



Building an Ethics-Focused Action Plan: Roles, Process Moves, and Trajectories

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ABSTRACT

Design and technology practitioners are increasingly aware of the ethical impact of their work practices, desiring tools to support their ethical awareness across a range of contexts. In this paper, we report on findings from a series of six co-creation workshops with 26 technology and design practitioners that supported their creation of a bespoke ethics-focused action plan. Using a qualitative content analysis and thematic analysis approach, we identified a range of roles and process moves that practitioners and design students with professional experience employed and illustrate the interplay of these elements that impacted the creation of their action plan and revealed aspects of their ethical design complexity. We conclude with implications for supporting ethics in socio-technical practice and opportunities for the further development of methods that support ethical engagement and are resonant with the realities of practice.

CCS CONCEPTS

• Human-centered computing → Empirical studies in HCI.

KEYWORDS

ethics, instrumental judgment, design method, design and technology practice

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1 INTRODUCTION

Scholars and practitioners alike are increasingly interested in creating, understanding, and supporting ethically-focused design and technology practices. At the center of this interest are numerous competing interests and epistemological stances, forms of complexity, and disciplinary approaches that frame ethics in different ways. Design and technology practitioners, their teams, and organizations they represent must consider what is ethical, for whom, and how they know—seeking to harmonize rapidly changing legal and regulatory standards [39], growing public concern over manipulative design practices [7], and a dearth of definitive or broadly applicable standards in many technology professions that address pressing ethical issues [11, 18, 19, 63].

Over the past decade, numerous toolkits, resources, and methods have been proposed to support ethically-focused design practices, including academic methodology-driven efforts such as *Value Sensitive Design* (VSD; [25]) and *Values at Play* [22]; academic method-driven efforts such *Judgment Call the Game* [4], *GenderMag* [10], and *Speculative Enactments* [21]; and practitioner method/toolkit-driven efforts such as Kat Zhou's *Design Ethically* toolkit [65] or Jet Gispen's *Ethics for Designers* toolkit [15]. Across this increasingly complex ethical landscape that has been described by practice-led scholarship [19, 34, 43, 63], it is recognized that practitioners need resources to support both ethical awareness and their ability to act, once they build the requisite levels of awareness. However, tools to support ethical awareness and action are generally not well known by practitioners, do not comprehensively address matters of ethical concern, or are otherwise not resonant or responsive to the felt complexity of everyday design and technology work [16, 34, 35, 43, 44, 61]. Indeed, very few studies have engaged with how practitioners adapt, extend, appropriate, and create methods to support their work.

In this study, we build upon interest by both practitioners and scholars in facilitating the creation of tools that are both appreciated by design practitioners as *resonant* with the demands of their everyday practice [30, 58, 59]. We leverage traditions of method design and other forms of ethical support undertaken by practitioners and researchers [15, 26, 35, 53], but explicitly shift the framing of method design from *designing for* practitioners in a user-centered design tradition to facilitating spaces for *practitioners to design methods themselves*. In situating this practitioner-led focus, we leverage Gray and Chivukula's [34] concept of "felt ethical complexity" to consider ethical considerations and the role of potential supports from the perspective of the practitioner themselves (i.e., what a practitioner '*feels* or experiences), as opposed to a prescriptive or toolkit-oriented approach that is abstracted away from the demands of practice (i.e., what kinds of *ethical complexity* arise from the combination of organization, disciplinary role, and existing ethical knowledge or support).

