A Speculative Feminist Approach to Design Project Management

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ABSTRACT

In this paper, we discuss how taking a speculative feminist approach, as proposed by some members of the human-computer interaction (HCI) community, results in a radically different design of software for project management. As we interpret it, speculative feminist design in HCI demonstrates attention to the following six principles: challenging the *status quo*; designing for an actionable ideal; searching out the invisible; considering the micro, meso, and macro; privileging transparency; and welcoming critique. In the context of project management, our approach to software design has therefore included the following priorities: all stakeholders have goals, but not necessarily shared goals; the line between an internal deliverable and an external project outcome is blurred; impacts can occur immediately or decades later; impact assessment methods need to be explicit in the project planning system. In adopting the terms speculative feminism and critical feminism, we intend that our work be understood as situated within the territory of Critical Theory as applied particularly to the work of the Frankfurt School. We introduce our design, called It's a Wicked World (IWW), as an example, although it is only the current iteration of one part of a larger, ongoing project.

Keywords: speculative feminist design, project management, human-computer interaction, wicked problems.

INTRODUCTION

Many excellent and even venerable tools exist for managing projects, from Gantt charts to Microsoft Project to Basecamp. Recent items also abound, with Capterra (2015) listing more than 450 entries under the category "project management software." What most of these systems share is a common understanding of what a project is and how it should be managed. This understanding might best be described using the SMART acronym for setting goals. Projects, like goals, should be Specific, Measurable, Achievable, Results-oriented, and Time-bound. The systems differ primarily in how this understanding has been implemented.

In this paper, we discuss the design of a somewhat new category of software for project management, intended to deal with projects that meet none of the SMART criteria, with the possible exception of results-orientation. We are essentially talking about projects that are attempting to deal directly with what Rittel and Webber (1973) called "wicked problems," which include the following characteristics: no definitive formulation (i.e. not specific), no definitive test (i.e. not measurable), every problem is a symptom of a problem at a higher level (i.e. not achievable), no stopping rules (i.e. not time-bound).

In addition, we employed a simple but radical rule of thumb: everything in the system should privilege a feminist design approach that is both intersectional[1] and speculative. Feminist design in computing, as defined by Bardzell and Bardzell (2016), "refers to IT design practices that are substantially informed by feminist thought and activism." This definition emerged out of the authors' work in gender human–computer interaction (HCI), feminist HCI, and critical design. We highlight the "intersectional" nature of our work since we support the position that oppression and discrimination simultaneously intersect and are experienced uniquely by those who do not identify with the dominant group's social, biological, and cultural norms (patriarchy, capitalism, and white supremacy). Thus, we commit to acknowledging and welcoming the differences among the situated perspectives of all participants, and to working well together, without eliding those differences. We also attempt to reflect the values of speculative design, while acknowledging Luiza Prado de O. Martins's (2014) criticism of its current practice and introduction of the idea of a "feminist speculative design": "a strategic approach to addressing issues of systemic gender violence and discrimination within speculative and critical design practices" (2014). We support Prado de O. Martins's engagement of Critical Theory as a useful model for how we can think about the things we are making and the things that have been made. Specifically, Critical Theory as practiced by the Frankfurt School requires us to engage in self-critique, especially with regard to the implicit and explicit power structures inherent in both our design practices and our design products. This is essential because we understand the design of an artefact or process to be, in and of itself, a way to formulate an argument about designing similar processes or artefacts. The explanation proposed by Galey and Ruecker (2011) is that design engages in both interpretation and making, and hence "can contribute to a theoretical framework for new questions facing humanists" (406). Similar to this idea, J. Bardzell (2014) argues that a design can function as a form of research. He builds on work in aesthetic cognitivism, and asserts that design, in its ability to tell us something about reality, contributes to human knowledge. We fully support Galey and Ruecker's and Bardzell's positions, and welcome the opportunity to interrogate designed artefacts at their macro,

meta, and micro levels. Such interrogation of an artefact would consider its existence as both a collection of multiple, designed parts, and a totality that is something far more complex than the additive nature of its individual components. It would also consider the inherently context-dependent nature of design.

Within the context of this larger approach, we introduce the design of a project management tool called It's a Wicked World (IWW). The IWW design, discussed in more detail later, consists of four primary parts: stakeholders, goals, deliverables, and strategies for assessment. Each part is strongly connected with the others, so that stakeholders are defined as individuals, emergent groups, and organizations that have goals for the projects. Goals, in turn, only exist in the sense that they produce deliverables, and deliverables are only valid if they are associated with one or more strategies for assessment.

