“It’s More of a Mindset Than a Method”:
UX Practitioners’ Conception of Design Methods

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ABSTRACT
There has been increasing interest in the work practices of user experience (UX) designers, particularly in relation to approaches that support adoption of human-centered principles in corporate environments. This paper addresses the ways in which UX designers conceive of methods that support their practice, and the methods they consider necessary as a baseline competency for beginning user experience designers. Interviews were conducted with practitioners in a range of companies, with differing levels of expertise and educational backgrounds represented. Interviewees were asked about their use of design methods in practice, and the methods they considered to be core of their practice; in addition, they were asked what set of methods would be vital for beginning designers joining their company. Based on these interviews, I evaluate practitioner conceptions of design methods, proposing an appropriation-oriented mindset that drives the use of tool knowledge, supporting designers’ practice in a variety of corporate contexts. Opportunities are considered for future research in the study of UX practice and training of students in human-computer interaction programs.

Author Keywords
Design methods; practice-led research; UX practice; designerly tools; design education

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

INTRODUCTION
As a community, HCI has invested a substantial amount of time in creating and codifying design methods. This is evident through: 1) recent attempts to distill curated collections of methods [e.g., 5,19,45], 2) retrospective accounting for why certain methods are used in practice, and 3) in understanding what tradeoffs are considered in selecting, categorizing, and using methods [e.g., 18,28,29,41,43]. However, the academic discussion regarding methods has been primarily focused on the creation and testing of methods, leaving the implementation of methods in authentic practice contexts largely unexplored [13,34,38]. This lack of information about the implementation of methods describes a characteristically unidirectional relationship between the research and practice communities [13,16,38]. Yet this unidirectionality is concerning, because most of the information researchers rely upon in understanding how practitioners actually work in the HCI context has been drawn from academic conceptions of practice (what [16] refers to as a “projected practice community”), rather than the actual work practices of UX professionals [13,42]. The lack of in depth research based on in situ observation of practitioners impacts not only the kinds of knowledge we create and value in the formal research community for intended use in practice, but also in how we seek to train the next generation of practitioners. Thus, this lack of research implicates the creation, dissemination, and structuring of knowledge that is at the core of what it means to be a competent UX practitioner [15,24,42].

In this study, I explore the conceptions and beliefs of UX practitioners in relation to design methods, a category defined quite broadly to include methods, techniques, tools, and processes that support design activity. Using results from a stratified set of interviews with practitioners in a range of industry contexts, I describe the methods that these practitioners self-report as most vital to their everyday practice. In addition, I describe participants’ expectations about the types of method competency they would desire or expect out of a starting UX practitioner. I outline the similarities and differences between methods in use and methods that form a beginning competency set in UX practice, and use this analysis to frame an agenda for future research on methods and their use in practice settings.

In my attempt to extend the understanding of the situated use of design methods in practice, the contributions of this paper are two-fold: 1) providing an account of how practitioners use methods in their everyday practice, including which methods they consider to be essential parts of their process; and 2) contextualizing the method use of practitioners within
specific UX practice domains, exploring the situated judgments that take place when selecting and using methods. These contributions shift our focus away from formalized, objective descriptions of methods as is common in the HCI literature and curated collections of methods, towards the adaptive, appropriated use of methods “in the wild.”

**REVIEW OF LITERATURE**

To address the conception and use of design methods in practice, I will address the historical status of methods in the design and HCI literature, and situate the contribution within a larger discussion on the kinds of knowledge that are generated and used by practitioners when they select and perform methods in their design activity.

**Proliferation of Design Method Texts**

With the rise in popularity of design thinking in business contexts, many collections of design methods have flooded the market [e.g., 5,19,23,45]. These texts follow a now-typical format, providing a description of the method, relevant sources, and recommendations for application within a larger design process (e.g., design phase, collaboration and time requirements). Most texts appear to be created for use by business professionals, leveraging basic tenets of the popularized “design thinking” approach [1] to encourage innovation. In contrast to these business-centric texts, *Universal Methods of Design* [19] and the *Delft Design Guide* [45] are commonly used in HCI education and practice, defining sets of methods that are common in designing for user experience, although they are framed as part of a broader human-centered design philosophy. These texts function not only as a curated collection, but also the articulation of a philosophy of designing, and in the case of [45], an indication of the core knowledge of a graduate of the Delft design school.

