunne and Fiona Raby. *Critical design* is a form of research aimed at leveraging designs to make consumers more critical about their everyday lives, and in particular how their lives are mediated by assumptions, values, ideologies, and behavioral norms inscribed in designs [14,15]. On the surface, critical design seems to be well positioned to support HCI research that takes seriously technology's role in creating futures that serve but also marginalize, that aesthetically please but also isolate, that stimulate economic growth but also threaten the earth.

However, in spite of its apparent potential for much recent HCI, critical design is not used very much in HCI. One reason might be that HCI researchers do not know how to do it [4]. Evidently there has also been general confusion about what critical design is: founders Dunne and Raby have tried to correct common misconceptions in their writings. Also, there is confusion about whether design work that has been featured in HCI—most notably projects coming out of Goldsmiths—are or are not at all critical design. [4] and [29] for example both group Goldsmith's work together with critical design, a characterization hotly disputed by Bill Gaver (personal communications).

The argument of this paper is follows: critical design has high potential for the HCI design community; the critical design literature remains too underdeveloped to offer the practical support needed for its broader uptake; design theorists and researchers can improve this situation not by decoding whatever Dunne and Raby might have meant, but by actively and creatively developing critical design in ways that we as a community want to see it used; we offer one such contribution in this paper by (a) exposing some problems that we see in Dunne and Raby's accounts of critical design, our sympathy notwithstanding, (b) looking beyond Dunne and Raby to identify more useful understandings of the term "critical" than can be found in their writings, and

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(c) iterating on present understandings of critical design with a broader view of critical thought in mind. The goal of doing so is not at all to offer a "pure" or "correct" notion of critical thought or critical design, but rather to provide a wider and more accessible range of conceptual handles that design researchers can leverage in their day to day work.

ORIGINS AND GOALS OF CRITICAL DESIGN

The Frankfurt School of critical theory, embodied in the works of Horkheimer, Adorno, and Marcuse, argued that products of mass media and consumer culture were politically regressive. In developing this argument, Adorno offered a concept he called *reification*, which "refers to the way that things are produced by society, including the way that it is organized, appear as entirely natural and beyond question [28, p.172]. The underlying concepts here are notions of ideology and alienation as interpreted by some theorists in the Marxist tradition. Simplifying, the basic idea is that dominant social classes maintain their dominance by disseminating a system of myths presenting the status quo as natural and good (this is ideology) which encourages the working class to buy into a system that works against its own interest (this is alienation). Consumer culture is the key mechanism of this system: movies, magazines, and design represent and implement a collection of norms and behaviors that condition the working class (this is reification). The hope was that if critique could expose such operations and bring them to our collective consciousness that we might be better able to resist ideology and reification and instead work towards a more just society.

Although Dunne and Raby in an interview distance critical design from the Frankfurt School [16], their formulation of critical design has unmistakable affinities with it:

> Product genre…offers a very limited experience. Like a Hollywood movie, the emphasis is on easy pleasure and conformist values. This genre reinforces the status quo rather than challenging it. We are surrounded by products that give us an illusion of choice and encourage passivity. But industrial design's position at the heart of consumer culture (it is fuelled by the capitalist system, after all) could be subverted for more socially beneficial ends by providing a unique aesthetic medium that engages the user's imagination [15, p.45]

Their language "illusion of choice," "passivity," "reinforces the status quo," "easy pleasure and conformist values," and "fuelled by the capitalist system" bear the unmistakable stamp of the Frankfurt view of ideology. And Dunne and Raby, correctly in our view, pick up on an important implication of this thought for designers: in many ways, harmful ideologies are perpetuated through our work, which is to say that we can become a locus of resistance, and thus by implication *designers are ethically implicated one way or another in the problem domain of social domination no matter what we do*. Dunne and Raby sketch out two opposing ethical positions that design inevitably participates in:

> Design can be described as falling into two very broad categories: affirmative design and critical design. The former reinforces how things are now, it conforms to cultural, social, technical, and economic expectation. Most design falls into this category. The latter rejects how things are now as being the only possibility, it provides a critique of the prevailing situation through designs that embody alternative social, cultural, technical, or economic values. [15, p.58]

Critical design, like Frankfurt School critical theory before it, is a research strategy dedicated to transgressing and undermining social conformity, passivity, and similar values of capitalist ideology, in hopes of bringing about social emancipation. These goals were reinvigorated by the advent of poststructuralism in the 1960s and 70s, especially in the work of Barthes [5]. But whereas these critical theorists used a combination of philosophical and social scientific practices [31], Dunne and Raby instead propose a design research program to operate in similar ways.

