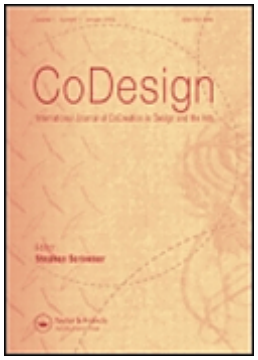

Co-Producing, Curating, and Defining Design Knowledge in an Online Practitioner Community

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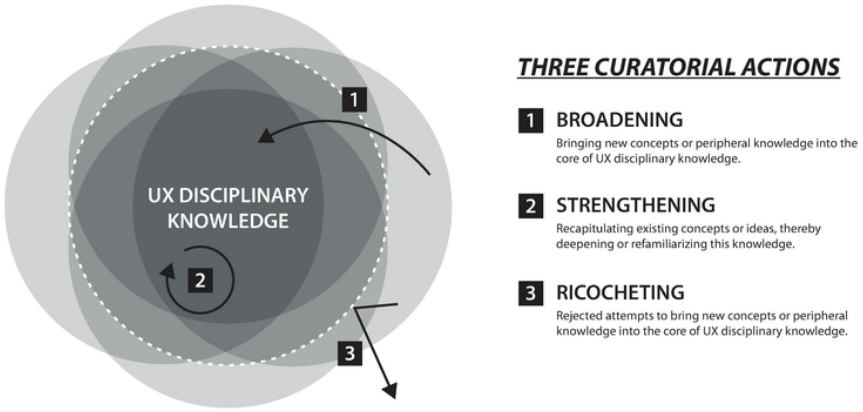
Table 1. External resources by type and frequency. Each external resource type is indicated by its likely content creator, and the percentage of this type in relation to all analyzed posts. The percentage of instances of each type shared by the four most prolific authors who had shared more than ten resources is also included.

Resource Type	Content Creator	Example	n	Overall %	Prolific Author %
Personal websites/ portfolio	UX practitioner	williamvpickering.com	30	7%	2.1%
UX tool	Tool creator	material.io	26	6.1%	4.3%
UX thought leader group	UX expert	nngroup.com	6	1.4%	1.1%
UX design blogging community	UX practitioner	blog.prototypr.io	71	16.7%	31.9%
General design blogging community	Design Practitioner	medium.com	104	24.4%	26.6%
Design company	Agency or company	jtechcommunications.com	67	15.7%	19.1%
Academic resources	Academic/ scholar	journals.sagepub.com/home/ hfs	14	3.3%	0%
Popular tech blog	Technology writer	techcrunch.com	20	4.7%	5.3%
General social media	UX practitioner	twitter.com	41	9.6%	3.2%
Q&A sites	UX practitioner	quora.com	2	0.5%	0%
General file sharing site	UX practitioner	imgur.com	30	7%	4.3%
News website	General news	thestar.com	15	3.5%	2.1%

Table 2. External resource content by type and frequency. Each type of shared content is related to knowledge types, and the frequency is indicated as a percentage of the overall post corpus and as a percentage of this content being shared by the four most prolific authors.

Type of shared content	**Definition**	**n**	**Overall %**	**Prolific author %**
Design artifact	A specific design outcome or output	59	13.8%	6.38%
Intermediate-level knowledge	UX knowledge relating to principles, guidelines, and heuristics	329	77.2%	87.2%
Tool	Tools to facilitate UX design	37	8.7%	6.38%
Reflection	A critical reflection on the field of UX	1	0.2%	0%
Industry report	A report documenting the development of the UX occupation and employment	1	0.2%	0%



Three curatorial actions present within the subreddit community.

72x31mm (300 x 300 DPI)

Co-Producing, Curating, and Defining Design Knowledge in an Online Practitioner Community

Abstract

As codesign and other participatory design practices increasingly make design outcomes more accessible to everyday citizens, it is also important to understand how designers negotiate the value of design knowledge that undergird design action and share this knowledge within their own community to facilitate and evolve their practices. In this study, we analyze UX practitioners' interactions on Reddit, including patterns of resource sharing and curation that point towards a collective construction of UX as a design discipline. We identified how knowledge from diverse sources was selected and shared with the subreddit community (co-production); the resources that community members engaged with and to what extent (curation); and the collective body of knowledge that characterized the design community (definition of design knowledge). We found that boundary work that sought to define the value of UX knowledge often took place at the periphery of shared resources, either expanding or rearticulating the boundary of UX knowledge in relation to trends in employment and nascent professionalization. Implications of this work for the co-creation of knowledge to support design practices are considered, focusing on how design knowledge concomitantly shapes and is shaped by client-directed design action.