There are also interconnections between elements within each part of the system. An individual stakeholder, for example, might be part of an emergent group or an organization. A particular goal will sometimes be part of a larger goal, and any given goal will often be shared among multiple stakeholders. Deliverables may be similarly nested and cross-listed, so that one deliverable might meet more than one goal. Strategies for assessment are similarly not mutually exclusive, and in fact it is a desirable feature of an assessment that it provides insight into the quality of more than one deliverable at a time.

1. CONTEXT

In discussing the history of HCI, Harrison *et al*. (2007) describe two major intellectual waves that have formed the field. While first-wave HCI emerged from engineering and focused on the machine, the second wave stemmed from cognitive science and focused on the user. During the second wave, formal methods and systematic testing made way for qualitative approaches (such as participatory design, contextual inquiries, and others) (Bødker, 2006). Bødker and others have suggested a third wave for HCI that attempts to consider a more complex view of the human life, including issues of culture, emotion, and life experience. Focus is on the "non-work, non-purposeful, non-rational" (1–2). The role of technology in issues of social justice – health, the environment, international development, and the experiences of marginalized communities – is beginning to be examined (Dimond 2012). Technologies, such as ubiquitous computing, visualization, affective and educational technology; and approaches, such as embodiment, situated meaning, values, and social issues, with prior poor fit in the second-wave, now find home in the third-wave: "all action,

interaction, and knowledge is seen as embodied in situated human actors" (Harrison, Tatar and Sengers, 2007).

Third-wave HCI recognizes that we no longer design single, monolithic systems, but technology that must be seen and used in relation to many other devices, applications, and systems and within a recognition of the complexity of work-life—technology, applications, and systems traverse out of home spaces and into work spaces, and vice versa (Bødker, 2006). Considerations of context(s) have become more complex as the ways that we cross-integrate technology into our lives has gained ubiquity. Discussions of emotion in HCI are not new (c.f. Norman, 2003) and were present in the second-wave; however, those discussions have expanded to include considerations of social and cultural interactions (Bødker, 2006). Participants are encouraged to engage in the design process (that is not a new approach) as "whole" individuals, not just in the singular roles most closely related to the design's objectives. Questions remain about how best to engage with marginalized individuals in the design process, not just those who are easy to access (and who, often, already hold substantial representation in HCI projects.)

In the last decade, HCI has witnessed a call for the integration of a feminist agenda into interaction design research and practice (Bardzell, "Feminist HCI", 2010). One reason may be, as noted by Hooks (1997), that feminist theory is traditionally characterized by its interdisciplinarity: "its transgression of the usual subject divides (e.g. literary, historical, philosophical, psychological, anthropological, and sociological)" (4). Blythe *et al*. (2008), in an analogous way, call HCI a "magpie discipline", because of its tendency to appropriate cognitive psychology, sociology, or engineering methods into its practice (183–184). Blythe *et al*. also challenge us to consider perspectives from Critical Theory in our HCI work, in addition to more traditional concerns of usability and efficiency, which they deem "no longer sufficient scopes of inquiry" (183). Muller (2011) offers that, in HCI, feminism has challenged our notions of scientific accuracy and social justice, helped us to think about how to hear ''the voice of the user,'' and contributed to innovations in qualitative research and analysis (447–449). Muller adds that feminist ideas have helped us to "re-orient our thinking away from an authority-given set of objectives, to a more polyvocal way to describe needs and goals" (448). The term polyvocal refers to the consideration of multiple perspectives while, specifically, adding volume to those diverse voices that are typically silenced.

At the same time, however, HCI work that appears to embody feminist principles, has shown a reluctance to explicitly engage with feminism, or possesses a complex and ambivalent attitude towards issues of gender (gender is either considered irrelevant to HCI, its relevance

is overlooked, or it is considered with hostility due to the belief that women are lesser creatures) (Bardzell and Churchill, 2011). Rode (2011) theorizes that the ignoring of gender may be neither sloppiness on the part of the researchers, nor a failure to take a theoretical stance on the subject. It may, in fact, be an expression of Liberal Feminism and an intentional denial of gender differences. Through the lens of Liberal Feminism, gender does not matter in general, thus should not matter in HCI. Our work adopts an intersectional approach to feminism, in which gender is an essential component.