So how does critical design subvert the system, engage the user's imagination, and bring about social change? Dunne describes critical design as "a form of social research," so its primary intended outcome is knowledge, not a design product. For Dunne and Raby, its purpose is to "seduce the viewer into the world of ideas rather than objects" [14, p.147], and "to make us think. But also raising awareness, exposing assumptions, provoking action, sparking debate, even entertaining in an intellectual sort of way, like literature or film" [17]. In short, critical design uses design as a strategy to cultivate in the public a critical sensibility, which they define as follows:

> The critical sensibility, at its most basic, is simply about not taking things for granted, to question and look beneath the surface. This is not new and is common in other fields; what is new is trying to use design as a tool for doing this. [18]

The specific critical goal is to leverage design itself in bringing about more critical attitudes in the public and critically innovative thinking among designers. As noted earlier, Dunne and Raby offer few specifics on how this is done, and they characterize critical design as more of an "attitude" than a "method." Indeed, we could find very little methodological direction anywhere in their writings, though they imply one in their use of words like "transgression," "provocation," "satire," and the "staging of dilemmas."

In sum, critical design as articulated by Dunne and Raby is a professional ethical stance for designers. It holds the design profession to account for its complicity with capitalist ideology and alienation. It names some design values of global capitalism—conformity, obedience, easy pleasure, and corporate identity, among others. It challenges designers and consumers alike to envision—and to demand—design products that reflect a more challenging view of human needs and experience, including engaging the sorts of

dark pleasures that the best literature and film engage. By inscribing alternative values in designs, critical design cultivates critical attitudes among consumers and designers alike, creating demand for and supporting the professional emergence of alternative design futures.

CRITIQUING CRITICAL DESIGN

We are highly sympathetic to the research project of critical design, but we are discouraged by its relatively weak showing in HCI. For critical design to emerge as a design research program in HCI, we believe that other researchers need to step in and contribute to it, and also that—in the critical spirit—these others will have to operate without Dunne and Raby's expressed or implied blessing. In this section, we will react critically to some of the central claims of critical design. By doing so, we aim to identify areas of opportunity for developing critical design.

Critical Design is Opposed to Affirmative Design

At the core of Dunne and Raby's thinking is their opposition between affirmative and critical design, that is, between designs that affirm vs. subvert the status quo, defined as global capitalism. While the direction of this thinking is appealing, its present formulation is more vague and political than professionally useful. It is political, because Dunne and Raby not only make the distinction but also attach strong value judgments to it: affirmative design is the common practice, and this practice is amoral and ultimately a dupe for capitalist ideology, while critical designers are described as moral agents who seek to change society for the better. Since affirmative design is a pejorative, and critical design is an honorific, the question of who gets to decide whether a design is affirmative or critical is key.

Nor is it clear how such a judgment could be made: how do we recognize critical design when we see it? It would seem that lots of designs challenge the status quo in certain ways. For example, objects of Japanese consumer culture often strike Westerners as challenging and even defamiliarizing, so Japanese designers on this view would seem to become critical designers (but only in the West) by virtue of historically accidental cultural differences! By the same token, if a designer had all the right critical stances and attitudes, but produced designs that were ultimately affirmative in spite of her best efforts, then it would seem that we couldn't call her a critical designer.

The stated binarism of the affirmative/critical opposition also cannot deal with the well known fact that capitalism is extremely fast at appropriating countercultural signifiers and commercializing them for the mainstream, e.g., Vivienne Westwood's appropriation of punk visuality into haute couture. A more complex case is digitally enabled designer sex toys, the (capitalist) designers of which are collaborating with feminist activists, sexual health experts, and the public to design devices that simultaneously transgress against mainstream sexual norms and also provide consumers very simple pleasures [3]; so are they critical or affirmative?

In short, the affirmative/critical distinction points to an ideal whose relationship is very difficult to understand from the perspective of real designs, and yet how a designer or her designs are judged by these criteria has strong consequences in terms of dissemination, funding, reputation, etc. Without a richer vocabulary for making judgments in a rational and consensus-driven way, critical design risks being a cult of personality and a stick to hit people with, rather than a self- and critically-reflexive professional stance.

Critical Design is Not Art

In several writings Dunne and Raby react to the common perception that critical design is art, but they emphatically assert that critical design is not art. We begin by summarizing why a person might suppose critical design is art-like. By identifying critical designs as artifacts that bring about criticality; as aesthetic artifacts that operate (epistemologically at least) outside of global capitalism; and as artifacts that foreground provocation and transgression, the staging of existential situations, and the exposition of cultural assumptions, Dunne and Raby deploy a conceptual vocabulary strongly associated with art. The notions of aesthetic artifacts, aesthetic situations, and aesthetic experiences, understood in ways that art historians, literary theorists, philosophers of art, and film critics talk about such things is also a strong contributing current throughout their work.

With that background, let us consider the two arguments that Dunne and Raby make to refuse the art designation for critical design. One is that art is isolated from the everyday and its messages easily bracketed aside by the public as "just art," but design is a part of the everyday and has more potential to disturb the everyday [15, p.58;17]. The other is that art is "shocking and extreme," but critical design "needs to be closer to the everyday, that's where the power to disturb comes from" [17].