Keywords: Design knowledge; UX design; Reddit

Introduction

In conjunction with the shift towards making design practices more accessible to everyday citizens through co-design and participatory approaches (e.g., Sanders & Stappers, 2014; Piller at al., 2005), it is also important to understand how designers negotiate the value of design knowledge and share that knowledge within their own community to facilitate and evolve these practices. Therefore, in this paper, we focus on the practices of designers as they communicate together in order to co-produce, curate, and define knowledge in an online UX community. To assess the potential value ascribed to this knowledge by various constituents, we call attention to the interactions among designers, and the ways in which diversity of thought, inclusivity of community, and fluidity of personal and disciplinary competence might productively complicate the acquisition, performance, and perceived value of design knowledge. This work fits within calls for a "turn to practice" in Human-Computer Interaction (HCI) (Kuutti & Bannon, 2014) as well as interest from the design research community in describing the praxis of design *on its own terms* (e.g., Gray et al., 2015; Stolterman, 2008).

With the rise of digital technologies and social media communities, a variety of mechanisms for design communication such as design studios (e.g., Kvan et al., 1999) and design critique (Kou & Gray, 2017; Easterday et al., 2017; Luther et al., 2015) have become increasingly distributed and networked. Online design communities focused on various subject matters have become prevalent, remaining open for both junior and senior designers to build and share their expertise (e.g., Ahmed & Fuge, 2017; Marlow & Dabbish, 2014; Xu & Bailey, 2012). In our prior work, we have documented the ways in which online communities support the development of design ability, including the facilitation of designerly communication (Gray & Howard, 2014), provision of critique (Kou & Gray, 2017), and professionalization of design disciplines (Kou & Gray, 2018). In this paper, our focus is on the interactions among a group of UX designers as

they negotiate and sustain their own competence as professionals in a public online community, collectively and iteratively building and curating knowledge and assessing the potential disciplinary and personal value of that knowledge.

Related Work

Co-Creation as World-Building

Co-creation can be productively positioned as an attitude *towards* design or philosophy *of* design, prioritizing engagement and active participation with multiple levels of stakeholders and social structures. Co-creation is mutually constituted through one's relation to the praxis of design (philosophy; e.g., Andersen et al., 2015; Sanders & Stappers, 2008) and to the larger public and the social structures these publics serve (attitude and methodology; e.g., Le Dantec, 2010, Markussen, 2017). This results in the creation of new and desired future states that have definite, though often hidden, local and global social impact. In this sense, co-creation has the potential to bring together communities of engaged stakeholders, while also serving the broader goal of creating new futures that have global impact and reach. Co-creation is often viewed through designers' interactions with the public; however, co-creation is also constitutive of the designer herself and her role in relation to the design community at large. It is this identity constitution in relation to discipline, method, and design knowledge that we focus on in this paper, building on prior work that values the designer's judgment as a primary way of shaping and forming the potential design space (Nelson & Stolterman, 2012), and the relationship of the designer with methods and other forms of knowledge as a subset of these judgments (e.g., Gray, 2016; Höök & Löwgren, 2012; Woolrych et al., 2011).

From this co-creation perspective, we view design knowledge as contested and continuously shifting with design practice. Design knowledge is open, drawing from a growing range of disciplines in forming its own logic, rationale, and arguments (Buchanan, 2001; Stolterman, 2008). Design knowledge is also layered, consisting of various levels of abstraction and generalizability (Höök & Löwgren, 2012). We posit in this paper that it is useful to understand the production of design knowledge as a process of inquiry and discovery, viewing the process of *co-production* as a one through which designers continuously produce knowledge via interactive practices of connecting concepts, (re)mixing ideas, and interpreting and reinterpreting existing artifacts.

Design Knowledge and Praxis

Designers engage in complex and ongoing work to build and sustain their design expertise (Gray, 2014; Lawson & Dorst, 2009; Nelson & Stolterman, 2012). While these competency-building activities have often been viewed in largely collocated settings such as the design studio, online communities have been increasingly shown to support professional practice in substantial and important ways (e.g., Marlow & Dabbish, 2014). In building a heightened sense of design complexity (Stolterman, 2008) in the context of online communities, we have previously documented the sharing of intermediate-level knowledge (Gray & Kou, 2017), building on previous definitions of design knowledge and designerly ways of knowing (e.g., Höök & Löwgren, 2012).

Our goal in this paper is to connect with the practice-led research tradition, seeking to understanding the interactions of designers with design knowledge and the complexity of their

practice *on its own terms* (Gray et al., 2014; Reeves & Ljungblad, 2015; Stolterman, 2008). As an outcome of documenting and analyzing the knowledge being shared and engaged with by practitioners in online communities, our goal is to further reveal the praxis of UX design and the ways in which active knowledge generation and construction is concomitant with the evolution of UX as a discipline and profession (Kou & Gray, 2018).

