

Tensions in Enacting a Design Philosophy in UX Practice

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ABSTRACT

Design culture is increasingly present within organizations, especially with the rise of UX as a profession. Yet there are often disconnects between the development of a design philosophy and its translation in practice. Students preparing for UX careers are positioned in a liminal space between their educational experience and future practice, and are actively working to build a bridge between their developing philosophy of design and the translation of that philosophy when faced with the complexity of design practice. In this study, we interviewed ten students and practitioners educated within design-oriented HCI programs, focusing on their design philosophy and evaluating how their philosophical beliefs were shaped in practice. Building on prior work on flows of competence, we thematically analyzed these interviews, identifying the philosophical beliefs of these designers and their trajectories of development, adoption, or suppression in industry. We identify opportunities for enhancements to UX educational practices and future research on design complexity in industry contexts.

Author Keywords

Practice-led research; UX practice; design philosophy; design complexity; flows of competence.

CCS Concepts

•Human-centered computing → Empirical studies in HCI;

INTRODUCTION

In the past decade, the adoption of design-focused practices in industry contexts has expanded dramatically [1, 39], often through the incorporation of User Experience (UX)-focused roles that lead to greater focus on user needs [8]. In parallel with this shift from an industry perspective, HCI researchers have shown interest in describing the complexity of these practices [13, 25, 26, 32], creating and documenting methods to support practitioner needs [15, 28, 34], and identifying key conceptual and educational barriers to the attainment of these

skills and abilities [7, 17, 30, 41]. While this dramatic shift in industry roles—supported by reports that design-focused companies have double the financial returns of their counterparts [39]—represents the promise of adopting user-centered approaches, little work has explored the interactions of front-line UX designers in realizing this design-centered vision.

In this paper, we draw equally from three separate strands of HCI and design literature to investigate the complex and interactional nature of UX practice. First, we build upon practice-led research approaches [18, 25, 32] to investigate design activity “on the ground” and on its own terms, building upon prior work in both physical and digital contexts in which scholars have described the complex nature of practice in conceptual, performative, and competency-focused ways (e.g., [12, 13, 24]). Second, building upon design theory and philosophy literature, we use Stolterman’s [43] notion of *design complexity* as a sensitizing concept with which to investigate everyday work practices, revealing not only the instrumental means by which design activity is supported (e.g., methods, techniques, processes), but also the subjective and personal experience of individual designers that mediate any given design situation. Building upon work on design philosophy, we identify aspects of individual designers’ philosophies, and use this language to describe moments where one’s philosophy is fulfilled and supported or confronted and marginalized. Third, we draw these two previous threads of scholarship together in conjunction with the work of Gray, Toombs, and Gross [19] on *flows of competence* to describe not only a designer’s subjective and individual experience, but the ways in which this subjectivity is experienced over time and in relation to multiple stakeholder forces.

In this paper, we use an interview study to offer a descriptive account of how UX design students and practitioners enact their individual philosophy of design, and how this philosophical lens expands our view of organizational forces that might suppress or enable user-centered approaches to design activity. Building upon prior work that represents static and dynamic views of design competence (e.g., [7, 13, 19, 41]), our intention is to explore how UX practitioners and late-stage design students that are preparing to join the workforce view their own competence in relation to their design philosophy, and how this design philosophy might positively or negatively impact their ability to practice design as they feel appropriate. Through a bottom-up thematic analysis of interviews with ten UX practitioners and late-stage students, we describe nine dimensions of designers’ UX philosophies that became

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salient in their industry experiences, spanning first principles, process-oriented decisions, interactions with stakeholders, and characteristic UX and design outcomes. Building upon these themes, we then used Gray et al.'s [19] *flows of competence* as a theoretical framework to describe how tensions in these philosophical dimensions led to synergies, fulfillment, nullification, or suppression. These findings deepen our knowledge of the complexity of everyday UX practice, facilitating further investigation into educational, methodological, or conceptual interventions that may further support the enactment of user-centered design philosophies.

The contribution of this paper is two-fold: First, we provide an initial framework of design philosophy dimensions that were constructed during the participants' design-focused HCI or UX education. These dimensions represent areas of perceived salience or focus that provide opportunities for further pedagogical support and may productively shape practitioner-focused interventions, particularly in relation to methods that are intended to support everyday design practices. Second, we map elements of design philosophy in relation to individual and industry stakeholder forces, identifying tensions that emerge when designers seek to enact their values and design philosophy. These tensions—resulting in the possibility of both positive and negative outcomes—lays the groundwork for further study of ethical design practices, shifting the research conversation from instrumental to interactional terms.

RELATED WORK

“Turn to Design” in HCI Research, Education, & Practice

In the past two decades, the transdisciplinary framing of “design” has been increasingly used to frame HCI education and practice (e.g., [10, 21, 29, 43, 44, 45]). In the HCI community, the primary emphasis has been placed on positioning design as a legitimate tool for inquiry and action [45], raising the profile and perceived value of design practices themselves. With the emergence of third-wave approaches to HCI scholarship, design has also been recognized as a driver for engaging with “epistemological trouble” [21], with Rogers [35, 36] raising design—and the situated practices that design necessarily includes—as one of several “turns” that impact contemporary HCI scholarship and practice.

While there have been substantial efforts to investigate the role of design in HCI scholarship, led in many ways by the DIS community, design has not been as substantively explored in relation to HCI educational practices and the experiences of practitioners (see [23, 42] for examples at CHI). From an educational perspective, many graduate programs have taken on a design focus—often using a studio model in some form—in the last two decades, including now-dominant programs at University of Washington, Carnegie Mellon University, and Indiana University, to name just a few. However, the ways in which design is taught in these institutional contexts, and the ways in which design is intertwined with HCI scholarship, is understudied. Rare examples that address HCI and design education include Harrison and colleagues' efforts to describe students' development of methodological flexibility in the HCI classroom [20], Siegel and Stolterman's [41] description of characteristic barriers to development that HCI

Master's students experience, Roldan et al.'s [37] exploration of challenges in engaging end users in project based curricula, and Gray's [13] analysis of gaps and opportunities in HCI students' development of design competence. Little work has addressed the specific design commitments—what we refer to as “design philosophies”—that students take on in these learning environments, which we seek to address in this paper.