Regarding the first—that art is isolated from the everyday, which creates a bracketing that allows people to dismiss art—we respond that this view seems hard to square with experience. Art *is* a part of everyday life: teenagers in high school bands and ballet classes, art house cinema, sacred art, fine art photography on magazine covers, open air jazz concerts in city parks, graffiti, etc. We couldn't avoid art—or its messages—if we wanted to. Similarly, the notion that art is "shocking and extreme" is an overly narrow conceptualization of art. Duchamp, Mapplethorpe, and Schneemann certainly shocked audiences, but they are in the minority, if we acknowledge such things as Chinese landscape paintings, eighteenth century chamber music, sculpture gardens, still life painting, pastoral verse, sacred art, and folk art. At best, Dunne and Raby have distinguished themselves from a very limited art practice—the fine arts that are fashionable in today's artworld.

Moreover, even if we were to grant this dubious distinction between art and critical design in the terms Dunne and Raby seem to want to, how can Dunne and Raby ensure that their critical designs will not also be dismissed by members

of the public, if not as "art" then instead as "strange university stuff"? Their answer seems to be that any given good critical design walks a fine line: "Too weird and it will be dismissed as art, too normal and it will be effortlessly assimilated" [17]. But this answer suggests that it is the individual design, not the ontological category to which it belongs (i.e., art vs. critical design), that determines its critical effects. But then one could argue that there is no reason why a given work of art cannot also walk that line between being dismissed as weird and being assimilated as everyday; indeed, isn't the desire to be challenged in this way the reason why so many of us listen to classical music, go to art exhibitions and museums, watch art films, and read classic or challenging novels? Dunne and Raby's assertions notwithstanding, the difference between art and critical design does not appear to be ontological; it must be something else, a topic to which we return below.

Critical Design is Critical

What distinguishes critical design from other forms of design is presumably its criticality. But in spite of diverse efforts, Dunne and Raby do not articulate what they mean by "critical" in sufficiently practical terms. We have already cited the most explicit definition of "critical" that we could find in Dunne and Raby's writings: "The critical sensibility, at its most basic, is simply about not taking things for granted, to question and look beneath the surface" [18]. This is a straightforward and conventional enough definition. The immediate follow-up questions are: what does it mean to "look beneath the surface"? What sort of things are you supposed to find under there? And how do you know when you've identified the most important things under that surface? Dunne and Raby have much to offer in response to these questions. Their primary strategy is to offer dozens if not hundreds of examples of designs that they argue serve a critical function. These examples themselves are thematically organized around provocative ideas. In many cases, these readings are supplemented with brief allusions to critical thinkers and design intellectuals. A typical example of the approach is "(In)human Factors" a chapter in *Hertzian Tales* [14]. Dunne introduces the concept of usability only to turn it on its head to suggest that user-friendliness is a bad norm to try to achieve, because it obfuscates the ideology of design and encourages passivity. The chapter is in many ways an enjoyable read, because it makes startling connections between concepts and design particulars. And yet "(In)human Factors" is also a very difficult read. It is a soup of ideas: dozens of challenging designs, a dizzying array of Marxist, semiotic, and architectural theorists follow on each other fast and furious, with little explication or development. It places a considerable burden on the reader to infer how all of this adds up to a critical design practice.

Understanding what's critical about critical design might be easier if Dunne and Raby's work clearly explicated a healthy range of critical outcomes that have emerged from critical designs. But here their writings are surprisingly narrow and repetitive: we read a lot about transgression, provocation, defamiliarization, and estrangement—a deeply related (both logically and historically) collection of ideas. A thoughtful reader might wonder whether defamiliarization and ideology really are all that "critical" boils down to. Our answer is an emphatic no, and thereby we open the door through which we hope to contribute to critical design.

RECONSTITUTING CRITICAL DESIGN

Given the sorts of concerns that we have raised, a sympathetic but critical contribution to critical design therefore might try to change the practice in a way that both preserves what is good in critical design and rectifies some of its existing shortcomings. Here is what we believe is good about critical design and that come what may we want to preserve: critical design is a design research practice that foregrounds the ethical positioning of designers; this practice is suspicious of the potential for hidden ideologies that can harm the public; it optimistically seeks out, tries out, and disseminates new design values; it seeks to cultivate critical awareness in designers and consumers alike in, by means of, and through designs; it views this activity as democratically participatory. The intent of the following is to provide practical resources to support HCI researchers in doing all of this.

The primary concern that we hope to address is that Dunne and Raby's view of "critical" is too eccentric and narrow and inadvertently mystifies critical design. We believe that substantially rethinking the notion of *critical* in this literature will also help address two other secondary problems: the disturbing politics and vagueness of the affirmative versus critical design distinction and the muddled relationship between critical design and art. Our approach has been to survey a wide range of critical literature from the past 150 years, seeking to collect and accessibly present some of the diverse notions and uses of critical thought that have had an impact in other fields. Our rhetorical strategy is to present two "families" of thought, not to assert them as hard ontological categories or as the correct way to think about critical thought, but rather because doing so offers pragmatic benefits by revealing how critical concepts *are actually used*. We will refer to the two families as *critical theory* and *metacriticism*.