**Historical Views of Design Methods**

It is instructive to look more broadly than the HCI research community to understand the birth of design methods as it informs how methods are commonly used today. John Chris Jones is often seen as an early touchstone for the design methods movement, and his book *Design Methods* [22] provides an seminal account of the range of methods that designers use, and how these methods can be seen to support creative production. Jones’ original goal was to break open what he referred to as the “black box” of design, making it a “glass box” that would be open to description and evaluation. This goal of transparent access to design cognition was quickly discarded, resulting in Rittel’s “second generation” of design methods, focused primarily on the argumentation and negotiation inherent in design activity, rather than a full explanation of what was contained within the “black box” of design activity [36]. Thus, our modern conception of design methods is a mechanism by which designers orchestrate and negotiate their own design activity, including the intentional selection and organization of information that leads to design insights and decisions—the designer as a “self-organizing system” [22].

**Design Methods and HCI**

This discussion of second-generation design methods has entered the HCI discourse over multiple decades, and has often resulted in a more reductionist view of methods and their use in practice than is warranted [14,42]. In the last decade, the status of methods in relation to their practice or performance has been a common topic of interest [1,4,14,28,44], concomitant with an increased attention to understanding HCI practice on its own terms [16,42,44,50].

More recently, Roedl and Stolterman [38] have addressed the current state of design methods and their development through publications at CHI. They concluded that most of the design methods currently proposed at CHI are not applied in practice due to a lack of fit or recognition of how design is practiced in the “real world.” Building on this lack of focus on implementation, in this paper I focus on how designers see themselves as using or appropriating design methods in their everyday work practices, with the goal of increasing our understanding of design practice itself, and how authentic practice may be more ideally supported in the training of design practitioners and in the creation of “practice-ready” methods by researchers.

Chang, Lim, and Stolterman [2] address this phenomenon of adaptation and appropriation in practice, surrounding the use of the persona. They conclude that “designers use personas in creative and flexible ways not always in line with the original intentions of personas” [2], a conclusion that is also reached by Rogers [39] more generally as it applies to the *in situ* use of a method in relation to the original intent of the method designer. But the situation becomes even more complex. [2] notes that even when the persona was not visible in the design process, it was imagined in the designer’s mind and thus influenced the design process; in contrast, [30] concluded that personas played out only in communication and not explicitly in the design process. Thus, even when designers believed in the value of personas, they did not use this perspective in their visible design processes. What this might suggest is some disjuncture between reported use of methods and the actual design activity [13,24].

Lallemand [24] and Goodman [13] have completed extensive studies of UX practitioners, addressing how design activity in professional settings is supported by existing and “on-the-fly” methods. They underscore that many methods that designers use in practice appropriate or build upon existing components or cores of methods, rather than the designer merely “performing” known and codified methods. This is one instantiation of practitioners not viewing methods as what Woolrych et al. [48] call “indivisible wholes,” but rather as resources that are opportunistically combined into “recipes” and “meals” by the designer in the moment.

I conjecture at this stage that designers have trouble communicating much of their tacit design activity [26,27], and in place of a readily communicable process, use design methods as boundary objects to roughly approximate their
design activity. However, in this translation process, much is lost from both sides [16]. From an academic perspective, it appears that the designer does not know (or possibly even care) about the “rigorous” use or knowledge of a method [39]. From a designer’s perspective, the design method as boundary object reduces the complexity of the performance that actually occurs, where methods may serve as gambits for potentially beneficial or generative design pathways [25], watering down or reifying the activity within the confines of a particular method or set of methods for ease of communication [13].

**Designerly Tools, UX Practice, and HCI Education**

Stolterman and collaborators [43,44] have previously described design methods as one portion of a larger collection of *designerly tools*, which they define as “methods, tools, techniques, and approaches that support design activity in way that is appreciated by practicing interaction designers.” I take on a similarly broad and inclusive approach to design methods in this study, but use designerly tools as equivalent to design methods, characterizing tools, techniques, and approaches to design as being scaffolds or supports for design activity. The philosophical orientation implicit in this description of designerly tools and the *Tools-in-Use Model* [43,44] allows for a much more complex and reflexive understanding of method use in practice, including a “dynamic and fully reciprocal relationship” between tools, intended purpose, and design activity, highlighting the designer’s agency in actively mediating these relationships.