The work of Jeffrey and Shaowen Bardzell and their colleagues stands out in the area of Feminist HCI. S. Bardzell describes her work as "the reflective integration of feminist strategies as a resource for interaction design" (Bardzell, "Feminist HCI" 2010), and proposes four types of contributions that can be made by feminism to HCI: in theory, methodology, user research, and evaluation. Feminism is proposed as a critical lens through which we can question core concepts, assumptions, and epistemologies of HCI. A Feminist HCI methodology is one that is clearly connected to some aspect of feminist theory. While maintaining a commitment to the epistemic values of traditional science, Feminist HCI would also be guided by certain moral values. First, the use of diverse and mixed methods is encouraged. Second, when methods are chosen, those choices come with assumptions, commitments, and goals which should be disclosed as part of the methodology; the researcher's own position in the world is also made transparent. Third, researchers are focused on building empathic relationships with research participants, and make the effort to understand them and their experiences. Fourth, co-construction and collaboration are encouraged, as much as is possible, between researchers and participants. Finally, S. Bardzell (2010) asks researchers to continually self-question "about whether the research is delivering on its ambitions to be feminist, improve human quality of life, and undermine rather than reinforce oppressive social structures, etc." She borrows from the notion of "qualities," introduced by Löwgren and Stolterman (2004), in an effort to transform the set of general principles described above into a set of qualities for feminist interaction design. While she acknowledges that the qualities she proposes are not unique to (most notably third-wave) HCI, she argues that such a "constellation of qualities" would characterize feminist interaction ("Feminist HCI" 1305). The six qualities proposed by Bardzell are pluralism, participation, advocacy, ecology, embodiment, and self-disclosure.

Several views opposing Bardzell and Bardzell's work exist. Rode (2011) outlines prior treatments of gender in HCI: those that parameterize gender; those that focus on the creation of gender-specific technology; and those that argue that gender is irrelevant. She calls for a

more direct engagement with gender in HCI and is concerned with how gender roles are enacted and performed in everyday life. Rode proposes a fourth contribution, beyond those offered by Bardzell: a socio-technical theory of gender, listing numerous additional feminist theories as potential contributors to HCI: Technology as Masculine Culture; Gender Positionality; Lived Body Experience; Radical Feminism; Marxist and Socialist Feminism; Psychoanalytic Feminism; Multicultural, Global, and Postcolonial Feminism; Ecofeminism; and Postmodern and Third Wave Feminism, in an effort to overturn present assumptions and treatment of gender in HCI.

A noteworthy question has also been raised by Burnett (2011): while Bardzell, Bardzell and colleagues suggest that a constellation of qualities will characterize Feminist HCI, they do not address how many qualities would need to be present in a constellation in order for it to qualify as Feminist (1–4). Too rigid a set of criteria (one that, for example, required all six qualities to be present) might exclude work that made a pertinent and worthwhile contribution; while too loose an application might result in the dilution and invalidation of the field. For example, if a project labeled itself as Feminist HCI because it had incorporated the quality of pluralism – design that resists "any single, totalizing, or universal point of view" (Burnett, 2011)—it could, potentially, be understood as aligning with certain "feminist" principles. Considering gender differences in software usage clearly reflects some important aspects of feminist practice; however, "taking into account gender differences in software usage so as to be inclusive of women as well as men" (Burnett, 2011) may be, in fact, replacing one limiting view of gender with another (that of the singular user with that of a binary), neither of which is, in fact, truly sensitive to marginalized communities.

Therefore, the question remains of how many Feminist HCI qualities are needed to form a constellation. Our position, as it pertains to this project, is that (a) stakeholders have the right to define themselves, their work, and their relationship and experience with the software we design; (b) we consider this work perpetually incomplete, hence open to rigorous, iterative critique; and (c) while we attempt to propose and reflect certain feminist values in our work (as discussed in detail below), we are less concerned with receiving some metaphorical gold star for feminist design, and more with contributing to the discourse via a cycle of thinking, making, and re-making from the perspective of a particular theoretical lens.

Efforts continue towards improving our understanding of the relationships between gender and technology; and how gender is impacted by and affects technology, its use, and its design (and vice versa). Work also continues in exploring how feminism(s) can support legitimate and intellectually rigorous creative activity and novel problem solving. In support of the

work that has been done to date in Feminist HCI by Bardzell and Bardzell, as well as Rode's critique of said efforts, we propose that there is room in Feminist HCI to do bolder work. Obrist and Fuchs (2010), for example, advocate for HCI's engagement with critical theory, specifically for a more dialectical thinking in HCI, in which we might view technology as having "multiple, contradictory effects on society" and society as having "multiple, contradictory effects on technology." Therefore, new interaction technologies can equally have negative as positive consequences on society, and those consequences need to be considered by designers. Furthermore, Obrist and Fuchs propose that interaction design is, in fact, the design of society and should, therefore, consider societal structures (economic, political, and cultural) that shape and are shaped by technology. Adding to this argument is Joanne Martin's (2003) position that critical theorists and feminist theorists should work together on problems of change, turning "away from seeking society-wide transformation, to focus on a critique of the status quo", towards "effectively, … reduc[ing] or eradicat[ing] those inequalities" (33). This view aligns well with the notion of Critical Design, which, following the Frankfurt School, challenges designers to use a critical theory-based approach to reflect and critique existing cultural values, mores, and practices (Bardzell, Bardzell, Forlizzi, Zimmerman, and Antanitis, 2012).