- *Critical theory* refers to the family of skeptical sociocultural critique with origins in the philosophy of Marx of Nietzsche. It includes the Frankfurt School of critical theory and the explosion of critical theory between the 1950s and 1980s, which included semiotics, poststructuralism, feminism, psychoanalysis, and Marxism.
- *Metacriticism* refers to attempts to answer questions such as: What are the categories of criticism? How do we distinguish good from bad criticism? What is the social role of criticism? Generally, it is concerned with skilled appreciation of the arts and can be found in the English-language tradition of literary criticism (e.g., Arnold, Frye, Eliot, Abrams, and Bloom) and analytic aesthetics (e.g., Beardsley, Cavell, and Carroll).

The sketches we present of these families of thought obviously fail to account for both the variety and conflict within each family and also the complex relationships between them. Nonetheless, by distinguishing them, we can tease out some different threads that constitute critical thought and show ways that they have been used, which in turn reveals their potential usefulness for design researchers.

Critical Theory

We start with critical theory, because in many ways Dunne and Raby seem to rely on this line of thinking more than the other. We seek to give a sense of critical theory as a holistic or synoptic framework for thought, rather than a collection of unclearly related concepts (as they are often presented in HCI). The categories we will briefly sketch are predispositions, methods, theories and concepts, general cultural benefits, and what they offer critical design; we acknowledge that some of this vocabulary is alien to critical thought (especially "methods"), and our use of it reflects our intent to express this thought as accessibly as possible for HCI.

Predispositions. As noted earlier, one fundamental thread of all forms of critical theory is skepticism, a suspicion that social reality is not what it seems but rather that something else quite different is going on underneath its surfaces: capitalist domination, patriarchal oppression, erotic and thanatotic unconscious drives, signifying systems, etc. The job of the critical theorist is to expose these hidden forces that are claimed to determine much of our social lives. Implicated in all of this are social institutions—governments, the sciences, the arts—which means that the critical theorist often takes a skeptical position against these institutions and whatever they celebrate as part of the problem. On this view, we don't make high school kids read Shakespeare because his plays enlighten us, but rather because they inculcate students into an ideology by championing certain values over others and/or by providing aesthetic pleasures that mask the pain of real existence. A related predisposition of critical theory is that most people are alienated in some form or other, that they are fooled by the system, and that the critical theorists can facilitate in their emancipation.

Methodologies. Critical theorists commonly use three methodological strategies to do their work. The starting point is what Carroll calls "the hermeneutics of suspicion," which refers to the skepticism just summarized, cast specifically as an interpretative (as opposed to, e.g., empirical) problem [10]. Ideology, patriarchy, and the unconscious often do not manifest themselves in directly observable or measurable ways, and so their existence and operations must be interpreted; critical theory is a strategy of reading social formations and artifacts. One particular hermeneutic strategy is the deployment of *dialectics* that foreground conflicts and historical specificity within societies, eras, situations, events, etc., which are normally presented as unified and timeless. For example, feminist critics have shown that the social sciences, in spite of their rigor and commitment to truth, have carried within them prejudices and gendered power relations that are irrational by social science's own standards, and that that irrationality has had consequences in the world that are invisible without this critique [27]. A related methodological approach is *utopian thinking*, which imagines realistic but genuinely better worlds or societies, setting up a dialectical contrast between our present reality and its imagined counterpart, which both stimulates demand for a better society and may also clarify some of the concrete mechanisms of a better society [21,28].

Theories and concepts. Critical theory commonly comprises systems of concepts that facilitate the activity of the hermeneutics of suspicion: ideology, reification, alienation, fetish for Marxism; unconscious, eros, mirror stage, the abject for psychoanalysis, etc. But it is the *use* of these concepts that distinguishes critical theory. A good scientific theory is parsimonious and explanatory: it explains why a diverse range of phenomena are the way they are (e.g., evolution or global warming). Moreover, scientific theory is (ideally) objective and apolitical. But, paraphrasing Marx, the point of critical theory is not to describe the world but to *change* it. Theory is introduced speculatively to pierce through and destroy ideological constructs; metaphors of violence are quite common when characterizing critical theory, from Baudrillard's "speculation to the death" to Stuart Hall's account of feminism's effects on cultural studies: "As the thief in the night, it broke in; interrupted, made an unseemly noise, seized the time, crapped on the table of cultural studies" (and, if not obvious, for Hall this was a good development) [26, pp.282-3]. Critical theory is thus often adversarial and confrontational.

Sociocultural benefits. The most direct cultural benefit of critical theory has arguably been its ability to expose the limits of rationality, various hidden modes of domination, and the relationships between the rationality and domination. Doing so supports both social activism and scientific reform. By pointing out, for example, the rampant sexism and racism of popular media, critical theorists helped effect at least some change in the images of women and minorities in popular media. Above all, critical theory holds out the hope that with and through it, people can improve the socio-political situations in which they find themselves.