Practitioner engagement with design and HCI concepts is similarly understudied, partially due to the rapid expansion of UX-focused roles that emerge from training in multiple disciplines [26, 24], and perhaps also due to a lack of sustained involvement with HCI practitioners on their own terms in their own work environments [43]. HCI students go on to a range of careers, but we will focus here on the majority of graduates which go on to practitioner roles related in some way with user experience (UX) design practice. While some HCI scholars have explicitly sought to encourage translational discourse [6, 18]—backed by a 2015 research symposium on the topic [32]—and practice-led work [12, 19, 24], relatively little literature addresses the role of design in everyday work practices and the negotiation of design philosophies that takes place across disciplinary perspectives and in diverse industry contexts. We seek to further the translational conversation by foregrounding the complexity of UX designers' own experiences, resulting in a better understanding of both the designer's role in shaping UX practices “in the wild” and a fuller description of the liminal spaces between HCI education and UX practice.

Building a Design Philosophy

In this paper, we frame the work of designers as inherently value-laden and action-driven [11, 16, 29, 40]. However, the mental frameworks by which and through which this intentional change is coordinated is not *a priori*, but rather an intrinsic part of building the tacit knowledge—or as Schön [38] calls it, one's repertoire—that allows a designer to make wise and relevant judgments [7, 22, 27, 29]. We specifically choose to engage with the complexity of design practice through the lens of a designer's personal *design philosophy*, because it encourages a focus on the personal and subjective knowledge that is mediated by the designer in the act of designing. Nelson and Stolterman [29] describe this notion of design philosophy in the following way:

A design philosophy approaches the love of wisdom as a devotion to the reconstitution of sophia—in other words, the reunification of inquiry and action, or more specifically, inquiry for action. Actions creating the right thing, for the right people, at the right time, in the right place, in the right way, for the right reasons is design wisdom. A schema that frames and guides such an inquiry at this highest level—leading to an understanding of the means and ends for wise action—becomes part and parcel of design philosophy.

In this paper, we take on the concept of a design philosophy in a way that intentionally bridges lived experience, educational experience, and work as a practitioner. This point of view presents design expertise as something that is constantly being developed and maintained, but also a conceptual structure

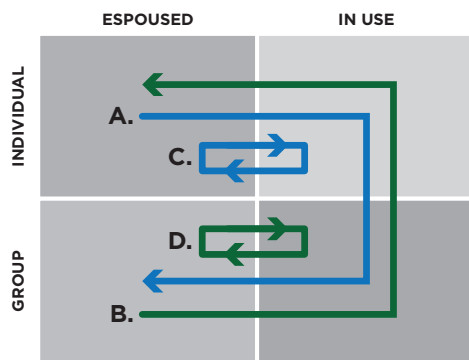


Figure 1. “Flows of competence” schema, reproduced from [19].

through which we can view the movement from the *design student* to the *design practitioner*. In doing so, we also leverage Brandt et al.’s [3] notion of the “studio bridge” in design education. This “bridge”—articulated as a studio environment in which students practice their skills—allows students to work within an educational environment, where they can apply new forms of knowledge in contexts similar to practice. At the same time, they are also encouraged to develop their design philosophy—and convey the design activities influenced by that philosophy—in ways that are forward looking towards their future role as a practitioner, a concept that Gray [14] refers to as “proto-professional” behavior.

Design Activity as Dynamic and Multi-Dimensional

Bringing together the previous subsections, we use the notion of “flows of competence” [19] to describe the dynamic nature of UX and design practices. While common depictions of design expertise (cf., [7, 27]) tend to be individually-focused, prior work has also revealed the distributed nature of design knowledge and practices [12, 19, 32], which necessarily impacts the acquisition, dissemination, and performance of design knowledge through activities in industry settings.

The flow of competence schema [19] includes two intersecting perspectives—that of the individual designer, and the group or organization in which this designer works. Movements between these four quadrants (Figure 1) indicate the flow of competency over time, describing the ways in which an individual might influence the competencies of an organization (Figure 1.A.) and how UX is practiced within that setting, or alternatively how the organization may influence the individual (Figure 1.B), and how such shifts take place over time. In this study, we build upon this framework to better explore these flows through the language of design philosophy.

OUR APPROACH

In this study we sought to better describe how UX practitioners and late-stage design students that are preparing to join the workforce view their own competence in relation to their design philosophy, and how this design philosophy might positively or negatively impact their ability to practice design as they feel appropriate. To achieve this goal we conducted an interview study with 10 participants originating from 4 design-oriented HCI and/or UX programs in the United States.

Pseudonym	Current Status	HCI Degree	Yrs. of Exp.
Sarah	Graduate Student	MS (pursuing)	3 years
Elizabeth	Practitioner	MS (attained)	3 years
Joseph	Graduate Student	MS (pursuing)	3 years
Daniel	Practitioner	MS (attained)	2 years
Abigail	Graduate Student	MS (pursuing)	3+ years
Aaron	Undergrad Student	BS (pursuing)	10 months
Sam	Graduate Student	MS (pursuing)	1 year
Rosie	Practitioner	BS (attained)	1 year
Kim	Practitioner	BS (attained)	3+ years
Charlotte	Undergrad Student	BS (pursuing)	1 year

Table 1. Study participants

Recruitment and Data Collection

We used a stratified purposeful sampling strategy to recruit participants that was “case-derived and problem oriented” [31] in order to identify a range of participant experiences that span educational and professional contexts. We recruited ten participants that had been educated in one of four US-based UX and/or HCI programs that were self-described as “design-oriented” and included some indication of the use of studio pedagogy, a hallmark of design education that has its roots in traditional art and design education [2]. We sought to recruit (1) current students in these programs that had at least three months of UX design experience in a professional context, and (2) alumni of these programs that had graduated three years prior, at minimum, to our data collection. We used our professional networks, LinkedIn, and faculty contacts within each program to create a snowball sample of participants, stratifying the sample by student or professional status. In total, we recruited ten participants, four of whom were current practitioners (BS=2; MS=2) and six which were pursuing a BS (n=2) or MS (n=4) degree in HCI or UX.