2. A SPECULATIVE FEMINIST FRAMEWORK FOR DESIGN

What can a Speculative Feminist approach to design accomplish? Our central concern in this project is how design can better serve complex real world problems, in particular those that are constructed by and exist within inter-related, rigid structures, institutions and corporations, and that impose authority onto people with limited power. S. Bardzell has aptly asked: "How do we simultaneously serve real-world computing needs and avoid perpetuating the marginalization of women and indeed any group in technology?" ("Feminist HCI", 1304). We agree that serving existing needs tends to reinforce the status quo, in particular when defined by those in upper management positions. However, an activist stance, as defined by design fiction or speculative design, is equally problematic not only because it privileges the values of the designer, but because it limits its audience to a particular class of artist-intellectuals, and its display to gallery spaces—a concern shared by Martins (2014).

In response, we propose the following, as a preliminary conceptual framework for the practice of Feminist Speculative Design. This framework consists of six parts and can be integrated into every aspect of the design process: during user and contextual research, during prototype ideation and iteration, and during artefact evaluation (within a design

process or in critiquing existing designs). It is a proposed model for a holistic reading and design of HCIs. We further suggest, however, that the application of the six-part framework be predicated on the call for reflective design by Sengers *et al.* (2005), thus, we encourage critical reflection while considering all of its principles.

Designers who engage in the practice of Feminist Speculative Design while developing HCIs:

1. Challenge existing methods, beliefs, systems, and processes;

2. Focus on an actionable ideal future;

3. Look for what has been made invisible or under represented;

4. Consider the micro, meso, and macro;

5. Privilege transparency and accountability; and

6. Expect and welcome being subjected to rigorous critique.

In presenting each of these principles, we will anchor our discussion in the design of the proposed IWW project management tool (Figure 1).
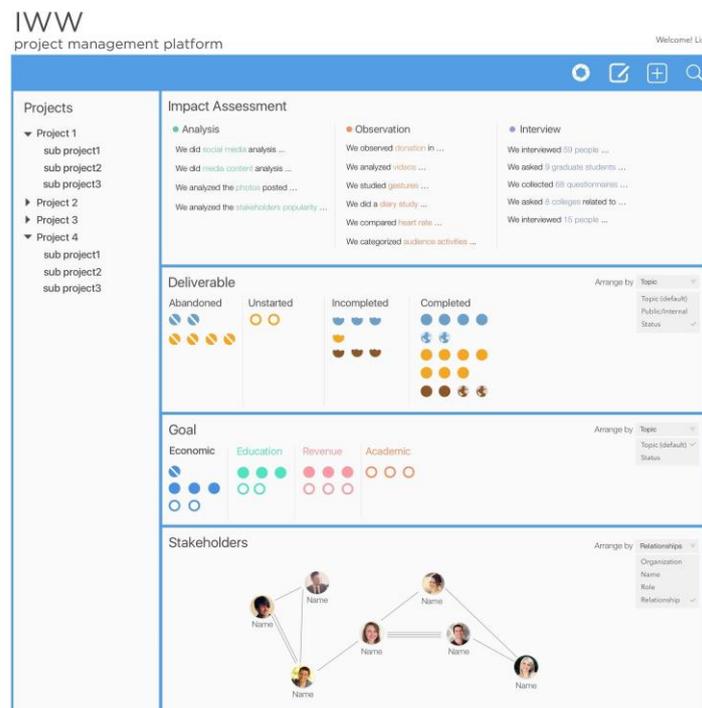
Figure 1: The homepage of the project management prototype called It's a Wicked World (IWW). Source: the authors.