The contributions of the HCI research community in understanding the role of methods has not always affected the instruction of future HCI or UX designers, even as many scholars are calling for greater integration of academic experiences with authentic practice contexts. True et al. [46] considers how HCI education is shaping practitioner values and conceptions of methods, joining in a larger conversation from design scholars to refocus on how and in what ways a philosophy of design is instilled in students as part of the educational process [7,8,10].

It is vital to assess the preparedness of graduates in HCI programs for future work in UX settings, particularly in identifying areas of misalignment between current philosophies of design with regard to methods and the use of methods in practice. Gray [15] recently identified characteristics required of beginning UX designers in practice, only a small number of which would fall under traditionally constrained understandings of design methods. In particular, [15] noted so-called “soft skills” such as: methods of communicating to stakeholders, representing design activity and outcomes, promoting design approaches in the enterprise, and negotiating complexity in cross-functional teams. Few of these “soft skills” are adequately represented in collections of design methods, yet are considered vital by practicing UX designers.

**INTERVIEW STUDY**

The purpose of this interview study was to understand how UX practitioners conceive of design methods in relation to their design activity, and how their use of design methods in combination with their specific practice setting affects their perceptions of what methods incoming UX designers should be familiar with.

**Participants**

The research team recruited a range of practitioners that were working as user researchers, experience designers, and interaction designers at a wide range of companies. We used a snowball method of sampling to build up a diverse set of participants, taking into account the gender, years of experience, and academic pedigree of practitioners, and the size and type of company that the practitioners were employed by. Participants were organized into several different practice contexts common to UX practitioners (Table 1), using the size of company and internal or external nature of job requests to assign each participant to one practice context. Small and large companies varied primarily by size (e.g., startup v. Fortune 500 company), with all participants in these contexts working in an internally-facing agency model; client-facing agencies followed a traditional design agency approach with external clients; consultants worked individually or in very small groups on an independent basis with external clients in short-term engagements. This stratified sampling method allows for a more structured sample of interview participants, particularly valuable in illuminating differences between subgroups of a larger population [37].

**Data Collection**

We conducted a series of structured interviews with thirteen practitioners (Table 1) working in an HCI-oriented discipline, most of whom identified explicitly as UX or user experience designers. The majority of practitioners with an HCI educational background were educated in design-focused HCI programs, and identified primarily as a designer in a UX context. These interviews were conducted with individual participants by members of the research team using a structured protocol that addressed their practice context, methods use, and collaborative practices. Interviews took place via face-to-face, telephone, and Skype, and were audio recorded. A member of the research team took detailed notes while the interview was being conducted, and these notes were later expanded and confirmed by audio recording. During the interview, we provided a broad framing definition of methods (read verbatim) to the participants to ensure that they were aware what we considered to be included as a design method:

*We define a design method as any intellectual or practical support that a practitioner might use to support the design process in a positive way, encompassing everything from everyday methods, techniques, and tools for idea generation and collaboration, such as the pen and paper, whiteboard, brainstorming, dialoguing, to methods and applications...*
for sketching and refining ideas. We also include formal, axiomatic, and algorithmic methods that are designed for design purposes, as well as intellectual tools, such as methods, approaches, frameworks, and techniques that support the design process as a thinking reflective process, as well as abstract theories.

The primary categories of questions addressed in the semi-structured interview included: the practitioner’s educational background, years of experience, and composition of their work team; how they used methods in their everyday practice, and how that use related to practices common in the company they worked for; how they adapted and/or codified methods in the context of their practice; and finally, what methods they felt would be beneficial for starting UX employees to have.

**Analysis**

Following the conclusion of all interviews, a researcher who participated in the majority of interviews conducted a thematic analysis of all interview data using the constant-comparative method [11] to identify primary ways participants thought about and used methods in their practice. This thematic analysis occurred in three main stages. First, the researcher identified and coded responses to each main set of questions, clustering all responses from specific sections of the interview together with a set of closed codes; these closed codes were linked to questions in the original interview protocol (see above). Second, the researcher closely read the responses and looked for emergent themes within each cluster, creating and iteratively refining the set of codes. Finally, the researcher shared this set of codes with a second researcher, and through discussion, refined and reapplied the codes to all excerpts originally identified.