We collected two types of data from each participant. First, we requested basic information regarding previous educational experience and employment information through a screener. After the lead researcher verified that the participant met the criteria for the study, each participant was recruited for a 45-75 minute semi-structured interview conducted via video-conferencing software or in person. Each participant was consented in accordance with our institutionally-approved human subjects protocol. During these interviews, the lead researcher audio recorded each interview and took notes to inform further analysis. Each interview followed one of two semi-structured protocols, differing based on student or practitioner status. Each protocol used a critical interview approach [5], focusing on facilitating participants’ reflection in relation to their academic and practitioner experiences, with prompts to further explore particular aspects of their design philosophy as it was originally formed, how it had evolved, and how this philosophy was articulated in their professional interactions. After the completion of the interview, the recordings were transcribed, cleaned, anonymized, and paired with the notes taken during the same participant interview in preparation for data analysis.

Data Analysis

We structured our initial analysis around Braun and Clarke’s [4] thematic analysis process. First, the lead researcher began by familiarizing himself with the data through multiple readings of each interview transcript, notes, and recording.

Second, the lead researcher formed a set of initial codes by performing a detailed analysis of two divergent cases. After debrief with another author, these codes were then unitized, resulting in an initial codebook. These initial codes were then compared across the other cases, using researcher memos to ensure that no interesting candidate themes were lost in this process. In this analysis process, we created axial codes that informed candidate themes, identifying how these themes were grounded in the data, and how these themes related to existing concepts discussed in the literature, when possible. Our final codebook consisted of nine themes relating to dimensions of UX practitioners' and students' design philosophy (see Table 2). Through discussion among research team members, we identified tensions among these aspects of design philosophy and how they are adopted (or not) in practice as a key source of interest, building upon Gray et al.'s [19] four "flows of competence," as *a priori* themes to inform further analysis.

FINDINGS

In this section, we will first describe the dimensions of UX design philosophies that our participants shared, including examples of how these perspectives of their design practice related to their education and work experience. Building on these dimensions, we then describe different tensions that emerged as participants sought to enact their design philosophy in various work environments, including instances where their philosophy was synergetic with their employer, was fulfilled or nullified after being contested, or was fully suppressed.

Dimensions of UX Design Philosophy

Context-Driven Methods

Context-Driven Methods refers to the selection and application of appropriate research and design methods based on an awareness of the contextual factors in a design situation. A common mindset represented in the interviews was an unwillingness to apply reputable and valuable methods without a solid rationale for their use given the contextual factors at play. Daniel, currently working in a research and strategy role having graduated with a Masters degree, reflected upon how his program taught him to look upon his role in the project process as "the chef versus the cook," explaining that one professor told students they should "think on our own and explain our thinking, rather than following some recipe of design thinking." Aaron experienced a shift in mindset throughout his time in a UX undergraduate program. After stating his "initial challenge was figuring out what it is that I'm even doing," the challenge became "what do I want to find out and what methods are going to give me the most benefit?" Multiple individuals described how understanding a method's suitability with respect to contextual factors allowed for more effective adaption when working in different problem spaces, contexts, technologies etc. Charlotte, currently an undergraduate student in a UX program, valued her own "ability to handle ambiguity and tackle problems," a mindset which "can be leveraged to apply to any job or context."

Research Leads Design

Research Leads Design encapsulates the belief that UX education and practice should be grounded in research, both in its value and outcomes, with design work happening alongside

or after research. Participants noted that early research helps with initial scoping and problem framing. For instance, Abigail explained: "you save money when you do research first, you don't embarrass yourself as a designer [...] I worked for companies where I swear they're just lighting money on fire because they don't do research." Having initially sought out more design-focused roles, Elizabeth—now working in a research and strategy role—noted the shift in her intentions to now seeking to position herself within the research and strategy area of projects, claiming that "research is now becoming more of where you want to be because that is where decisions are getting made." Joseph, currently a graduate student, articulated the power of research for scoping stages of a project: "I think at its core it comes down to answering, or creating and answering, the right questions."

A number of participants voiced concern regarding a common misconception within organizations about the actual purpose of UX research, where research often becomes simply an avenue for validating decisions in a post hoc manner. Rosie, currently working as a practitioner in the healthcare field, discussed the lack of foundational research that took place within the company she had previously interned, stating that instead, "when they do user research it's like, okay, this week is user research week. So all of these people would come into our office and the two user researchers that we had would sit down with them and test everything. From my application, your application, your sister's application, her cousin, like everything that we had been designing from a UX standpoint, it all got tested during that week." While research is important, multiple participants noted that research should lead, but not consume, projects. Aaron alluded to the potential for too much research to suppress creativity, reflecting on school projects that were "very research heavy and it wasn't until recently that we're like, 'we need to come up with more interesting ideas.'" Kim, currently working in an enterprise company, noted a similar experience, where over-reliance on research led to her feeling that "in every project we couldn't do anything. We didn't want to do anything without that research because we felt like it wouldn't be in the right direction or like things would go to hell if like we don't do any of that stuff."