2.1. Challenge existing methods, beliefs, systems, and processes

The concept of environmental scanning, well covered in business and management literature, is defined as strategic, purposeful, and organized information gathering, focused around a particular interest or critical decision being faced by an organization (Choo, 1999). Designers utilize a form of environmental scan when they review what exists as part of the material culture most relevant to a particular project. They may conduct an environmental scan, using the pre-defined user group(s), the industry, the subject matter, and/or the content as starting points, and gathering related visual materials, contexts where previous work had been produced, primary areas of concern, and samples of tone and language structure. However, without an intentional focus on diversifying the pool of existing design ideas (Ruecker, 2012), the use of environmental scans tends to support towards moderate shifts in design rather than extreme design departures. Similarly, user-centred design aims to challenge the unquestioned repetition of established practices so as to develop designs that can tangibly benefit actual users; but like environmental scans, they do not always challenge existing mental models, or social or cultural constraints. Feminist Speculative Design offers the opportunity to challenge and then redefine those qualities of a design that will be considered useful, usable, functional, and appropriate. We also aim to question more closely the needs and experiences of those who will affect and be affected by the design—especially people who oppose the interests of the dominant group.

IWW example: challenge existing methods, beliefs, systems, and processes

There are any number of approaches to iconoclastic design, from the disruptive to the speculative to the critical. In this case, we have followed the lead of Salamanca (2012) who points out that mediating artifacts (in this case, a project management interface) can be designed according to Fiske's (1992) taxonomy of social relations. Fiske proposes four imbricated categories: the hierarchical, market-based, communal, and equality-based. The vast majority of project management approaches privilege the first two modes, while our version attempts to privilege the last two. Specifically, our interface makes explicit the identities of and relationships among individual stakeholders, and requires them to articulate their own goals for the project. A practical consequence of this approach for design project management is a disruption in the traditional sequence of management tasks. A project manager would normally define the desired outcomes (in terms of deliverables, timelines, and resource expenditures) for a project, and then define team roles, select team members, and determine activities and workflow in order to fulfil the desired outcomes. However, our system requires that the selection of team members precede outcome

definition, and that the project's desired outcomes are defined in response to the values of individual stakeholders. As a result, our interface also makes visible a range of possible categories of project goals, which are customizable so that the system avoids predicting what goals may arise. One possibility that neither our theoretical stance nor our design practice has yet adequately addressed is that project outcomes might not be deliverables per se. Instead, they may be primarily relational, in the sense that they consist of preferred interactions among stakeholders. Preferred interactions may be more broadly defined, as in the context of relational aesthetics (following Bourriaud 1998) or more specifically, as in the context of restorative justice (Llewellyn 2012).

2.2. Focus on an actionable ideal future

While we aim to design HCIs that are departures from the ordinary and/or expected, we partner this goal with a desire for implementation. While not always geared for industry, Speculative Feminist Design is not an art object or an activist stance. It is design that attempts to enact positive change on its world by imagining actionable, ideal futures. Such imaginings can be either implied or implementable. Speculative Feminist futures direct us towards change by demonstrating what would be required to achieve them.

IWW example: Focus on an actionable ideal future

In the most practical sense, IWW engages with the actionable by retaining some expected components of traditional project management systems, specifically, individually visualized deliverables categorized as abandoned, unstarted, incomplete, or complete. The set of deliverables operates as a record of the ways in which the project has undertaken, considered undertaking, or decided not to undertake what would be required to achieve the ideal futures it imagines. One way that IWW engages with the actionable ideal is by avoiding measuring success by a project's ability to meet deadlines; there is no end to the opportunity to achieve the ideal future, so it is never too late for the ideal future to be actionable. This is also a way in which IWW keeps the possibility of improvement alive in wicked problems, which are by definition not achievable. IWW also engages with the ideal by inviting the broadest possible understanding of what a project might accomplish. In the future we propose, it is possible for project managers to explicitly identify and accommodate the individual and collective goals of all the stakeholders on the project. People are visible in the Stakeholder section of the interface as faces, and their reasons for participating are built into the plan as goals, each of which is associated with a deliverable, which in turn is connected to a specified form of impact assessment. One aspect of the system that complicates it as an

attainable future is the necessity for stakeholders to be willing to explicitly define all of their goals in ways that can be meaningfully delivered and assessed. To take an extreme example, someone who is working on the team in order to earn enough to support an illegal drug habit is not likely to make that goal available to the other members of the team. One way to mediate this possibility would be to provide a list of customizable categories such as publication, funding, raise, praise or reference, promotion or time off. Thus, stakeholders could choose to construct their own versions of the future or default to those provided by the system that are "close enough". That said, there is a sense in which a picklist is always going to fall short of representing the nuances of a particular group of stakeholders and their interests.