Potential uptakes for critical design. As Dunne and Raby make clear, they take seriously the skepticism at the heart of critical theory, and applying it to their own profession—design—they came to understand how designers participate in global capitalist hegemony and began to think—dialectically—how they could resist it. Clearly the conceptual vocabulary of the Frankfurt School has influenced Dunne and Raby, and we see in their writings glimpses of other critical theoretic conceptual vocabularies, though they are not yet put to as much work as the Frankfurt framework. Our reading of Marxist utopian thought—e.g., that of Marcuse—is compatible with critical design, though Dunne and Raby denigrate utopianism many times (we suspect we're

not defining "utopian thought" in the same way they are). We also observe that feminism and psychoanalysis would seem to be powerful intellectual resources for critical design, though Dunne and Raby make less use of them.

More critically, we also note some challenges for critical theory's introduction into critical design. One challenge is tone: critical theorists can come across as sanctimonious, and we read Dunne and Raby sometimes in that way, which undercuts consensus. More radically, postmodern forms of critical theory seem to preclude the very possibility of consensus, seemingly denying the possibility of facts or communication [30]: staying grounded will be key, though what that would mean exactly is unclear. A final risk of critical theories is that they sometimes imply determinism or "grand narratives" in Lyotard's memorable phrase, leaving little room for agency, the possibility of intentional change, or any room for critical theory itself (or, by extension, critical design).

Metacriticism

Though Dunne and Raby make little direct reference to the tradition of metacriticism, it seems obvious to us that it, too, can be leveraged for critical design. We follow much the same procedure as before, attempting to offer a synoptic description of this family of thought structured by a handful of common categories.

Predispositions. In the grouping of literature we're referring to as metacriticism, most of the writers are speaking as cultural thinkers and educators within (mostly) state-supported educational institutions. These writers, from the Victorian Mathew Arnold [2] through T.S Eliot [19], René Wellek [33], and Harold Bloom [9], take for granted that humankind's most advanced and enlightening forms of thought can be found in the great traditions of the arts, and therefore that members of a civilized society should engage with them. As philosopher Nelson Goodman writes, aesthetic symbolization "is to be judged fundamentally by how well it serves the cognitive purpose: by the delicacy of its discriminations and the aptness of its allusions; by the way it works in grasping, exploring, and informing the world; by how it analyzes, sorts, orders, and organizes; by how it participates in the making, manipulation, retention, and transformation of knowledge" [25, p. 253]. Criticism makes the cognitive benefits of aesthetic engagement more accessible to the public. This view contrasts with the view common in critical theory that "great art" is simply another mechanism of reification and alienation.

In addition to positing that engagement with the arts is intellectually beneficial for the public, the metacriticism family of thought also confronts the fact that this engagement is not easy or natural. Thus, a social problem that critics confront is helping citizens achieve cultural competence: the ability perceive the (dis)value of cultural products, to perceive and make delicate discriminations, to have sensitive and insightful rather than crude aesthetic reactions, to cultivate an aesthetic sensibility. Criticism—from the first time a child hears "isn't that sunset beautiful?" from a parent through an academic explication of the role of narrative in a modern dance performance—helps us build these skills.

Methodologies. The methods of this tradition are often highly medium- and discipline-specific, and above all they are used to support skilled aesthetic analysis. Noël Carroll describes criticism as comprising six fundamental activities: description, classification, context-providing, elucidation, interpretation, and analysis [11]. There's no room to explain here what he means by each of these, but suffice it to say that all of these are highly technical activities that support the close reading of cultural texts. Another common methodological strategy deployed throughout this tradition is a careful analysis of the relationships between aesthetic forms (e.g., rhetoric, materials, medium) and aesthetic experiences (e.g., insights, interpretations, emotional responses, and discovery of truth) [7].

Theories and concepts. Comparatively speaking, metacriticism tends to be eclectic and pragmatic; see e.g., [1]. One reason for this is the quasi-scientific rhetoric often deployed to characterize its work, and in particular the notion that criticism is an inductive discipline [1,19,22,33]. In that sense criticism tends to be relatively undogmatic and strives to be about attentiveness to artworks themselves; many recent critics (Carroll is one of many examples) are even skeptical of critical theory's reflexive skepticism, challenging whether its skepticism is warranted as often as it is used and suggesting that it distracts from the value of cultural texts. Metacriticism's conceptual vocabulary fluidly accommodates concepts ancient and modern: *ekphrasis*, *catharsis*, *mimesis*, the objective correlative, the intentional fallacy, the *novum*, and so forth. If criticism has an underlying theoretical commitment, it is probably the idea that increasingly skilled aesthetic perception leads to increasingly skilled aesthetic appreciation, which in turn leads to wisdom or individual enlightenment.

Criticism has two subcategories: criticism of individual works and criticism of ideas [1]. The former includes close readings typically of works already deemed important or works whose importance critics wish to promote, while the latter collects, curates, and critiques important ideas to help readers make better use of them (this paper is an example of this mode of criticism). As with critical theory, the role of theory in this tradition is speculative: not to explain what is known but to challenge us to see in new ways, to generate new modes of engagement or ideas.