Humanness over Efficiency

Humanness over Efficiency refers to the desire of practitioners to conduct work in a manner that prioritizes the emotional and experiential aspects over performance-oriented ones. The majority of participants articulated the value of UX in enhancing the efficiency of users' tasks. However, they also clearly identified value beyond efficiency, emphasizing the emotional and experiential aspects for the user. Sam, currently a graduate student, reflected on the attitude of his manager at his first internship as being "very usability focused," reflecting "well I guess at the time, so was I, so I guess that was, I thought that was fine," before explaining that he was now "more interested in, I mean, yes, can people 'do the thing,' but do people like, like it the way it's done or is it—I guess easy is usability, but like, do people want this at all?" Sarah also reflected upon her time working for a military-focused company, discussing her employer's lack of attention paid to "user empathy and caring about things like that," instead describing their implementa-

Dimension	Definition
Context-Driven Methods	The selection and application of research and design methods based upon an awareness and understanding of the contextual factors at play in a certain project-based situation, and that will gain the optimal outcome for that stage of the project.
Research Leading Design	Encapsulates the belief that UX education and practice should be grounded in research, both in its value and outcomes, with design work happening alongside or after research
Humanness over Efficiency	The desire of practitioners to conduct work in a manner that prioritizes the emotional and experiential aspects over performance-oriented ones.
Cross-Functional Teams	The activity of intentionally working with those from outside of UX (such as developers) in either class or practice-based settings, with the belief that there are inherent benefits that come out of such a multidisciplinary working environment.
Empathy for All	Possession of empathy by practitioners towards all, both in general life and practice, not just showing empathy towards the end users of a project, but also those working on the same team/in the same environment.
Ethical Fulfillment	The adherence to or deviation from ethical responsibilities felt by an individual, as either a practitioner or person, in relation to their work.
Fighting for the User	The belief in or activity of contesting decisions by stakeholders, colleagues etc. which could potentially bring about change that would be against the best interests of the users, according to the individual's belief.
“Impact” Seeking	The intention to, or previous experience in, purposefully seeking out opportunities in practice allowing for one to contribute to self-perceived impactful work.
UX Advocacy & Evangelism	An individual's commitment to bringing about long-term education to others (in professional or personal contexts) as to the values and capabilities of UX and/or design thinking in general.

Table 2. Dimensions of UX Design Philosophy

tion of what they perceived to be UX as “a very mechanical approach to thinking about how people operate.”

Cross-Functional Teams

Cross-Functional Teams refers to the activity of working with practitioners from non-UX disciplines in either class- or practice-based settings, with the belief that there are inherent benefits that come from these diverse working environments. Perhaps the most commonly highlighted benefit of cross-functional teams was the need to incorporate as many different suitable perspectives as possible in order to effectively understand, scope, and tackle a problem. Rosie's self-described appreciation for “collaborative design” was partly built upon having those inside and outside of UX around to “bounce ideas off of and someone to help you when you get stuck in those situations or like make sure you don't forget the small little exception cases because those are very important.” Sarah reflected upon missed opportunities throughout her internship to involve members from other departments in her work, feeling at the time that a lack of UX knowledge and experience on their part would limit the value in their participation. However, towards the end of her internship, she came upon the realization that “you don't have to be trained in UX to be a UX assistant. You can definitely be of use just even as simple as coming to interviews and helping to annotate interviews or help me talk through ideas more.” While not explicitly describing how to enable cross-departmental teams, Joseph discussed how he would create a broader user-centered culture throughout any company, stating: “I think if it isn't already, I'd work with the other lead folks to make sure UX is built into the process from the start. Whether or not that changes the business plan, I don't know. But I think making sure that a user-centered approach is onboarded in to every employee and team member.”

Empathy for All

Empathy for All refers to the desire for empathy by a UX practitioner not just towards the end users of a project, but also all those working on the same team or in the same environment. Multiple participants presented stories from their

practice where contextual factors required them to consider the impacts that any work might have on groups of people outside of the target user audience. Sam, discussing his work in designing television devices, brought up a problem where the company he worked for did not offer an effective method of self-installation for the visually impaired, because “they're not allowed to self-install their own devices. So they have to wait and let a technician into their homes, which for them is a huge breach of trust. And they don't want to have to let [...] some stranger come in, if they can't see, you know, they could take advantage of them.” Sam also empathized with the technicians, noting that “on the other end the technicians don't like going into people's houses either.” Some participants more experienced in their organizations also discussed the need for possessing empathy for stakeholders, especially regarding allocation of time and company money towards UX-related activities. Abigail expressed concern for those within her current cohort who had very little experience in a resource-conscious work environment, stating that such individuals had likely “never been told no in their lives, and so that puts another wrench in things [...] and so I have to sometimes be like, ‘look, people don't just have money for this,’” before speculating that such an empathy might be hard to find without prior experience: “thinking about that part of design can be hard, you know, it's hard to teach that.”

Ethical Fulfillment

Ethical Fulfillment refers to the adherence to or deviation from ethical responsibilities felt by a practitioner in relation to their work. Multiple participants discussed their own sense of responsibility in gaining as much information as possible about a problem space, and ramifications of potential decisions, before evaluating how they might play out against their own ethical principles. Sarah, discussing her time with a company providing digital solutions to warehouse environments, brought up the distrust shown towards her and UX generally by the workers whose day-to-day jobs would be impacted by the technology: “sometimes people didn't like the machines [...] one of the jobs that they had would be to drive these carts of

equipment from one end to the warehouse and then take the empty carts back. And some people really liked just driving around all day. [...] When they found out the robots were taking that job and they were forced to go do high-value work or work that required more focus, they weren't really a fan of that because you didn't really have the opportunity to like goof off and do whatever you wanted." Abigail also spoke about how she ensured that she has done all that she can "as far as understanding all the other factors, not just within the system and how the system looked before and after and the A/B tests [...]" to allow for as much of an understanding of the contextual and historical factors at play prior to conducting any substantial research with human subjects.