**FINDINGS**

Our analysis of the interview data resulted in two primary areas of focus, reflected by the original structure of the interview: 1) methods practitioners used as part of their everyday practice; and 2) methods they felt that starting UX practitioners should be able to use. Each set of data will be described and reported on separately, with a fuller synthesis in the discussion section.

**Methods Practitioners Reported Using**

Participants reported a range of methods that they used in their business context, representing methods that they either relied on personally to shape their design activity, or were part of the environment in which they worked. Through analysis using the constant-comparative method, these methods were organized into five categories: approach, communication, analysis, user research, and representation (Table 2). These categories were not provided to the participants, but rather emerged from comparison of all responses.

**Approach**

Most participants tended to use some version of a waterfall process in their companies, moving from user research to front-end design to front-end development. Marla worked within an agency environment, where a waterfall model was common company-wide, requiring more substantial documentation as projects moved linearly between teams within the company. The company-wide alignment with the waterfall approach was the most common, but Diane worked in an internal agency context within a larger company where different teams worked in different ways, requiring flexibility on her part to accommodate multiple management approaches: “There are multiple IT teams, and each are run by a different manager. Some teams are strictly waterfall, and other teams are Agile practice. So when I need to work...”

<table>
<thead>
<tr>
<th>Name</th>
<th>Experience (Years)</th>
<th>Educational Background</th>
<th>Job Title</th>
<th>Practice Context</th>
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<td>Independent Consultant</td>
<td>Consultancy</td>
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<tr>
<td>Terence</td>
<td>11</td>
<td>Linguistics/Cognitive Science</td>
<td>Independent Contractor/Consultant</td>
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<td>Director of User Experience and Research</td>
<td>Client-facing agency</td>
</tr>
<tr>
<td>Hugh</td>
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<td>Visual Design</td>
<td>Director of User Experience</td>
<td>Client-facing agency</td>
</tr>
<tr>
<td>Bruno</td>
<td>10</td>
<td>Computer Information Systems</td>
<td>Director of UX</td>
<td>Client-facing agency</td>
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</tr>
<tr>
<td>Diane</td>
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<td>Visual Communication Design</td>
<td>Senior UX Architect</td>
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<td>HCI</td>
<td>Senior Interaction Designer</td>
<td>Small company</td>
</tr>
</tbody>
</table>

Table 1. Interview participants.
with a team that rely on a waterfall methodology, the process will be very different.”

Scott represented a third approach, with a smaller company that was structured around Agile. He noted that this approach came into conflict with his UX values, explaining that there are “methods you are forced to do because of management or agile that aren’t design-positive happen, and are not necessarily a good thing—you should push back against them.” He advocated using collaboration and project management to work around feature ranking approaches to prioritization common in Agile, requiring different kinds of communication and representation skills.

Strategic design only appeared as a common method approach in large companies and consultancy roles, where UX was only one part of a larger business initiatives or system. In the case of Avery, an independent consultant, an agile approach was often combined with a strategic focus to encourage clients to see ongoing value and practice connecting large corporate goals with individual design decisions.

Communication
Many forms of communication emerged in this category, with the ability to collaborate with other designers and stakeholders a constant across all business contexts. Within larger companies, the need to network and build community around UX principles was evident, including the use of a company wiki or blog to collect UX resources and share work. In addition, several companies—both large and small—provided opportunities for feedback and cross-pollination of ideas with other designers.

Most striking, however, is the persistent need for familiarity with business terms and persuasion in consultancies and large companies. Unlike small companies, UX designers are placed in a leadership role that is vague and often undefined [17]. These participants noted the interplay between understanding and illuminating business terminology to sharpen their understanding of design issues, using this process to then persuade the stakeholder of the need for a specific design solution or approach. Diane described an instance where her UX team played a role in facilitating the discovery of a design need within her organization:

The business owner or business unit comes to us and asks for advice, from a very high position. Sometimes they cannot even clearly define exactly what their visions are. They don’t know—they have some vague idea about what they want to do but have not yet validated whether their wants or needs can really make money or serve the needs from the customer standpoint. So when that is the case, the method will be very different. There will be a lot of whiteboarding, will be a lot of brainstorming, conversation—mostly trying to translate their vague unsolidified vision into something more concrete.