2.3. Look for what has been made invisible or under represented

Usability, "the user", and universality remain at the centre of HCI. Universality is a value that has been traditionally associated with masculinity; and the user prototype, it has been argued, is male, white, and heterosexual. This narrow approach to perceiving, defining, and serving the human population continues to dominate usability and design evaluation. Speculative Feminist Design is intentional in its search for what exists outside the bounds of typical discourse. This includes vulnerable populations that are under considered or that are considered at all. It imagines "what if" scenarios that question what is present and consider its reversal.

IWW example: Look for what has been made invisible or under represented

Many individual stakeholders' goals and even the complete set of stakeholders are often invisible in a project management tool. It is also not common practice to identify assessment activities at the outset of planning, since the plan often ends with deliverables whose assessment is defined at some lower level of granularity. Finally, adjustments to schedules, deliverables, and responsibilities may mean the loss of previous decisions, making it difficult to keep track of (and reflect back on) how a project actually unfolded. Our IWW prototype attempts to make visible all of these elements, but does not yet include theoretical frameworks for or practical approaches to visualization and archiving strategies that would support stakeholders in real-time or retrospective reflection on a project's practices and progress in these areas. Ideally, IWW would provide project managers with a visualization that could, "at-a-glance", help assess diversity in team, as well a project's capacity to leverage difference. One practical advantage of this affordance - in addition to increasing a project's potential to include increased equity and justice among the elements of its preferred future -

is that it would help projects to address wicked problems, which by their definition require the accommodation of difference. Another practical implication is that, in order to make users (in all their diversity) visible, projects would have to construe users as stakeholders; this in turn might require projects to adopt co-creation design methods currently emerging in Living Labs, in which end-users are core members of a design team from the beginning of a project, and even (ideally) its instigators (Ferronato, Roberts-Smith, and Ruecker forthcoming).

2.4. Consider the micro, meso and macro

The value of the micro and the macro have been considered by numerous, diverse disciplines. In sociological study, macro-level looks at large-scale social processes, such as social stability, change, law, bureaucracy, and technology; while micro-level considers small-scale interactions between individuals, such as conversation, patterns of behaviour, and group dynamics (Boundless, 2014). In business innovation, problems in decision-making are considered at the micro (individual firm) and macro (aggregate) levels (Bridges, Coughlan, and Kalish, 1991). In the digital humanities, Moretti's (2005, 2013) call for distant reading continues to be hotly debated. While Manovich (2001) calls databases and narratives "natural enemies" and Whitley (2011) assumes that literary critics "value close reading . . . over the broad brushstrokes of information visualization" (188), Hoover (2007) criticizes the "marginalization of textual analysis and other text-centered approaches." Ross (2011), in her review of Distant Reading argues for considering "new forms of analysis" and suggests that "moving back and forth between the microscopy of close reading and the wide-angle lens of distant reading would enrich both methods, creating a dual perspective that boasts both specificity and significance." Philosophy of engineering extends this view to include the meso level, which we consider the default level for most project management tools. The micro examines the level of individual actors within organizations, meso the intermediate level of the organizations themselves, and macro the level of social institutions (Li, 2012).

As they have applied to our past work, macro and micro views acknowledge that the amount of information that is available to us at one level of granularity may be different than at another level which, in turn, may be differently useful to one individual vs. another. A non-binary view acknowledges a starter state (the meso) and suggests opportunities to either take flight (macro) and observe a landscape of information (patterns, relationships, shifts) or dive into the component parts (micro). Ruecker *et al.*'s Rich Prospect Browsing Theory (2011) supports macro and micro views through its simultaneous display of every item in a collection and the availability of information on individual items. However, the visualization

itself—the graphical display—does not offer multiple views. A design that supported macro, meso, and micro views would shift between these views, revealing new, detailed information as it did.

Another consideration is that the nature and importance of the meso view may need to be different for projects engaging with wicked problems than for other kinds of projects. Many projects lend themselves readily to a visualization approach that shifts between the macro and the micro, with the meso as the functional link between the two; for example, a complex systems problem such as designing a passenger train car could shift among a macro view of the of the complete car, micro views of each of the components for which individual team members or small groups are responsible (such as door, seat, wheel, etc.), and meso views of the ways in which components need to fit together and the workflows that allow each micro task to support the others. However, wicked problems cannot be subdivided into smaller micro problems to be dealt with in isolation, because the interactions among component parts of the problem are too many and too unpredictable (Ferronato, Roberts-Smith, and Ruecker forthcoming). Similarly, a wicked problem cannot be resolved cleanly into macro-level overview, because it is impossible to determine the boundaries of a wicked problem. So, in "wicked projects", the factors connecting the activities and investments of individual actors may be more important than either the individual activities or their combined social and environmental implications. To put this another way: both the micro and the macro are defined by the meso in a wicked project. A useful wicked project interface might therefore privilege a meso view of the relational network that links its micro components to their macro implications.