Fighting for the User

Fighting for the User refers to the belief in or activity of arguing against decisions by stakeholders which could bring about change that would be against the best interests of the user. While looking out for the user's best interest is an inherent responsibility that all UX practitioners are likely to feel, the contextual factors in each situation can be complex. The challenge of liaising with stakeholders who hold more power than the practitioner was summarized by Sam: "how do you balance all of that and when can you push, when should you not push?" Elizabeth seemed to have a clearer understanding of how she balances such factors to argue for the user in her own role, explaining that "I think when you figure out who is it impacting at the end of the day, like is it impacting my time by a few hours or is it impacting the user's experience? I think that's when I throw the fit." Rosie discussed some of the particular factors in her own role that had led to previous attempts to argue for what she felt was right for the user being turned down by the decision makers. Many issues, she said, "come down to development effort and so I can sit here and preach to you all day long, that this is the best option. Like they're going to understand this, this is going to flow the best, but at the end of the day if they're like, 'that's going to take us three times longer,' I don't have a rebuttal for that."

Impact Seeking

Impact Seeking refers to the intention to or previous experience in purposefully seeking out opportunities in practice allowing for one to contribute to self-perceived "impactful" work. While most participants appeared to adopt such aspirations as a result of their academic training and reflection upon their time in practice, Sam discussed how the wish to bring about positive changes to the lives of users on a level of core human needs was the reason for his transition into his current graduate program. Reflecting upon his time working on issues of behavioral change, Sam noted that his work had him conducting "20 to 24 client interviews per day," and that he continually stumbled across a common problem: "there's a lot of barriers for people's success when it comes to a behavioral change and you know, it got to one of those things where I realized, you know, okay, is it actually solving the people's problems? Probably not." What was perceived to be an ineffective method of temporarily treating the issues of clients led Sam to start to explore the possibility of "instead of just treating the symptom, how can I solve the problem?" It was at this point that Sam sought out further education in

a user-centered discipline, thinking about ways that he might have been able to bring about "tangible success, in their actual behavior" to the clients in the position he had vacated.

Kim pointed out differences in the more capitalistic nature of the work carried out by her present company and the socially-driven aims she wished to create. Having recently completed a short project in the digital civics space, Kim referred back to that work, stating "I want to do more of that. [...] Working for a big corporate company is not really my thing. I mean as much as I'm having fun here, and talking about all this stuff, [...] I think we can cut the bullshit and just help each other out, you know what I mean?" When asked about what drives her career-wise, Kim went on to tie the amount of self-perceived impact brought about through her work directly to her own job satisfaction, noting: "I think it's a lot about purpose and doing things. I mean, the way I think about it is you work eight hours every day and I want to do something that I actually want to go into the office for, which to me is impacting people."

UX Advocacy & Evangelism

UX Advocacy and Evangelism refers to an individual's commitment to educating others about the values and benefits of UX and/or design approaches in general. The vast majority of participants spoke of their wish to bring about a cultural shift either within their current and/or future places of work, or to an external client, regarding adoption of user-centered thinking and practices. Kim discussed her decision to accept a full-time offer at a company with whom she had interned previously, based partly upon the promise that she would be put in to a position allowing her to "network with a bunch of people and talk about UCD and its importance so that [the company] as a whole could be better." Reflecting upon the heightened level of responsibility in her new role, in comparison to that held within her internship, Kim spoke of her pride at "doing something valuable, I'm doing something purposeful, I'm not just like designing." A story from Joseph also illustrated the difficulty in effectively implementing UX in to an existing large manufacturing company, and allowing UX approaches to have an influence on everyday work practices: "[It] comes back to the fact that UX and user centered stuff wasn't built into the company. It's more so an afterthought and then they realize this is costing a lot of money, so let's try and implement it now. Which is still better than nothing." Joseph noted that these efforts were "very reactive and not proactive. So a lot of the issues were already happening. People were injured [...] they weren't retaining employees, they had to improve a lot of systems that could have been prevented beforehand."

Tensions Encountered in UX Practice

In order to further contextualize these dimensions of UX design philosophy, we used Gray et al.'s [19] flows of competence schema as an analytic lens. Specifically, we looked for examples when these dimensions were or were not adopted in our participants' organization's practice and, importantly, *how* they were or were not adopted. Participant descriptions of organizational responses are considered only from the participant's perspective, and thus any framing of organizational responses must be considered only as a *perceived* tension, difference, or lack of alignment. We identified four tensions that

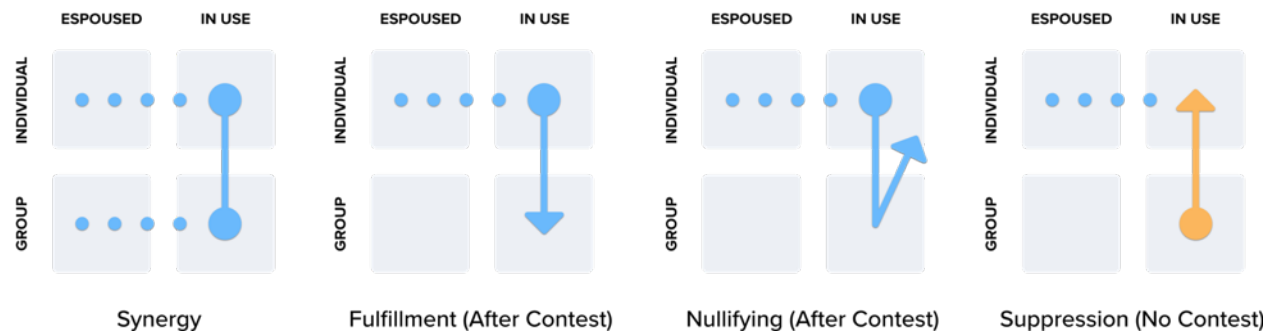


Figure 2. Types of tensions, building upon Gray et al.'s [19] "flows of competence."

capture the adoption or non-adoption of design philosophy dimensions: Synergy, Fulfillment After Contest, Nullifying After Contest, and Suppression (Figure 2).