Sociocultural benefits. A key benefit of this family is its broad educational value, that is, its focus on helping remove perceptual and intellectual barriers that prevent people from appreciating the value of art in aesthetically complex and valuable ways. Importantly, this practice scales gracefully from schoolchildren throughout life, since we are always able to learn new and increasingly subtle aesthetic or critical distinctions in much the same way we did as children [32]. Simply, criticism makes our lives more aesthetic; it's

why we seek docents in museums, why design schools teach crits, and why we read reviews of books and movies. Another benefit is criticism's focus on (if not full achievement of) rational consensus building and mutual understanding of profoundly subjective phenomena such as aesthetic value judgments, a tradition inherited from Kant.

Potential uptakes for critical design. Critical design's ability to inculcate critical thought and the imagination of alternative futures is dependent on how insightfully people can read designs: aesthetic perception, imagination, insight, and experience are not effects simply caused by visual stimuli (no matter what HCI research says on the subject); they are the result of a skilled and expert cultural subject's efforts. We know of no practice that theorizes about or, in a very everyday sense *creates* such subjects, more than criticism. Medium-specific analytic skills are the stock and trade of criticism, and it seems obvious to us that critical design can avail itself of and contribute to them. Similarly, the critic is valued not in terms of how well he reflects tastes, but rather in terms of how he *sets* them, or rather, how "he sets the terms in which our tastes, whatever they happen to be, may be protected, or overcome" [12, p.403].

As for the limits of metacriticism as a resource for critical design, we note that most of it is persistently apolitical. This is true even of recent work in this area. But the choice of which "great works" we should be honing our skills with continues to be a loaded one. Dunne and Raby are, among other things, great curators—their books are loaded with stimulating examples—so it's vitally important that critical design's search for the "best designs" be deeply reflective about how "best" is defined.

What Makes Critical Design Critical

In synoptically outlining critical theory and metacriticism as two families of thought, we hoped to tease out some concepts and the uses to which they have been put, in hopes of creating some cognitive handles for design researchers to grab onto and hopefully inspire them to engage in some of these literatures directly.

By emphasizing the ways that these two families of thought complement each other—e.g., where critical theory was strong on politics, metacriticism was naïve; where critical theory's agendas sometimes overwhelmed cultural works, metacriticism's offers medium-specific sensitivities—we also hoped to acknowledge the particular limitations of different concepts. For these reasons, a contemporary humanities degree typically covers both close reading and the hermeneutics of suspicion. And, all apparent differences notwithstanding, both critical theory and metacriticism share a number of deeper qualities, and understanding these qualities can shed light on many of the ways that critical design can operate as a practice—including theories, methodologies, objects of inquiry, attitudes, and so forth.

Perspective-shifting holistic understandings. Both critical theory and metacriticism view critical activity as the construction of an account that holistically explains all of the relevant facts, features, and effects of a phenomenon in a way that shifts one's perspective or improve one's perceptual acuity. The phenomenon to be accounted for might be a work, a history of an idea or genre, a hidden operation in the social sphere, etc. In some ways, this reverses the operations of science, which commonly uses atomic thinking to decompose a complex concept (e.g., experience) into models comprising approximating parts set in some sort of relationship to one another [8]. Criticism frequently works in the other direction, combining a literary detail, an experiential effect, a historical detail, and a speculative theory together to produce a unifying account that explains all of the above—not to be correct but to suggest new modes of understanding it.

Theory as speculation. For both critical theory and metacriticism, theory makes no claim to be "right" in the way that scientific theories do. When critical theorist Baudrillard wrote *The Gulf War Did Not Take Place*, he was not offering a conspiracy theory but rather modeling a mode of interpretation that problematizes media-reported images and claims about the "war" and trying to adjust our conceptual models to better fit his interpretation of that conflict [5]. Similarly, when Cavell writes, "The philosopher … turns to the reader not to convince him without proof but to get him to prove something, test something, against himself" [12, p.407], he is making it clear that he is not offering up verifiable truth-claims but rather challenging his reader to think about his topic in a new mode.

A dialogic methodology. In his reflection on the classics, the philosopher Gadamer observed that in spite of the different ways of life depicted in earlier artworks, we nonetheless identify with them and feel intensely about them. He argues that when we read the classics, we do not decode a static content already there, but rather we enter into an active dialogue with the hopes, fears, values, and actions of those who lived them; our own horizons are fused with those of the classic, and in that luminous moment we experience new alignments of our own thoughts and come out of it transformed [23,28]. Whether the "luminous moment" is one of aesthetic enlightenment (via a perceptive and personal struggle with classics) or social revelation (via a critical interrogation of suppressed conflicts), both metacriticism and critical theory seek meaning and discovery in the struggle, heterogeneity, and polyphony of human expressions and experiences, which no one expects or even hopes to finally resolve.