Purpose of the Research

The purpose of this study is to reveal the expectations that practitioners have regarding design knowledge, both in the abstract and related to explicit pragmatic use. In our previous work, we have identified competency-building and sharing activities among practitioners (e.g., Gray, 2014; Gray & Kou, 2017), and the ways in which these activities not only stimulate individual expertise and ability, but also contextualize these activities in relation to disciplinary identity and normative expectations. Therefore, the following research questions for this present study are intended to help us identify how UX practitioners engage in co-production, curation, and definitional work surrounding design knowledge, and the pragmatic value of these activities in relation to personal and disciplinary identity:

1. What kinds of resources do subreddit members share to community members, and what is their source?
2. How are these resources presented to the community, related to current design practices, and/or contested?
3. How do co-production and curation practices define and potentially extend disciplinary boundaries as it relates to design knowledge?

Method

To understand how UX practitioners rely upon knowledge-sharing practices to support their work, we have engaged in extended study of a specific community on Reddit, a subreddit known as "/r/userexperience." At the time of writing, this community has existed for nine years and has over 20,000 subscribers. We chose this subreddit after substantial engagement in multiple online design communities for its richness, variety of participants at multiple levels of skill, and volume of interaction. The field of UX is also interesting as an emerging site of design practice, where codesign, cocreation, and participatory approaches are commonly embraced and used to support design work, and the body of knowledge is still actively being negotiated (Lallemand, Gronier, & Koenig, 2015; Reeves & Ljungblad, 2015).

Data Collection

Using the public Reddit API, we collected all posts (n=2783), comments (n=20000), and metadata that were accessible to us from this community. The bulk of data represents interactions from January 19, 2016 to June 27, 2017, due to a moving and limited window of access to subreddit data through the official API. A subset of these posts (n=408) were from prior to these dates, but were also captured and included in our data corpus. In this study, we focus on posts where a related URL was shared as part of the post (n=426), which we know from previous research in this community (e.g., Gray & Kou, 2017) indicates the introduction of a new or complementary resource outside of Reddit. Each of these targeted posts was downloaded in JSON format and inserted into a relational database for further analysis.

Analysis

We have previously performed an open thematic analysis of 970 posts from a portion of the total post corpus to identify and document the topics that were being discussed in this community. In this thematic analysis, we sought to characterize the range of communication in relation to UX practices. We identified a range of themes related to critique of in progress and completed artifacts (cf., Kou & Gray, 2017), requests for resources, employment seeking, and preparation in UX. One dominant form of conversation focused on aspects of UX knowledge (n=182/970), which also commonly included sharing external resources. In our previous analysis using the concept of intermediate-level knowledge as a theoretical framework, we found a wide range of resource types being shared that drew from a multiplicity of disciplinary origins and epistemological traditions. Out of the 182 posts referencing aspects of UX knowledge, 155 posts contained only a link to an external resource without any further text. While link-sharing behaviors are common on Reddit (Gilbert, 2013), this is one of the only topic types we identified on the subreddit that exhibited this behavior. Our subsequent analysis for this study was informed by this thematic analysis and incidence of link sharing. In answering the three research questions, we rely conceptually on UX knowledge sharing practices revealed in this analysis, although we expand the dataset to account for all link-sharing instances in our corpus.

To answer the first research question, we performed a content analysis (Neuendorf, 2017) of the linked resources for all posts where a related URL was shared as part of the post (n=426), focusing on the type of resource and the content contained within the linked resource. We used a bottom-up thematic approach (Braun & Clarke, 2006) to identify the resource type, resulting in multiple candidate types. In relation to these types, we also identified the content creators most responsible for the production of the linked resource. Next, we assessed the content of the resource, building on themes from Gray and Kou (2017), resulting in a characterization of content types.

To answer the second research question, we used a discourse analysis approach (Gee, 2011) to analyze link sharing behaviors. We built an understanding of the discursive contexts in which UX designers referenced external resources in posts and comments, attending to the initiation of discussions that related to external resources, instances where assertions were made or supported in relation to an external resource, or where aspects of UX knowledge were otherwise broached in conversation. Specifically, we adopted the "social languages tool" (Gee, 2011) to reveal how members adopted styles of language that enact and are associated with their identity as a UX practitioner.

To answer the third research question, we used a discourse analysis approach (Gee, 2011) to examine the functions that external resources served within the subreddit community, and identify the co-production and curation practices that led to consensus regarding disciplinary knowledge. We focused our analysis upon threads where a resource was controversial or did not have clear resonance with already agreed upon disciplinary knowledge (n=162). We identified several themes of interaction with controversial knowledge, such as being critical about UX terminology, articulating differences between UX and related disciplines, and reflecting on the state of UX.