Synergy

Synergy refers to a case where the design philosophy of the individual is shared and acted upon by the collective group, with no need for contest by the individual. Joseph, for example, shared a positive experience he had during a summer internship at a "large tech company" where "UX is built into the company [...] and it's really clear that the entire team has bought into user-centered design, whether they're engineers or marketing folks." He contrasted this experience with prior experiences where he had to work hard to convince colleagues that UX was more than a "luxury." He explained that, because his internship embraced UX from the start, "there wasn't any need for me to convince people that this was a valuable finding. It was always, 'what is your finding and what can we do about it?'" In this way, he no longer had to challenge those who appeared to place other business matters over users' needs.

Sarah, as an intern, described her company's first attempt to build UX in to their organizational hierarchy and day-to-day practices. While this created many challenges for her, she reported that she did not have to work hard to educate company stakeholders about the value of what she could produce, stating that "there wasn't any resistance to that." Sarah believed this to be as a result of the organization's value placed in "investing in future innovations, investing in new technology and looking at new innovations and not restricting themselves because basically the point of their company is to promote innovation in places where they have previously been met with resistance, which helped my case a lot."

In addition to serving as a positive indication of one's current work experience, the potential for value parity also proved to be an important criteria when selecting among job offers. Abigail described the interview process for her new workplace as one that acknowledged her needs as a person and as a potential employee, including how she would be trusted to conduct her work as an expert. In Abigail's words: "they weren't like, 'we're going to tell you what to do.' It was like, 'we're ready to let you just go. And we trust you.'"

Fulfillment After Contest

Fulfillment After Contest refers to a situation where an individual's design philosophy is acted upon by the collective group,

but only after the individual successfully argues their case for a particular action or shift to take place based upon their beliefs and/or other sources of evidence. Charlotte's story of her internship experience raised a difference of value placed in lower-fidelity prototyping between her and others within her organization. When presenting concepts to stakeholders, she recalled that while "they asked for a higher fidelity," Charlotte and her fellow intern felt that the context of the situation did not necessarily call for a polished prototype, restricting the potential value in discussion that might come about from a lower-fidelity prototype. Based on this decision, Charlotte and her team were successful in "pushing back, so it didn't end up really compromising it too much."

Working as a project lead in a consultancy engagement with an external client, Elizabeth exposed some of the difficulties in convincing stakeholders that their assumptions about what users want or need aren't always justified, in addition to educating on the value of exploratory research to validate or undermine such conceptions. As Elizabeth explained:

"there were a ton of 'come to Jesus' moments where they were shoving the feature functionality list down our throat and every time a new person from the client came in, we had to reintroduce, have a meeting, and kind of say, why we weren't doing it. When we did the first round of interviews and they were saying the things they wanted, some of it was part of the list, some of it wasn't. Yeah. And of course they were latching onto what was on the list and saying, 'this is a waste of our time and money. We've brought our clients in for you guys, why, why are you wasting their time hearing this?' And we really had to explain 'your list is great and it helped us create a session guide, but we need to hear it from them and we need to hear about how they're thinking about it.'"

Fortunately, the client in question eventually came to accept Elizabeth and her team's recommendations.

Daniel's experience working with an external client in the banking domain raised some similarities with regards to the successful undermining and rerouting of a client's assumptions. While the clients were initially looking to build an elaborate tool which would allow their customers to organize their spending with the goal of increasing their savings accounts, Daniel and his team's research highlighted, instead, that debt-reduction would be a more valuable goal for their

clients. Upon this key information coming to light, the team was able to bring about a realignment in the client's priorities with respect to whom they were seeking to help moving forward, and began looking at the project from the perspective of putting "debt as a goal, because they were thinking of savings goals as the only type of goals and for some reason they didn't think that debt should be a goal. [...] So yeah, that was cool to help these bankers understand that you know customers aren't as in a good of a financial situation as they are."

Kim's story highlighted how individuals within an organization can demonstrate new approaches that are then taken up by the entire company. Although those within her organization were aware of the benefits of adopting a user-centered mindset, "they don't act upon it because it's like 'what we have is already okay or it does have all the features, so if they just read the documentation, it's okay.'" Kim was able to convince her colleagues of the importance of acting on a user-centered mindset by "inviting them to these testing sessions and [having] them actually hearing, like, users being frustrated. Then somehow like 100% of the time, well 99% of the time, it always clicks to them like, 'oh, but this person said...'"

Nullifying After Contest

Nullifying After Contest refers to a situation where the design philosophy dimension of the individual is constrained and not acted upon by the group, even after the individual pleads their case for an alternative action. A commonly occurring phenomena was the dismissal by stakeholders of an individual's recommendation, based upon its perceived cost of resources (time or money) if implemented, thereby missing an opportunity for positive impact. One such case was discussed by Rosie, who in her existing role had so far encountered a surprising deal of "pressure to deliver the product. And so that pressure is coming from like an executive level and when that happens, they're rushing to do everything." As a result of this, Rosie felt that the stakeholders to whom she provides recommendations "take a lot of my work with like a grain of salt because they're like, 'oh, we could do that but we need to get it done, so we're going to do it this way.' Um, so basically we offer a prescription of like, this is how you should do it, but that doesn't mean that's how it's going to be implemented." Likewise, Joseph shared a story in which he pushed for a qualitative study that could address long-term usage of a product, but the client opted, instead, to conduct a usability study, due to the fact that "they had a very strict timeline and they weren't ready to put resources into that so they were very focused on, you know, '19 out of 20 were able to do this.'"