Improvement of the public's cultural competence. Critical theory models ways to read skeptically, to be suspicious of false harmonies and false pleasures; metacriticism models ways to perceive and read with unparalleled sensitivity and insight. Both offer means to "look beyond the surface," and both have very specific technical vocabularies to perceive, identify, and judge what is down there below it. One answer, of course, is the global corporate ideology that

Dunne and Raby frequently raise, but there are many other things "down there," including significant form, patriarchy, aesthetic expression, psychosexual dysfunction, *mimesis*—and perhaps somewhere even wisdom itself.

Reflexivity. Inheriting the Kantian critical tradition, both critical theory and metacriticism are reflexively aware that their own rationalities are limited; both reflect on the sociocultural and epistemological conditions that make their work possible; and both see their theoretical work as engaged with, not cut off from in the name of objectivity, the worlds they occupy and are ethically committed to improve. Critical thought is in service of social change, from the present to a hoped-for future that is attainable but not immediately within reach.

So if we want to understand what makes critical design "critical," the preceding list gives us our answer: *a design research project may be judged "critical" to the extents that it proposes a perspective-changing holistic account of a given phenomenon, and that this account is grounded in speculative theory, reflects a dialogical methodology, improves the public's cultural competence, and is reflexively aware of itself as an actor—with both power and constraints—within the social world it is seeking to change*.

PRIOR PROBLEMS, RESOLVED

Earlier in this essay we took issue with Dunne and Raby's binary use of affirmative versus critical design, and we also took issue with their claim that critical design is not art. We asserted that revisiting the notion of *critical* in critical design would shed some light on these issues.

Affirmative versus critical design. We do not take issue with the value judgments Dunne and Raby attach to these terms: we do recognize a value distinction between affirming and critiquing the status quo. Rather, we take issue with the *scope* of their application to designs or designers considered as wholes, and the *lack of criteria* for making judgments that have such obviously political consequences.

Regarding the scope, we note that critics seldom see any cultural symbol as meaning only one thing; Virgil in Dante's *Divine Comedy* is both a character and an allegory of human rationality, and when Romeo declares Juliet the sun, he is not practicing amateur astronomy. A design is critical inasmuch as some aspect of it critiques the status quo, and it is affirmative inasmuch as it affirms the status quo; that is, any given design may be both affirmative and critical. A symbolic object and the status quo are each infinitely complex, and their relationships must be explicated if aspects of a design are to be deemed affirmative or critical.

That interpretative activity, however, adds up to a critical value judgment for which one has to supply good reasons, paraphrasing Carroll [11]. We hope the features of criticality identified above facilitate the formulation of good reasons, along with traditional critical categories, such as artistic intention, historical reception/effects, semantic/syntactic complexity, agency and voice granted to the marginalized, delicacy of discrimination, innovative use of materials/medium, and so forth. The convincingness of the argument, buttressed by recognizably good reasons, diminishes, though does not remove, the political sting of praising or censuring a design as affirmative or critical.

Whether critical design can be art. It strikes us as odd that Dunne and Raby simultaneously demand that critical design be robustly aesthetic but ontologically distinct from art. As we've argued, attempts to make ontological distinctions between art and critical design are misguided. A better strategy would have been to say that critical design and art may or may not overlap, but that critical design, tactically speaking, should not be absorbed into the social practices of the artworld, with their institutional structures of exhibitions, museums, and funding. Rather, critical design works best when it is operating within industry and commerce, not because art can't get into everyday life, but rather because it is easier to get design into everyday life in predictably quotidian ways. If one composes a sonata, it is hard to anticipate any particular public reception of it, but if one builds an app, one can get it onto people's mobile devices and see what happens (at worst by paying research subjects to do so as part of a study). It is the comparative ease with which design can be dropped into everyday life (in contrast to art) that makes it appealing as a medium for critical research: that ease is a convincing methodological benefit, and this is an important insight that Dunne and Raby seem to have understood but not been able to express clearly.

DESIGNS THAT ARE CRITICAL

So far, our analysis has remained very theoretical and largely isolated from design itself. To help reconnect the preceding analysis back to design, we analyze two recent design research projects in HCI that meet the following criteria: they are not the work of Dunne and Raby; they probably would not be considered critical designs in Dunne and Raby's formulation; they do not claim to be critical designs; and yet, using our proposed reformulation of critical design, we are comfortable asserting that they are designs that are critical. We introduce each project and offer reasons for our judgment that they are critical. Our hope is that this analysis increases the pool of available critical design exemplars—far more design is "critical" than is generally recognized, e.g., participatory design—and also helps HCI researchers interpret the criticality of designs for themselves.

"Hydroscopes" and "Silence and Whispers"

"Hydroscopes" and "Silence and Whispers" are a pair of research through design studies in which the authors, Dalsgaard and Dindler, develop theoretical understandings of user engagement; in particular, these studies investigate the notion of an *interactive peephole* as an approach to designing for engagement [13]. For them, interactive peepholes "refer to aspects of interactive artifacts and environments that utilize the tension between what is hidden and what is revealed to foster engagement through curiosity and inquiry" [13, p.1]. Both designs are situated

within existing and original theories of engagement; at the same time, both are also situated within prior interactive installations that feature peepholes. “Hydroscopes” is an aquarium installation in which visitors prototype a fish and then release it into a virtual ocean, which they can see through a peephole. “Silence and Whispers” is an audio installation at an historical site in which stories from the site’s history are cut up and presented as audio snippets and chalk writing snippets; the partial glimpses into the historical stories function as metaphorical peepholes.