Findings

Based on our analysis, we present three related sets of findings. First, we identify what types of resources were shared as a means of co-producing disciplinary knowledge, and what type of knowledge they contained. Second, we document how the community reacted to the resources that were shared, thereby actively curating disciplinary knowledge. Third, we describe how community members' co-production and curation activities relate to their shaping of disciplinary boundaries and the design knowledge that these boundaries imply. In each of these subsections, we identify the curatorial and valuation practices at play and the epistemological assumptions that led to these decisions.

1. What resources do subreddit members share?

Co-production and co-curation of shared knowledge was highly distributed in this online community. We identified 259 unique authors who shared 426 resources. Four authors shared resources on more than ten occasions in this subreddit, contributing a total of 94 resources. We use this subset of authors as *prolific authors* to indicate the kinds of resources shared by everyday participants, as well as more involved participants. In the next subsections, we describe a typology of shared resources based on our thematic analysis.

Types of external resources

UX designers shared a wide range of online resources to clarify, maintain, and develop their UX knowledge (Table 1). The shared resources varied widely in terms of content creator, potential audience, and perspective towards UX. Many resources were highly related to the opinions, perspectives, and production of individual UX practitioners, including blog posts, portfolios, and individual design artifacts. Other resources with a disciplinary focus addressed common community concerns such as employment, industry development, or tools.

[[TABLE 1 HERE]]

Content of external resources

Next, we examined the content of these shared resources, building upon previous findings from a narrower analysis of knowledge types shared in this community (Gray & Kou, 2017). We found several types of content that were shared within this community, as shown in Table 2. The social production of UX knowledge can be understood at different levels, using Nelson and Stolterman's (2012) continuum from the "true" (theory) to the "real" (ultimate particulars) as a starting point. We also relied upon Höök and Löwgren's (2012) notion of "intermediate-level knowledge" to define knowledge such as heuristics, principles, patterns, and methods.

These design artifacts required community members to understand and interpret the resource, drawing from their own experiences as well as other cultural and historical references. This sharing process required a substantial level of cognitive flexibility to intuit the origin and positioning of the work in relation to UX. Intermediate-level knowledge represented the most common type of knowledge shared by UX designers in this community (n=329). This substantial interest in knowledge such as principles, patterns, and guidelines that inform UX practice indicates practitioners' need to systematize knowledge that they feel has resonance with their practice. These resources indicate the flexibility and opportunistic nature of presentation and curation, demonstrating some awareness regarding the differing ontologies through which design knowledge are produced and collected.

[[TABLE 2 HERE]]

Prolific members shared resources in different ways as compared to the average member. These prolific sharers skewed towards sharing knowledge that was rigorous and specific to UX practice, tending to share less from general social media and personal websites and more from the UX design bloggers and design companies. Prolific authors were also more likely to share intermediate-level knowledge that was perceived to be more "rigorous."

2. How are these resources presented to the community?

The sharing of external resources resulted in substantively different interaction patterns than other types of conversations. After dividing all the posts into two groups based on whether they shared links, we compared differences in terms of score (upvotes minus downvotes) as well as number of comments. In terms of post score, the group of posts that shared a link averaged 19.52, while the other group averaged 7.95. A Mann–Whitney U test suggested significant difference between the two groups ($W = 576762$; $p = < 0.001$). In terms of number of comments, the group of posts that shared a link averaged 4.40, while the other group averaged 9.26. A Mann–Whitney U test also suggested significant difference between the two groups ($W = 1370474$; $p = < 0.001$). Therefore, sharing links triggered vastly different community reactions if evaluated by score and number of comments. We conjecture that the community acknowledged incoming knowledge, indicated by upvotes. However, knowledge building-oriented discussion is inherently arduous, requiring much cognitive effort and rigorous logic, in comparison to lighthearted, upbeat everyday conversations. In this section, we will analyze and describe the community's curatorial reactions to shared external resources, including its resonance (or lack thereof) with individual perceptions of extant disciplinary knowledge.

[[FIGURE 1 HERE]]

We explore these reactions through three different relationships (Figure 1). First, a shared resource might be brought from outside of the discipline and be accepted as resonant with existing disciplinary norms, thereby ***broadening*** the discipline's knowledge as a whole. Second, a shared resource might recapitulate existing disciplinary ideas in new or reflective ways, thereby ***strengthening*** disciplinary norms through a deepening of the existing discourse. Third, a shared resource might be brought from outside of the discipline and rejected or not accepted as resonant with existing disciplinary norms, thereby being ***ricocheted*** by the community. While these three relationships may be useful in describing any kind of knowledge community, we specifically focus on the valuation practices implicit in these knowledge-sharing relationships as it relates to the emergent and volatile state of UX as a discipline. Thus, we would anticipate the interactions in relation to these curatorial relationships to reflect less structuredness and boundary work than a more established discipline.