Analysis
The methods in this theme are typically found in curated collections [e.g., 19,45], and constitute the highest quantity of design methods of any theme. These methods are appropriate at multiple stages in the design process, from early understandings of the problem (problem framing, brainstorming) to analysis of existing or in development solutions (heuristic analysis, usability testing). Contextual inquiry and mental models [49] are described by participants as something closer to a “meta-method”—or a framing approach for analysis that guides the designer through the entire design process, incorporating many other user research and analysis methods at various stages.

Brainstorming and usability testing were suggested by the majority of participants, with the remaining six methods invoked only sporadically. It is interesting to note that the “meta-methods” only appeared in agency and consulting contexts, and were not present in larger companies. Additionally, problem framing was only present to a limited degree in large and small company contexts, with no reference to the scoping of a problem in consulting or agency environments.
User Research
Remarkably few explicit user research methods were shared by participants, with only persona/scenario and interview/focus group being mentioned. Both were mentioned by over half of the participants, and least likely to be reported as used by participants working in large companies. This is consistent with Ganesh’s observation that user research was often given to them by other parts of the company, and was primarily derived through stakeholder communication and focus groups led by the marketing group.

While participants were in general agreement about the use of personas and interviews, the ways in which they conceptualized these elements varied widely, similar to the findings of other researchers [2,9].

Representation
This theme includes ways of representing design cognition through in progress or final designs to stakeholders or clients, although the methods mentioned by participants were primarily related to in progress artifacts. We have drawn on Self, Lee, and Bang’s [40] conceptualization of representation, described as a way of “externalizando, reflecting, communicating, and developing design intentions.” Representation in this sense is inclusive of reflective— and often dialogic—practice, drawing on a rich history of sketching and other forms of visual communication in the design and sketching literature as a way of accessing design cognition [e.g., 12,47]. Sketching was mentioned at the highest rate of any method in this portion of the interview, followed by whiteboarding (arguably a subset of sketching) in small and large company contexts. Noticeably absent are any high-fidelity representational methods, even though agency participants mentioned in other parts of the interview that documentation being provided to clients was of consistently high quality. Perhaps this representational work was relegated to junior graphic designers in an agency context, and was not as substantial a part of the UX workflow.

In larger company contexts, representation was commonly used as a way of getting “buy in” from stakeholders, before committing to technical resources to make the idea a reality. For instance, Diane recounts that her team often “build[s] a prototype to get the story across. So when stakeholders do not understand to an exact level what we want to do, prototyping is always a very good first step. Visualize what the solutions really are before breaking the neck of the IT team.”

Methods Starting UX Practitioners Should Be Able to Use
Participants reported the methods that they would expect or desire from an incoming junior UX designer in their corporate context. The reported methods were grouped using the same five categories as in the previous section (Table 2), but the methods contained within each category are not identical (Table 3). Notably, there is a more equal distribution of methods across the categories with the exception of user research, even as the total number of methods proposed per participant declined.

Approach
While the portrayal of methods related to approach were limited to agile and strategic design in the previous section, the desires for approach in an incoming UX designer were strongly oriented towards personality and critical thinking. The need for strong judgment and an accompanying “mindset” were most common, particularly in large companies, while confidence was most desirable in consultancies and some agency environments. Bruno describes his desire for a designer that is able to listen and empathize: “The other set of skills is— that I really look for […] is the ability to empathize with your coworkers, with your users, with clients, with stakeholders. The ability to get people to talk and really listen to what people have to say. And that is I feel is one of the most important skills.”

These characteristics that described the approach of a designer were linked to other common activities the participants described, including user research, analysis, and communication of results.

Communication
Relatively few communication skills were mentioned by participants—a substantial decrease from the occurrences
noted in the previous section. Familiarity with business terminology, along with the ability to speak articulately to stakeholders, were the most frequently mentioned methods.

Even while communication was not addressed substantially in volume of mentions, this characteristic emerged as critical for the success of a UX designer in large companies, where the role was undefined or culturally unpopular, similar to the findings from a previous study on UX adoption in industry environments [17]. Jean mentioned that design was part of creating a sustainable future for her company, and a big part of making that happen was being able to integrate design and UX language in with existing business language:

...being able to insert into the business and speak business terms—maybe getting back a little bit to understanding the business or being able to ask good questions. I think that’s probably the most critical, because in my company we traditionally value marketing and business and technology. And those are the three things that we value above all else. So coming in and saying design should be one of those is not effective way to be heard in this company. So being able to speak business terms and translate design into business outcomes is probably the most critical no matter where you are in this company. If you can’t do that, no one is going to listen to you.