Charlotte's discussion of her past work with a previous employer raised a similar encounter with such an issue, where her recommendations for the company to conduct effective user research within their projects was met with dismissal from those making the decisions. In her words:

"it was a constant balancing act. Like definitely individual people were very in, they were like, 'yes that would be great if we could do that.' But as a company, 'that would take too much time, too much money, too many resources.'"

Charlotte later went on to confirm that this lack of value placed in research by the company was a large factor in her decision to leave. In another case of the need to conduct research to better understand user's needs and problems being downplayed by stakeholders, Aaron brought up how his lack of authority in the workplace as a result of his relative inexperience contributed to his lack of confidence and conviction in arguing his case. Reflecting upon a particular incident, Aaron explained that

"I always would say like, well, like we should consult with them to ensure that's not an assumption we're making or things like that. Um, but as like a freshman intern, there's only so much I could do. They weren't like rude or anything about it. Just kind of, 'that's not the direction we're going to go in' or something like that."

Daniel lamented that he felt under-educated about what kinds of financial and business decisions are necessary in practice. When asked how this perceived gap affected his ability to make successfully adopted recommendations, Daniel elaborated,

"just all the lingo and how much money influences decisions and you know, the business rationale as well, I wasn't aware of how much of that kind of complicates the design thinking process. Um, just the, I guess some of the politics that gets involved.[...] we're just coming in trying to do what's best for the users, right? And hopefully tie it into what's best for them. Um, you know, but [stakeholders] have their own agenda sometimes, so. Um, yeah, it just makes things complicated when you're dealing with a lot of business people with egos and hidden agendas."

Joseph recalled the first time he made a suggestion at his work that was rejected. The recommendation was met with hesitancy,

"because leadership was so traditional and used to doing a certain way. It wasn't shut down immediately, but, um, it was sort of understood that nothing would probably happen because it didn't, they didn't see the impact or at least the use of switching up the whole process. Um, so I think that was probably the big, the first and biggest recommendation I made that didn't go anywhere."

When asked how he felt upon finding that his suggestion was not going to be acted upon, Joseph admitted that

"because it was the first one that happened, It was pretty demoralizing. I sort of questioned if any of the work I was doing was worth their time and my time. Um, and so I kind of questioned like if any of my recommendations at the end of this internship would be valued."

Suppression with No Contest

Suppression with No Contest takes place when an individual's design philosophy is not shared by the collective group, and the individual chooses not to contest or interject due to any number of reasons, such as a contrast in values so large that it might feel like time wasted to object in the context of the situation. A common case of a design philosophy dimension being suppressed involved the individual working in a setting which did not allow for exploratory research with actual users,

and with no indication given by those within the organization that such an opportunity would ever come about in that role. In speaking about his current role, working to provide solutions to ease the pressures on students and instructors in his university in any way possible, Sam noted that

“it’s hard for us to get out and actually talk to our end users. That can be a little bit difficult. We have representative end users that we interact with, but, you know, when you deal with that you’re only getting very small sample size and it’s probably most likely extremely biased. So until we get to the validated aspect and trying to validate the design testing and what not, then you’re not really getting a very good full picture.”

However, Sam also respected that it was simply too difficult to get time with the users in the first place, explaining that

“our users are employees and during the school year, they’re busy all the time. So if we wanted to interrupt their work for trying to test or conduct interviews it would take away time from the students, and the students are the priority.”

Sarah had encountered a similar lack of user-facing research opportunities in her previous role, which ended up being a factor in her reason for leaving the role and attending graduate school. In her words, “there wasn’t really a lot of opportunity to explore how users were feeling. I never met a single user of one of our products while I was working on that, and, like, I had no idea who I was designing for.” The perceived gap in mindset towards the benefits of UX and how it should be implemented between herself and the company even led to Sarah not believing that it would be worth explaining ideas for research and design activities that she had learned in her education so far to those within the company, explaining that

“there were just so many things and I would mention like concepts in class, like we’d be doing a design activity at work one day and I’d say oh this is kinda like x, y, z, and they’d be like, oh, I’ve never heard of that. Like oh, it’s this thing we did in class, and I don’t know, it was helpful. Nevermind.”

Joseph, reflecting upon his time working as a consultant researcher for a company creating patient and physician-facing products in the medical industry, alluded to how he struggled to argue against the often rigid, metric-reliant approaches preferred by the client in favor of his own preference for a more qualitative approach to research, placed under the same pressures as Stephanie in trying to build a strong relationship with the client. In his words:

“there are a lot of times when clients would have products that weren’t ready for the market and had clear design issues, but because the performance was high enough and the executives and high stakeholders were able to communicate it and spin it in a way that was favorable. I guess as a consultant it’s hard to argue back and forth when it’s a relationship you’re trying to build, but there were probably multiple times when I was, I guess disappointed with how much work could have been done to

optimize and improve the experience, but people’s priorities were more focused on timelines, um, metrics that they had already come up with, um, getting this out by a certain date, um, and obviously the costs. So if UX wasn’t built into the client’s practices, it’s very unlikely that they would take a step back and be convinced that we need to spend a little bit more money to be more user focused. So I think that was probably the most frustrating.”

Joseph felt that this mindset held by the client was partly due to the low barrier for entry in the domain, which encouraged companies to concentrate solely on metrics, stating that

“the FDA requires usability testing before you can be approved. So it was more of a gateway for people to enter the market, and it’s not necessarily, ‘I need to understand if users like this product and can use it,’ it’s more ‘so let’s make sure that people can use it and let’s just move forward.’”

DISCUSSION

In our findings, we have identified nine dimensions of design philosophy that our participants shared as key aspects of their approach as UX designers. Building upon these dimensions, we have contributed four different types of interpersonal and organizational interactions with these dimensions that demonstrate how aspects of UX-focused design philosophies may be effectively adopted or shut out by organizations from the perspective of our participants. In this discussion we will seek to argue for further attention to the dynamic nature of design activity, and the role of competence and personal-organizational interactions in enacting a designer’s philosophy. We then identify opportunities across education and practice contexts for further construction of philosophy-negotiating skills, and recommend areas where future research on design practices and adoption into HCI curricula might be valuable.