Broadening

Instances of external resources bringing a new perspective from outside the community accounted for 22.3% (n=95) of all shared resources. These types of external resources took numerous forms, introducing or contextualizing other disciplinary perspectives in relation to UX.

For instance, in the following example, designers used a popular collectible card game to critique and explore user experience:

> **Bridging the Moat—What buyouts in "Magic: the Gathering" can teach us about User Experience (score=23)** [resource shared to medium.com]
>
> Reply: […] I've always believed that the history of MTG have some really awesome examples of design that are intriguing UX challenges. Another example I can think of includes the move to create keywords for abilities, which would be great for players that keep up to speed, another deal altogether for new players.

These examples include knowledge that is related to UX, but is outside of UX core disciplinary knowledge. In these instances, we note broadening through disciplinary interaction (ecommerce) and through analogy (Magic: The Gathering). While many of these broadening interactions were non-technical in nature, there were a limited number of posts where the external resource being shared included technical innovations that had first been shared in an academic context. In the following example, a remote sensing technology summarized a CHI 2016 paper by Microsoft Research.

> **Pre-Touch Sensing for Mobile Interaction (score=20)** [resource shared to youtube.com]
>
> Reply: Really interesting stuff. I really love how they add grip sensors to offer a contextual set of controls. And proper hover states!
>
> Reply: I'm thrilled to see how this new interaction can be applied.
>
> Reply: The future.

In this conversation, the poster shared a video demonstrating a novel type of touch sensing. The replier showed acknowledgements of the resource by the starting utterance of "really interesting stuff." The replier did not stop there, but further elaborated upon why they enjoyed the shared resource, further confirming the replier's genuine appreciation. The upbeat tone like this was observed many times where the UX community welcomed new perspectives or ideas that it had not encountered before.

Broadening actions indicated the openness of the UX community to new ideas and perspectives, as would be anticipated in the third-wave orientation of human-computer interaction as an umbrella discipline (Harrison, Sengers, & Tatar 2011). Some of the broadening seemed to be situated around novelty in the larger technological space, involving issues such as virtual reality, machine learning, and new contexts for technological adoption. However, this sense of novelty did not describe the majority of broadening interactions; rather, much broadening work attempted to bring in new or complementary disciplinary perspectives to address existing pain points or gaps in UX knowledge. While many resources already resonated within this broad epistemological framing of the discipline, interactions with the resource itself seemed to have reified and made visible the community's epistemic interest and engagement.

Strengthening

Instances of external resources that deepened the existing discourse accounted for 28% (n=118) of all shared resources. These external resources referenced concepts, tools, or principles that were already commonplace or agreed upon in this specific UX community, or were central to

core UX knowledge more generally. When a shared resource concerned subject matter that intersected with design ideas, products, or tools that community members were already familiar with, it often spurred thoughtful addition and strengthening behavior. In the following example, the replier strengthened the existing discourse about desktop interface design:

> **Desktop Neo – rethinking the desktop interface for productivity** [resource shared to product site]
>
> Reply: Here are my quick thoughts:
>
> - A lot of these proposed features seem designed for a power user, not a beginner. Low on discoverability and learnability.
> - They made lots of claims made about certain metaphors being obsolete, but did not show why the proposed solution is better.
> - How do they handle error states?
> - […]

In addition to direct conversations regarding interface design principles, strengthening conversations were also used to explore and define UX on a conceptual level, and to engage in "practice" deconstructing existing sites or services through a UX lens.

> **Don Norman on the term "UX" (score: 69)** [resource shared to youtube.com]
>
> Reply: I love his idea. And this is the story (but in my words) I use to explain what I do as a user experience designer – never that I know how to "make apps."

> **My eBay Site UI/UX Teardown & Redesign (score: 36)** [resource shared to practitioner web site]
>
> Reply: Nicely done. I would love to see a guerrilla usability test of your new version vs. the control to prove/disprove your hypothesis.
>
> Reply: That's my problem here.
>
> Why not test with actual users? or even just people at the local coffee shop? […]

As is evident in these examples, strengthening conversations did not always result in consensus. While the first two examples were largely positive, with community members appreciating a fuller articulation of complex UX issues (i.e., definition of the discipline; use of blank state pages), the third example demonstrates a strengthening conversation around the primacy of user research. Although the eBay site redesign was not accepted by all members, its presentation strengthened the articulation of core commitments within the community.

In these cases, strengthening was used to celebrate and deepen conversations where a sufficient body of both epistemological and pragmatic knowledge had already been defined and shared. Thus, curation in the case of strengthening was in the form of *activation* of prior domain knowledge as a means of evaluating similar approaches—often in a pragmatic framing—rather than the sharing of new, contested knowledge.