Analysis
Fewer analytic methods were directly mentioned, as compared to the previous section, although usability testing remained the most commonly requested competency with respondents across three of the four corporate contexts. Interestingly, brainstorming or ideation skills were not referenced at all, compared to five mentions in the previous section, and other well-defined methods such as user journey maps, heuristic evaluation, and mental models were not mentioned at all.

One of the new items requested was broad generalist knowledge of the UX space, departing from aligning competency with specific known methods. Hugh was one of the proponents for breadth of knowledge over depth: “I’m a big fan of being a generalist, especially when considering how much experience this is. I think a general understanding of all of those areas [development, prototyping, and testing] is tremendously important. […] I’m trying to become even more of a generalist as the years go by.” While this call for generalists was not explicitly mentioned by all participants, the kinds of skills requested were much more general across the UX space than those from the previous section, echoing a more personality-driven approach marked by self-learning and discovery, with specific lists of methods less important.

User Research
The participant responses were relatively sparse, but still focused on relatively basic user research methods: personas/scenarios and interviews/focus groups. Bruno linked these basic methods to the overall approach and mindset of the UX designer, providing sample questions near the end of the excerpt to explain what kinds of questions he would ask when interviewing a prospective designer about their capabilities:

You gotta know how to interview people; you gotta know how to make sense of the data you are collecting from people and seeing the common themes and differences across the people you are interviewing, whether they be users or stakeholders. That’s just core. That’s just basic. You know how to interview. […] Do you know the user experience design process, and are you familiar with it and have you had experience? When you move on from research, what do you do? Tell me about how you come up with your personas. So not only the end result of the personas […] but tell me about the process of how you got there?

Representation
Forms of representation cut across user research, analysis, and communication methods as means of documenting the design process and communicating or persuading stakeholders at critical decision points. Common representational methods included prototyping, sketching, and wireframing—an expansion of the sketching and whiteboarding elements found in the previous section—along with specific creative tools for creating higher fidelity or more interactive outputs. This demonstrates a flexibility in the way prototypes were used in a method-driven way to describe design activity, moving from final (or nearly final) solutions to generative elements that guided the design activity at multiple stages. Hugh remarks on this progression, where he has shifted from a more static view, “to treat everything as a prototype—even a sketch is a low-fidelity prototype. And I think that shifts your way of thinking. […] the more we take focus away from those deliverables as the end all, be all, and more as a progression to that final project, it will help us frame our work in a more constructive manner.”

DISCUSSION
I have described a range of methods that were identified as important for everyday design activity by practicing UX designers, in parallel with a corresponding range of methods perceived to be vital for initiation into UX practice. In this section, I first outline the importance of practitioners having a tool sensibility when they select and use design methods, followed by a more detailed account of method variation and adaptation based on personal process and industry context. It is important to note that method selection and use is only one part of, or perspective on, professional practice; in this paper, methods are used as one way of addressing deeper issues of design cognition, expertise, and judgment, in which practitioners adapt or appropriate the cores of methods in their individual work contexts.

“It’s More of a Mindset Than a Method”
Prakash exemplifies a theme that ran throughout the participant responses, explaining that competence in UX
practice is less about the methods themselves, and more about how the designer thinks about the methods as tools to answer the right questions:

“It’s more of a mindset than a method. I think the core thing is empathy and listening to people and trying to take into consideration all of the different inputs. So, I think a lot of it is that mindset of trying to do the right thing for the user and the business. So you adapt your method based on that. So a usability test might not be necessary all the time—just because you have it in your toolkit doesn’t mean you need to use it. It’s just knowing when to use what method. And I think the methods themselves are quite rudimentary; like usability testing, you have a few tasks, you walk them through. The methods themselves, you probably can describe in a page. But when it comes to actually getting the right value out of them, it’s having that right mindset—what are the right questions we need to ask? How can we answer them? And then using that as the basis for what methods you need.”