Negotiating Competence as a Means of Enactment

Based on our participants’ challenges in enacting their design philosophy, it has become clear that effective UX practice is not just about building competence—although that formation and replenishment of foundational skills is important—but also in building the capacity to *negotiate* one’s competence with others. All ten participants provided substantial evidence of the continued development of a design philosophy throughout their education and experience in professional practice, relating to both their perceived duties as UX practitioners, and more contextual, situated judgments within their practice.

In addition to providing valuable insight into the development and enactment of one’s philosophy in practice, there appears to be a substantial connection between the perceived tensions that one’s espoused values undergo in professional practice (whether positively or negatively felt), and the individual’s career-based objectives or decisions when reflecting upon those tensions. However, there is a lack of uniformity and subsequent unpredictability in impacts upon each individual’s career pathways when encountering similar tensions within the same dimension of design philosophy. For example, while the suppression or nullification of the design philosophies of some individuals at their respective organizations caused them to

avoid individuals or situations in the future to avoid repeating such tensions, others saw such situations as the most in need of their help. In these cases, the designers actively sought out future or current opportunities to move in to those environments in order to advocate for and evangelize the importance of taking a user-centered approach. Thus, we posit that ‘design philosophy’ as an analytic lens provides valuable insights into not only the development of individual designers, but also in identifying opportunities to encourage UX advocacy and further evaluate what skills and cultural norms need to be in place for design-based approaches to succeed in industry settings.

Developing and Enacting a Design Philosophy in Education and Practice

We began this project with the intention of exploring UX practitioner roles at various stages of development—sampling participants that were still enrolled in a formal academic program and participants that had already been in industry for 2–3 years. What is perhaps most interesting to us is that the negotiation of one’s design philosophy did not end with the participant’s formal academic program, yet it also did not appear to fit cleanly into either the liminal “bridge” space proposed by Brandt et al. [3] nor the space of professional practice. This bridge had previously been proposed as an identity- and activity-centric means of describing the acquisition of professional skills and identity, largely centered on academic preparation. While previous work has addressed the need to aid design students in the development of “soft” skills [13], we found a close connection between the core design knowledge that was enacted through one’s design philosophy (e.g., having user research skills was foundational to making research a core part of UX activity), with softer skills of negotiation needed both to rearticulate and language the value of a method or element of design philosophy to one’s self and to negotiate the potential value with organizational stakeholders. This ‘roundtrip’ negotiation and relearning/adjustment process, reminiscent of Argyris’ notion of “double-loop learning,” requires substantial skill *and practice* in building fundamental design knowledge (e.g., [9, 24]) and then practicing its articulation and enactment individually and with other stakeholders. While some practitioner resources have begun to emerge to fill this gap (e.g., [33]), few academically-focused resources are currently available.

These findings represent a new space in which the “studio bridge” might operate—not only in creating a quasi-professional space in educational contexts where design knowledge and practice can meet, but also in identifying patterns of deliberation and negotiation where theories and conceptual knowledge built in educational settings continue to have utility value long after a student has graduated from a design-focused HCI program. Thus, a second “bridge” might be considered an ongoing translation between academic and professional worlds and sources of knowledge that allows for a negotiation space to be broached in relation to one’s own design philosophy. All of these dimensions of learning, practice, and negotiation offer sources of inquiry that would be ideal spaces for future work.

IMPLICATIONS AND FUTURE WORK

Our findings, while limited in terms of sample size, number of institutions represented, and the United States focus, have

implications for programs offering design-oriented UX/HCI education and for organizations seeking to employ practitioners educated in such environments to instill or uphold a user-centered philosophy in their workplace. The values and tensions highlighted within this study provide a lens through which to view the building of a *design character* that takes place for students educated in design-oriented programs, through continual reflection of one’s design philosophy as it shifts from education to practice (both in the praxis and project-situated realms). However, based on our research, more could be done by such programs to facilitate the shaping of such values—implicit in students’ developing design philosophies—through the placement of more realistic constraints in suitable projects within a studio environment and more explicit means of constructing negotiation and other “soft” skills. By creating an environment that anticipates a continual translational bridge between academia and practice, students may better understand and be prepared for how to effectively act upon tensions relating to their design philosophy.

Further research is required to describe how the “studio bridge”—as a liminal space where identity work and language of that identity naturally lies—might be utilized to build students’ understanding and articulation of their design philosophy. There may be value in building more translational awareness regarding components of one’s philosophy, and what can be done to better bridge the gap to allow early practitioners to identify and act upon their philosophies in practice, building an effective design culture in their organization. Additionally, it is important to consider how these tensions may emerge in different cultural contexts beyond the United States, or where country of origin between academic preparation and practice differ. More broadly, design philosophy may be productively used to describe both aspects of design capability and the ethical and critically-oriented means through which aspects of this capability are prioritized or sensitized, building on other ethics-focused work (e.g., [11, 16, 40]).

CONCLUSION

In this interview study, we investigated the dimensions of design philosophy shared by practitioners and HCI/UX students, identifying the ways in which these dimensions impact everyday design practice. Building upon these dimensions, we have identified potential tensions in enacting one’s design philosophy in organizational settings, resulting in situations where aspects of one’s philosophy is actualized or suppressed. These resulting dimensions and tensions provide a analytic lens through which to view the design knowledge taken on and shaped by those educated within design-focused HCI and UX programs, and the ways in which this knowledge might inform an ongoing translation between academia and practice. We have identified future opportunities to strengthen the adoption of UX and design practices in organizations, and to promote the development of students’ skills in the “studio bridge” to prepare them for the complexities of their current and future design practice.

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