Ricocheting

Instances of external resources that were rejected or did not find resonance in the community accounted for 10.3% (n=44) of all shared resources. These external resources often shared

outspoken opinions in their titles, and in most cases were presented in a matter-of-fact way (i.e., not revealing that the topic may be contentious or likely to ricochet). This indicates potential fragmentation within the community, or as an example of the volatile nature of the discipline with members sharing many and diverse opinions on what UX practitioners should consider, and on what basis. In one example, the opinion presented seemed to contradict the common belief of the community. Resources like this were often confronted by community members. Like the broadening case, this replier first assessed the quality of the resource using the phrase "very naïve article," followed by rationale.

> **Newsletter pop-ups, we've all had enough!** (score: 39) [resource shared to medium.com]
>
> > Reply: Very naive article.
> >
> > > *(quoted from article) even if such choices were supported by numbers, they would still be against common sense*
> >
> > Common sense does not work this way.
> > And the idea of replacing advertising and subscriptions by promoting unknown writers?! No idea what that means!

In other examples of ricocheting, community members engaged in a technical critique of resources shared through a UX lens, rejecting what seemed to be an overly simplistic UI solution (zoomable interfaces) or engaging more deeply with the complexity of AI-focused platforms (Instagram algorithms):

> **A novel concept for machine interaction. (score: 3)** [resource shared to youtube.com]
>
> > Reply: Cool but not novel. The notion of zoomable interfaces has been around at least since the 60s.
> > Reply: I thought it had some interesting ideas that could be explored in our modern sense. This type of interface interaction could be very useful on a tablet or one of the minority report style screens […].
> >
> > You'd need:
> >
> > - A purely vector based OS
> > - Updated UI affordances and GUI
> > - Have the top controls be hidden and pulled down […]
> >
> > […] Since everything is always running, it would also allow apps to be in any design, not limited to a 16:9 or 9:16 rectangle. They can be ovals or triangles, or squares or whatever. Lots of unexplored directions for UX/HCI here.
>
> **Instagram and the Cult of the Attention Web: How the Free Internet is Eating Itself (score: 19)** [resource shared to medium.com]
>
> > Reply: I work in the advertising industry. The author doesn't really know that it is complicated to work with an algorithm-based platform. It feels like every single variable is against you. […] Many outsiders have complained about the algorithm stating that it's a profit decision. However, people who work in advertising […] complain the hardest, because we're subjected to that algorithm too. […]

These interactions surrounding technical complexity take on characteristics of broadening as well as ricocheting, acknowledging that the community must be able to dialogue around issues of technical complexity (broadening UX to include aspects of human factors and AI domains), while also rejecting a certain reductionism that some resources brought to the conversation.

In these cases, controversy existed not on the ontological level, in the sense that the source or type of the knowledge was being directly contested. Rather, the controversy that provoked a ricocheting action resulted from an epistemological engagement with the knowledge being shared. Thus, the comments about a source being "naïve" recognized a valuation claim that showed a lack of resonance with core, accepted principles about the nature of UX and were activated through epistemological engagement with incompatible outside perspectives.

3. How do these practices define disciplinary boundaries?

UX designers in this community utilized this subreddit to not only share what they felt represented a commonly accepted and core body of UX knowledge, such as the Nielsen Norman Group's definition of UX, but also to explore the boundary spaces of UX knowledge where ideas and thoughts had not yet been consolidated or were contested. Through our discourse analysis of posts containing contested knowledge, we identified several instances where UX designers engaged in boundary work, actively shaping allowable knowledge and urging conceptual clarification. In this section, we will describe how designers engaged in boundary work to reconcile contested knowledge, using shared resources to build arguments that defined or reinforced disciplinary boundaries.

When engaging with **popular thoughts in UX (3.3% of links)**, designers discussed UX terms that are popularly used but do not have a firm knowledge foundation, thus leaving many conceptual weaknesses that demand more debates among practitioners. As one example, a commenter's critique of an accepted idea shared by a poster was rejected by community members as being naïve, ricocheting the critique of the term for some members and strengthening "microinteraction" as core and valued knowledge for others. Clearly, the five practitioners held vastly different opinions and orientations, with two members questioning the significance of this term, another member focusing on the lifespan of the term, and a final member supporting the use of this term. The practice of resource sharing became an effective way of encouraging critical discussion, where designers carried out boundary work in demarcating design knowledge in terms of centrality, longitudinal evolution, and future trajectory.