IWW example: Consider the micro, meso, and macro

Of all the criteria, this is the one that gave us the most trouble in envisioning a new form of project management tool. Within the context of a given project, we would argue that the IWW system attempts to accommodate scales in a way that is relevant to wicked problems better than is often the case, since it privileges the normal "meso" level of many tools, but also includes both the explicit identification of goals that might normally fall beneath the threshold of inclusion and the explicit identification of impacts that might normally fall above the threshold of inclusion. For example, someone might identify a goal related to their personal life, and someone else an impact measure related to climate change. In privileging the "wicked meso", IWW also potentially a) discourages team members (especially project managers) from thinking of a team as a "system" and people as "parts"; b) discourages project managers from micro-managing the micro-activities that individual participants are

best qualified to handle; and c) encourages all team members to attend to the meso-level relationships through which people, deliverables, and impacts affect one another. However, it needs to be recognized that the idea of the macro should extend more intentionally beyond the scope of an individual project and look at its larger sociological and environmental implications; and also, that the detailed work of individuals needs to be explicitly valued. The IWW system does not yet engage visually or theoretically with either of these levels; we are still grappling with what we are beginning to think of as the scale of the "infinite wicked macro" and the scope of the "infinitesimal wicked micro".

2.5. Privilege transparency and accountability

Since every design is founded on certain assumptions about its future users, Bardzell and Bardzell argue for self-disclosure in Feminist HCI design: for software to make visible how it perceives its users and what it is trying to make of them (Bardzell and Bardzell, 2011). We propose to push that point even further by more fully engaging with Feminist Standpoint Theory (Harding, 2003). Thus, if we suppose that all knowledge is socially situated, and all knowledge production inevitably enmeshed in acts of power, we argue that every design should self-disclose not only about its perception of users, but also about the positionality of its designers. Furthermore, transparency and accountability would become inherent to any interface where its systems or processes have consequences on others. This notion supports Illich's idea of conviviality: tools that are playful and encourage openness with oneself and others. Illich considered conviviality "to be individual freedom realized in personal interdependence and, as such, an intrinsic ethical value" (11).

IWW example: Privilege transparency and accountability

While the IWW design does include a transparent approach to defining who will get what from the project, the specific mechanisms that are necessary to establish accountability are not yet deeply embedded. For example, it is not necessarily clear who is responsible for setting up and maintaining the project, nor who has been tasked with accomplishing anything, by whom. These specifics of assignment are intended to be addressed at the next layer of the system, along with other necessary elements such as timelines and budgets.

2.6. Expect and welcome being subjected to rigorous critique

In an effort to further extend our fifth principle—privileging transparency and accountability—we suggest that we consider every instance of Speculative Feminist Design as an iteration, hence subject to interpretation, questioning, and rigorous critique. J. Bardzell (2011) makes a similar point for HCI, when he argues for the "rigorous interpretive

interrogations of the complex relationships between (a) the interface, including its material and perceptual qualities as well as its broader situatedness in visual languages and culture and (b) the user experience, including the meanings, behaviours, perceptions, affects, insights, and social sensibilities that arise in the context of interaction and its outcomes" (604). Models for serious, expert-led critique abound in philosophy, film, literature, architecture, even culinary studies. All of design in general, and graphic design in particular, has tended to shy away from public critique not because, according to Heller (2004), "it is inherently uncriticizable, but because designers have neither a critical vocabulary, nor the means to address work in a public forum." He calls for practical and theoretical criticism, so that designers can better understand what is good, what has failed, and why either has taken place.

We call upon designers to set a higher bar for our discipline. Not only should the artefacts and practices we have a hand in creating be held subject to rigorous critique, but we should as well. Too often designers become invisible, standing behind the companies who employ them, the clients who pay for their work, or the marketing team. When the work is considered successful, it may receive awards or accolades in design annuals; when it is bad, the work may be shamed, but the designer can simply move onto another client or project. Yes, a designer's reputation may suffer, but we are still primarily employed on the basis of the strengths demonstrated through our portfolios, whereas the judgment we receive comes from a very small, specialized community, with little actual recognition for the origin of truly harmful work.