We argue that this project constitutes critical design for the following reasons. Contributing practically to theories of user engagement, as opposed to brand experience, this project constructs design in service of the user as an active maker of meaning—an emancipatory perspective. From it, the authors offer a holistic and insightful account of the notion of an interactive peephole as an approach to user engagement. This account helps us think in a new way about theories of user engagement and it also trains us how to read designs that use peepholes in both literal and figurative ways; and it suggests ways that it can support future design work. The project’s movement back and forth among existing (and highly interdisciplinary) theories (e.g., those of Borgman, Schön, Hedegaard, Csikszentmihalyi, McCarthy & Wright), their own theorizing (i.e., of interactive peepholes), prior art and design projects that incorporated peepholes as an interactive technique, their own designs, and the contexts into which they were placed is a robustly dialogic methodology. Its construction of theory is speculative; the authors use theories as lenses through which to structure their design thinking. Throughout they assess the limitations of their theories and the designs themselves, showing an ongoing reflexivity to their work.

“The Prayer Companion”

Earlier in the paper we alluded to the problem of whether certain design projects from Goldsmiths counted as examples of critical design: we noted that some in HCI interpret this work to be critical design but also that Gaver denies that it is. We believe that the disagreement hinges on a distinction between “critical design” as specifically articulated by Dunne and Raby versus designs that are perceived to make a strong critical contribution in a broader sense. In Dunne and Raby’s sense, we agree that the Goldsmiths projects are not critical design; in the second and broader formulation, we argue that some of them are.

We use “The Prayer Companion” as one such example [24]. The Prayer Companion is a small text display device that shows news headlines and individuals’ statements from social media sites about how they feel. It is designed to be placed in a convent, so that nuns seeing it can pray for those affected by the events and the individuals. It is also a research through design project intended to help the designers develop “a range of topical, procedural, pragmatic and conceptual insights” [24, p.2055] about a number of design problem areas in HCI.

The Prayer Companion is a coherent yet non-verbal interpretation of the intersection of these themes: spirituality, design, materiality, the elderly, and technology. Its core proposition is that it is a design that supports spiritual life in an intimate and authentic way. Richly detailed processual, material, theoretical, receptional, and technological accounts of it are all offered, and in their details its coherence and appropriateness as a design and interpretation is justified both by its contributions to the spiritual life of the nuns who used it and to the HCI researchers who learned from it.

The Prayer Companion makes no effort to provoke or transgress the lives of the nuns, nor does it position itself as midwifing the nuns’ entry into critical thinking. To whatever extent the Prayer Companion changes the nuns’ thinking, it is likely in the new ways it connects them to the news and social media—a process influenced by the nuns’ own input—but how and whether this changes the nuns’ thinking is left to the nuns. The Prayer Companion thus takes a stance of humility; in doing so, it helps reveal what it means for design to be in service of users—an important, and arguably understated, contribution of the project. In these ways, The Prayer Companion is far from Dunne and Raby’s account of critical design, which takes a more confrontational stance toward its users.

At the same time, the Prayer Companion is used to critique—and in places even attack—mainstays in HCI. In particular, the paper strongly criticizes the subordination of materiality to functionality, the notion of “the elderly” as an intellectually justifiable (or even ethical) demographic to target via design, and the “disciplinary hubris” of mainstream HCI methods that cast themselves as “powerful champions of enfeebled users” [24, p.2055]. It also critiques HCI’s failures to account intimately for human experience, as opposed to “coordinating large organizations, ameliorating constraints, or building emotional relationships with products” [24, p.2057]. Critically speaking, the Prayer Companion’s “users” might be us: it is our eyes that are opened, our complacency that is transgressed, and our ideology that is exposed to interrogation. And it is based on the Prayer Companion’s simultaneous insightful service to the nuns and withering design-embodied critique of HCI theory and practices—and regardless of what Dunne, Raby, or Gaver might say—that a reasonable person can judge “The Prayer Companion” to be a design that is critical, that is, a critical design.

CONCLUSION

We have argued that critical design is a fit for much contemporary HCI research, but that its uptake is unexpectedly limited. We argued that part of the problem is lack of clarity, examples, and directions that would support its broader adoption, in particular surrounding the notion of what is “critical” about critical design. We surveyed critical thought and teased out a number of critical concepts, situated them within their theoretical contexts, and showed some of the practical ways that they have been used. We also offered

readings of two projects that we argue are critical, one that seeks to create new theory and another that seeks to critique and rework existing theory. Our hope is that this contribution makes critical design—or designs that are critical—more accessible and rewarding for HCI researchers concerned about the futures that we are designing.

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