> **Microinteractions: The Secret of Great App Design (score=53)** [resource shared to uxplanet.org]
>
> > Reply: Microinteractions? Great. Just another made-up word. Please focus on visibility, affordances, signifiers, mapping, constraints and feedback instead of inventing new umbrella terms.
> >
> > > Reply: I mean, I get your point but this term is not so new. I've been hearing it for about 5 years now.
> > >
> > > > Reply: Fair point. Still, I think it's a pretty useless term.
> > > >
> > > > > Reply: I agree. How are 'great microinteractions' different from paying proper attention to the fundamentals?

> Reply: All of the terms you just mentioned were at some point just made up words. […] For instance, "signifiers" was specifically made up to for discussing UX design. Thinking about an app in terms of micro interactions to be pretty useful for me. It helps identify when a specific interaction is especially important […].

When describing and illustrating **distinctions between UX and related disciplines (2.8% of all resource links)**, UX designers distinguished UX from related disciplines such as HCI and UI, which outsiders often conflated. The example below exemplifies a discourse operating at the fuzzy boundaries between UX and related disciplines. While the distinction between UX and UI appeared clear to community members, it was not so to outsiders. Therefore, there was a ongoing discourse to define and recapitulate the disciplinary boundaries of UX and its relation to other disciplines in a friendly and accessible, while also non-reductionist way.

> **UX vs UI - infographic by Ana Harris (score: 24)** [resource shared to imgur.com]
> Reply: This infographic was obviously not designed by either
> Original Poster Reply: It's not so obvious to me since I'm pretty new to the sub. Do you mind explaining why?
> Reply: […] this poster appears designed by a very junior visual designer. The fonts all over place, terrible padding between things, and generally childish visual design. The content, while trying to be helpful, is rather naive. […] A lot of designers get rather uptight about the difference between UI and UX (and they have every right to because they are not the same) but they can be a bit over-react-y Worry not. :)

These examples show the extent to which community members engaged in valuation practices, and the epistemological commitments revealed through their interactions. In the instances mentioned in this section, core ontological claims and disputes were engaged with on an abstract, disciplinary level, rather than on the pragmatic, instrumental level shown in other kinds of knowledge interactions.

Discussion

Through our analysis, we have shown that resource-sharing interactions supported iterative processes of co-production, curation, and definition, concretizing existing knowledge and extending the boundaries of UX design knowledge deemed to have instrumental value for practice. The value ascribed by authors and community members to individual shared resources facilitated not only a conversation regarding the acceptability of that knowledge within UX practice, but also the utility or pragmatic value of that knowledge to support future design practices. We will demonstrate how these curatorial interactions provide new knowledge regarding the distributed nature of design activity and knowledge production, leading to an emergent set of valuation processes.

Valuation Practices for an Emerging Design Discipline

As design practice increasingly deals with intangible representations and sources of knowledge, practitioners must engage with an ever-greater range of disciplinary perspectives. In UX practice, there is an increasing messiness of knowledge boundaries, core knowledge, and a decrease in

shared background of practitioners that engage in this knowledge work. Thus, we have presented practitioners' means of coping with rapid disciplinary change as one example of broader changes currently underway in the practice of design that may fundamentally change the way design knowledge is built, consumed, and shared. While there are limits to our method, including unclear patterns of participation due to the pseudonymous nature of interaction, the subreddit conversations allow access to deliberation strategies that would otherwise be hidden or difficult to access.

The broadening, strengthening, and ricocheting processes we have identified demonstrate the unique ways this design community curates knowledge. First, the dominance of broadening and strengthening shows the fuzzy and rapidly shifting center of disciplinary knowledge in UX. While most knowledge is not being actively contested, as new knowledge is brought in through broadening processes, the epistemological conversations that these new artifacts provoke may trigger reconsideration of core knowledge in the future. A historical vantage point can already be used to map the evolution of the discipline from one that was concerned primarily with usability on screen-based systems to one that is concerned with hedonism and experience in all of its forms, and we anticipate that attention to these valuation practices may lend insight into the future development of the field as well. Second, we believe that these processes are especially interesting when looked at through the perspective of critique and valuation, demonstrating the community's interest in engaging with both abstract and ultimate particular artifacts. We contend that some of these interactions, particularly in the intermediate-level knowledge domain, are caused by a crisis of representation in UX and interaction design. While other disciplines such as visual communication can be frequently and adequately represented either through static images or dynamic mockups, the design of user experience and interaction requires engagement with a range of abstract, intermediate-level, and ultimate particular resources, each provoking differing levels of conversation that guide curation decisions.