There are many potential benefits to such accountability. To add to the benefits of rigorous critique listed by J. Bardzell (2011) – "informing a particular design process, critiquing and innovating on design processes and methods more generally, developing original theory beneficial to interaction design, and exposing more robustly the long-term and even unintended consequences of designs" (604) – we have the opportunity to add much needed credibility to our discipline by genuinely and justifiably celebrating the good and condemning the harmful.

IWW example: Expect and welcome being subjected to rigorous critique

One practical implication of understanding every instance of Speculative Feminist Design as an iteration is the possibility that no project is ever complete. We may think of individual deliverables as completed in the sense that they have been delivered to their intended audiences, which are construed in the current iteration of IWW as either internal (i.e. the

project team) or external. But since intended audiences are rarely the sum total of audiences who will encounter work, and since we expect from all audiences rigorous critiques that lead to substantive improvements to designs, we cannot say that delivery to an intended audience consists of a stable state in which we could measure, for example, a deliverable's finite set of impacts. Similarly, deliverables that have been abandoned, have not yet been started, or are incomplete (undelivered) may have impacts as significant as those that have been delivered; for example, not delivering a library or a bus stop or a social worker to a community in need. This is an especially complex issue in projects where deliverables are relational rather than material. In all cases, critique of project methods must therefore be invited as openly as critique of outcomes.

Somewhat related to the idea of transparency and accountability is the concept of public critique, where the design is open to discussion, not of a superficial "comments section" type, but rather of the kind more often associated with peer review of scholarly work. It is in this spirit that we offer the IWW design as a component of a submission to this special issue. By keeping track of changes in the plan, in the form of elements that have been deprecated somewhere along the way, IWW does make a gesture in the direction of Haller (2004)'s call for what has worked well or poorly and why. We also attempt to model self-critique in this paper. However, at this point, both forms of critique are only gestures and not complete interpretations of this criterion of Speculative Feminist Design.

3. CONCLUSIONS AND FUTURE RESEARCH

In applying Speculative Feminist Design in general, and these six core strategies in particular, to the design of the IWW project management tool, we explored a number of options. For example, in one iteration we proposed that elements that were abandoned in the course of the project might simply disappear. However, upon reflection, we decided that it would be more in the spirit of keeping things visible and privileging accountability to leave them in the interface, but cross them out in order to indicate that they are no longer part of the plan. In another version, we had placed the stakeholders in a section of their own, to the right of the rest of the interface. While this seemed to privilege the human aspect of the tool, it also potentially implied a less direct connection between the stakeholders and their goals, compromising in some ways the principle of transparency.

At this point, the IWW system is largely a thought experiment, or perhaps it might better be understood as an experimental prototype of the kind that is useful in thinking through a topic (Ruecker *et al*., 2014). It might even be considered, in the right context, as a

provocation (Botermans, 2011). However, according to the principle of the actionable, it would be interesting to take the system a step or two further, perhaps in attempting to build and use a version with a particular project where the participants are willing to interpret what they are doing in a new way. Such an extended reflection on the process would necessitate additional resources for the purposes of recording and analyzing the results-- which might in fact require us to create a meta-project specifically designed to make that additional effort possible.

One significant benefit to such a reflection might be that it would in turn make positive change in an organization more actionable by characterizing all members of the organization as its co-creators — doing rather than having done to; instigating rather than servicing. In one of our previous projects (an extended study of interfaces for decision support in the oil sands), for example, equalized co-creation would mean considering the domain from multi-disciplinary perspectives with the potential of revealing and welcoming new insights. New insights today (in terms of decision making for the oil sands) would mean fewer unpleasant surprises in the future. These benefits are not often realized when some members of an organization are positioned as outside of decision-making about change, or simply expected to serve it, rather than as an equal participants in designing it.

In addition, we are conscious of some principles that need to be further extended. For example, it should be visible how much work has been assigned to one person by another. We should be able to see how much time and effort the person assigning the task thought it would take vs. how much toll it actually had on the person who carried out the task. Similarly, we do not have a clear vision of how the interface can express issues of power and privilege. A couple of minor proposals are that we have the stakeholders themselves enter the data about their goals, and that the relationships among stakeholders be emergent rather than pre-determined by organizational hierarchies. But these are really only just first steps. Additionally, the impacts of activities on individuals, families, communities, and the environment (in either the short or long term) are seldom considered and have not been adequately dealt with yet in the current iteration of IWW.

ENDNOTES

[1] The term "intersectionality" was coined by Critical Race Theorist Kimberlé Crenshaw in 1989, though the actual concept has been around since at least 1851 (see: Ain't I a Woman? by Sojourner Truth).

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