Participants used some methods as boundary objects, reducing the communicated complexity of their actual performance, while placing more emphasis on the mindset surrounding their use—characteristic of what Nelson and Stolterman [32] refer to as instrumental judgment. This form of judgment emphasizes not only a mechanical understanding of the method, but also the knowledge of when it is appropriate to be used, in what way, and how a designer knows when they have received something of value from the method. This mindset of use—and accompanying set of instrumental knowledge—indicates a heightened role of adaptation and appropriation of methods, moving beyond holistic use of “off-the-shelf” methods, and treating the use of methods as an ad hoc bricolage rather than performance of a codified set of steps. This use of methods—what [16] refers to as an understanding of the “core” of a method”—was apparent throughout our discussions with study participants, reflecting an underlying tool sensibility that existed among the participants. Some participants even described one meta-method (e.g., mental models for Avery, experience maps for Marla) that they had constructed as framing their entire approach to practice, with codified methods being combined and repurposed in this broader method. These responses highlight a focus on instrumental judgment, requiring explicit knowledge of existing methods, but also recognizing that this explicit knowledge was important, but not sufficient for design practice.

This tendency to use existing methods as a boundary objects for richer implementation in personal practice changed somewhat when the participants were asked to envision what methods a starting UX practitioner might need. While a few participants had key requests for methods that would be valuable, either based on their own proclivities, or the demands of their practice context (e.g., card sorting for Marla, competitive analysis for Diane), most sets of starting methods were organized primarily as a mindset, perspective, or strategy. It was clear that a specific set of methods was not the desirable feature, but rather the ability to understand how to use the right approach to get the desired result; a focus on developing a tool sensibility, or what Philip referred to as “understanding the value of a tool, not ‘the tool’.”

**Pragmatic Approach to Adaptation and Use**

Participants’ understanding of methods within the framing of a tool sensibility, embodying a growing body of instrumental judgment, was borne out in the way they reported using methods in their everyday practice. This use was marked by adaptation and appropriation, with the method-in-use resulting equally from the practitioner’s personal approach to the design process, the constraints of the practice context, and the demands of the particular design problem. This is consistent with the earlier findings of Stolterman et al. [43] and their Tools-in-Use model.

The “cores” of methods became so abstracted in our participants’ minds that the link with the originating method was frequently lost, with relatively little ability to recall or list methods in a mechanical way. Most methods arose through descriptions of project work, and even in these cases, it was the cores of methods (e.g., sorting, clustering, communicating) that led the conversation. This lack of recall is not necessarily an indication that the practitioner was incapable of remembering or understanding the source name and method description, but rather that this information was not vital to the method-in-use. As a result of this disconnect, methods were often combined in unexpected ways, such as Philip having stakeholders categorize and label experience models, “absorbing macro and micro information” through a sequence of individual and group interactions, implicitly combining affinity diagramming, experience and journey models, and related participatory design techniques. Such combinations of existing methods illustrate that formal barriers between the originating methods were almost nonexistent—and often inaccessible—to the designer responsible for creating the method-in-use, as they acted as bricoleur of methods in the moment. This is why, perhaps, that Ganesh concluded that his desire for a starting UX practitioner was “more skill than method”—not that the methods themselves were useless knowledge, but rather that the pragmatic center for methods is their flexible performance in a situated design context, not the method, objectively defined, itself.

**Specialization by Industry Context**

The descriptions of method use participants reported was quite varied, comprising a range of traditional codified analytic and user research methods, alongside less well documented strategies or processes relating to communication, representation, and approach. While the set of cases I am drawing from is relatively small, the differences between the practice contexts due to the stratified sampling method is highly suggestive of the presence of some form of method specialization in specific corporate environments.
Everyone does user research...except large companies

It is relatively straightforward to note that those working in the practice contexts with the most likelihood of client or user contact, generally through primary user research methods, would also report use of methods within these categories. And indeed, use of personas/scenarios and interviews/focus groups as strategies for user research was almost unanimous across consultancy, agency, and small company work, but was almost non-existent in large companies. This likely reflects not only a lack of access to users, but also a company culture that does not value this kind of access. Ganesh exemplifies this form of thinking, noting that their UX team largely relies on “group usability tests” and focus groups conducted elsewhere in the company to get data about users, leaving the real user needs unaddressed:

“...from a design perspective, by the time we get there, we just get the data. Like we these are the ones—this, this, this. It’s more like, these are the pain points we have, these are the things we think users want. [...] These people aren’t always concerned about truly understanding what the users need. They are more concerned about what the ‘big fish’ want, more than need.”