Valuing Ready-at-Hand Knowledge

Practitioners valued knowledge that they felt had the potential to guide their present design activities. This online space thereby supported UX designers as they collectively produced, curated, and defined UX knowledge with a ready-at-hand focus. The resources used to strengthen and broaden UX knowledge were frequently written by practitioners or were otherwise intended for a designer audience, through established venues such as medium.com (practitioner blog posts), imgur (sharing of visual resources), or a range of UX-focused sites (e.g., uxplanet.org, nngroup.com). Resources frequently addressed intermediate-level knowledge rather than ultimate particulars, although when ultimate particulars were used, they often illustrated points that related to somewhat more abstracted forms of knowledge. This indicates a mature and open conversation from an epistemological perspective, where prospective knowledge could be judged both on its own merits and based on its potential utility to UX practices or core disciplinary knowledge.

Across the interactions observed in this community, it is clear that UX designers rely upon a diverse and complex range of online resources to maintain and develop their competence, and that the type and scope of these resources is in rapid flux as the discipline evolves and adapts to new technologies and business climates. This evolution of UX knowledge implicates boundary work (Adams et al., 2009; Gieryn, 1999; Kurath, 2015), such as strengthening or ricocheting interactions, where community members sought to define the value of UX knowledge at the

periphery of shared resources, either expanding or rearticulating the boundary of UX knowledge in relation to trends in employment and nascent professionalization. Attention to where boundaries are more or less permeable is an important future direction to explore, particularly in relation to ontological openness versus epistemological engagement. For instance, there seemed to be a difference in these conversations between accepting a source and resource type as a reasonable form of knowledge *to be building*, and being willing to accept the implications of that knowledge in a UX-focused framing.

Finally, this articulation and use of various forms of ready-at-hand knowledge reinforces the community's focus on praxis; rather than focusing on articulation of abstract guidelines and theories, community members argued in relation to the felt *value* of the knowledge being presented and its potential for resonance in their own practice, or for the UX community at large. Presentations of knowledge in isolation were necessary, but not sufficient for uptake by the community; rather, praxis (even though it was never stated in such terms) was the central pivot through which the value of shared resources was brokered.

By performing curation and deliberation practices, members were in fact negotiating and concretizing disciplinary notions of praxis—inherently tacit and often invisible in other offline settings. While community members did not appear to engage in a meta-level conversation on their curatorial practices, the interplay of multiple epistemological positions and the ways in which they were prioritized serves as its own performance of disciplinary praxis that could be taken up and learned by other community members.

Mutually Constituting Disciplinary Boundaries

While members took up the sharing of resources individually, the confluence of these acts served to articulate, enact, and recapitulate previous conversations regarding disciplinary boundaries. By identifying these online resources, we have started to carve out a knowledge space that can inform the future development of a concrete body of UX knowledge, where the interaction among members, resources, and lines of argumentation that connect them, can be seen as mutually constituting disciplinary boundaries.

These community interactions underscore the importance of studying relationships between academic and professional expectations of knowledge production. We contend that building a more comprehensive description of practitioner-led knowledge relationships may help future scholars identify opportunities for productive convergence of academic and practitioner communities. While these valuation practices were often most visible when a knowledge source was being rejected (i.e., ricocheting) or in abstract discussions regarding the center of the UX discipline, these valuation practices nevertheless revealed the pragmatism that characterizes much of practice. Notably absent were conversations regarding objective or scientific truth, particularly for knowledge artifacts at the intermediate level or higher. Even in the case of ultimate particulars, existing design principles, methods, or frameworks were frequently presented, but almost always in a situated sense that valued the expertise of the individual designer. Thus, while academic literature can play a role in communities such as this, academic researchers must have different expectations about how this knowledge is understood, consumed, and used to support practice.

Implications and Future Work

These interactions indicate the utility of a practice-based foundation for a comparison of the value of design research as academically defined, and "scrappy" design research and related methods as they are defined and shared by practitioners. These practices imply the need for greater attention to the dissemination of knowledge and the valuation assigned to these various forms of knowledge, particular in a design context, where knowledge can have not only objective, scientific value, but also generative, analytic, social, or critical value. Our findings point toward the need for future research in documenting the interplay among practitioner communication, the availability of methods for use in design practice, and the role of academics and formal educational structures in informing these relationships. The valuation practices we have identified also suggest opportunities for deeper study of other design disciplines and communities, perhaps leading to a better understanding of how disciplinary knowledge consolidates or converges over time.

Conclusion

In this study, we have identified how UX practitioners used a social media site to co-produce and curate their disciplinary knowledge, and in doing so, actively shaped the contours of their discipline. The value that practitioners ascribed to these resources, and the collective interest of the community that resulted in a broadening or strengthening of disciplinary boundaries, indicates the flexibility with which UX practitioners relate to and incorporate design knowledge into their own practice. This increased understanding of designers' organic co-creation practices in relation to disciplinary knowledge may point to opportunities where academic and practitioner notions of design knowledge may meaningfully converge, be productively contested, and mutually constitute and support each other.

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