Navigating the enterprise

The ability to understand large companies, including the terminology to describe the structures contained within them, was a core method described by participants from consultancies and large companies. This was often accompanied by the ability to engage in more strategic, cross-functional work, and was surrounded by a politically-sensitive acumen for persuasion. The ability for a designer to sell their design in a complex corporate environment often required skills in user research, quantifying results, and representing a design vision to diverse groups of stakeholders.

Representation matters when there are lots of stakeholders

Sketching was a dominant behavior throughout all practice contexts, but other forms of representation of work were sometimes positioned as more important based on the types of stakeholders present, and the ways in which UX designers were able to communicate with them (e.g., email, whiteboard, presentation deck). In large companies, the stakeholders were almost exclusively internal, and representation methods were shaped to allow for the “buy-in” of executives. On the simplest end of the scale, whiteboarding was the most straightforward way for UX designers to leave their mark and quickly communicate the concept—a key strategy for persuading key decision makers. In agency contexts, sketching was equally important, but was more commonly used as a generative method to work through early concepts internally. Additionally, externally-focused analytic and representational methods that were easily understood by clients, such as experience or user journey maps which are more visual in nature, were more common in agency environments.

Representation in agency work, then, resulted in a formalized type of communication that was oriented towards the ultimate client or user, while representation served to support a more generative or persuasive conversation between the UX designer and key stakeholders in a large company context. Small companies and consultancies used representational methods that were more consistent with the agency context, while relying less on documentation or “polished” forms of representation, due to the relatively small size of the UX team, and the priority given to rapid iteration, often in an Agile workflow.

IMPLICATIONS AND FUTURE WORK

Research on UX practice

This research highlights the complexity of methods as they are conceived of and used by UX practitioners, revealing a praxis that is not determined by the objective content of methods. A fuller understanding of the adaptation and appropriation UX designers rely on when using methods to support their practice, often using tacit knowledge gained through formal and informal means [26,35], may allow for greater insight into the spaces where more methods are needed, and the ways in which multiple kinds of methods might overlap or be combined in synergistic ways. This study supports an emerging perspective in the HCI community—that practice-led research is an important step towards increasing our theoretical awareness of the content of UX activity, narrowing the gap between research and practice [e.g., 9,13,14,16,33]. It is imperative to reduce this gap in order to ensure that scholars are building appropriate forms of knowledge in appropriate ways [6,21,31], and in particular, that methods are not defined in overly deterministic ways in the HCI literature that are inconsistent with their use in practice settings.

Educating Future UX Practitioners

As Gray [15] observed in a previous study of HCI students starting out in UX practice, many of the competencies that are needed for success are not content oriented, but rather are attitudes and approaches to negotiating complexity, collaborating in corporate environments, and communicating with diverse stakeholders in order to effectively advocate for users. This overall perspective is consistent with others that have advocated changes in curricula for HCI and design practitioners [7,8]—that content knowledge of methods is necessary as a baseline requirement, but is not sufficient for success.

In the context of this study, I observe that a core set of design methods aiding the designer in analysis and user research are indeed crucial to successful UX practice. But neglecting a holistic view of professional practice often results in a lack of methods that guide communication, representation, and approach—the often cited “soft skills” that may actually be at the core of developing a mindset and professional identity as a UX designer. To this end, HCI educators may consider the ways in which methods are taught and integrated into the curriculum, ensuring that the development of a “mindset”
that is informed by instrumental judgment is the center of evaluation, rather than the mere performance of a codified method. This may require scaffolded approaches to method instruction that discourage rote use, quickly moving the student to variation and combination (i.e., designer as bricoleur), with the ultimate goal of fluid improvisation—respecting the rigor of individual methods, but also understanding the role of method use in informing the designer in answering the questions they must answer to take the next step in their design process.

CONCLUSION
I have summarized the results of an interview study with a range of UX practitioners which allows the HCI community to resituate its understanding of design methods and their use in practice contexts. I have identified several key areas where method use departs from traditional framings in the HCI literature, including an increased reliance on instrumental judgment in the selection and adaptation of methods, and the need for a “mindset” that is resonant with the personal design process of the individual practitioner, the practice context, and the demands of the specific design problem at hand. This analysis provides several important directions forward which inform future research on HCI practice, with implications for the educational development of UX designers and the development of methods to support design practice.

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