We created a virtual co-creation environment which was used to lead 26 design and technology professionals (13 practitioners and 13 students with internship or other industry experience) through the process of creating their own bespoke ethics-focused "action plan." Across six collaborative 180 minute virtual workshops conducted on Zoom and Miro, groups of 3–6 participants iteratively did the following: 1) identified ethical dilemmas they faced in their work environment, 2) "shopped" for building blocks of existing methods they felt were relevant to addressing their dilemma, 3) built a prototype of an action plan to support their work using the building blocks they selected alongside other resources, and 4) evaluated their action plan, considering how it might be adapted for alternate use contexts. Additionally, throughout this process, each participant built a more detailed understanding of the ethical complexity of their practice, created a bespoke action plan to address that complexity, and in most cases, recognized an ability to make changes in their workplace in ways they had not fully appreciated prior to the workshop. We analyzed the outcomes of these workshops using a qualitative content analysis [41] and reflexive thematic analysis approach [9], treating participants as designers of their action plan and hence using design vocabulary to describe their roles and process moves. We first identified how participants took on a range of "roles" or attitudes towards their context that framed their ethical stance. Building on this analysis, we then described how participants made their felt ethical complexity tractable through problem framing, using their component instrumental and appreciative judgments to characterize *process moves* that they utilized to inform the final shape of their action plan. Through these forms of analysis and the resulting findings, we answer the following research questions:

- (1) What roles do participants use to structure and make sense of their ethical design complexity?
- (2) What process moves do participants use to navigate their action plan design process?

The contribution of this paper is two-fold. First, we describe a range of roles that inform both method selection and design, indicating opportunities for further nuance in describing implementation of new approaches to operationalizing ethics in practice and supporting the activation of ethics-focused knowledge. Second,

we provide insights regarding the process moves that participants used to make sense of and activate their ethical design complexity, providing insights into aspects of resonance and ecological complexity which could be used to support future method design and practice-led research. Through these contributions, we contribute knowledge about how practitioners and design students with internship or industry experience create support for ethical action. In particular, we anticipate opportunities to empower design practitioners, supporting them in creating methods that are resonant with the ecological complexity of their everyday work, thereby aiding practitioners in successfully navigating, perturbing, and potentially resolving aspects of their ethical complexity.

2 RELATED WORK

To situate our contribution, we first describe why ethically-focused design has been so challenging to accomplish and identify forms of design complexity that resist "simple" solutions. We then build on the notion of ethical design complexity, identifying instances where designers of methods have sought to support ethically-focused design practices, outlining a potential expansion of design knowledge by structuring practitioner-led efforts to support their own work contexts.

2.1 Ethical Design Complexity and the Challenges of Supporting Ethically-Focused Practice

There is a large and growing body of research that describes how design and technology practitioners engage with ethics and values as part of their everyday work experiences [8, 13, 14, 19, 24, 25, 34, 43, 43, 44, 55, 62, 63]. Scholars have examined issues relating to ethics and ethically-focused design practices from numerous perspectives, including: characterizing the strategies practitioners employ to navigate ethical complexities within their organization [8, 13, 14, 19, 34, 43, 44, 62]; empowering practitioners with design methods and toolkits that resonate with their practice and support ethically-aware decision making [24, 25, 43, 55, 63]; introducing or expanding ethics education into the HCI curriculum as an approach to equip students and practitioners to handle ethical complexity [23, 27, 36, 45, 56]; and building accounts of how methods or tools can be developed to support practitioners [15, 31, 32, 38, 49, 57].

The concept of *ethical design complexity* captures some of the key elements that make the work of practitioners in relation to ethics so difficult to manage, describe, and support, defined by Gray and Chivukula as "the complex and choreographed arrangements of ethical considerations that are continuously mediated by the designer through the lens of their organization, individual practices, and ethical frameworks" [34]. This articulation of complexity as ecologically situated builds upon a range of ethics scholarship which describes how practitioners engage in ethical decision-making and sense-making [8, 16, 44, 54] and seek to make changes based on their profession or organizational role [13, 43, 52, 61, 62].

HCI scholars have explored numerous ways to empower practitioners in navigating ethical complexity in their everyday practice. Lindberg et al. [43] engaged with practitioners to explore ways of supporting them to integrate ethical values into their everyday practice, suggesting that co-creation activities might be one of the

best ways of helping designers to develop methods that resonate with the ethical complexities they encounter in their everyday practice. Shilton et al. [55] acknowledged that no single design method will be sufficient for resolving ethical complexities but that an amalgamation of ethical tools and methods will help to drive change from different facets towards ensuring an ethical culture. Wong et al. [63] encouraged practitioners to go beyond the “ethics checklist” to explore how to use games, roleplaying, and critical making as means of integrating ethics into design practice. Frauenerger et al. [24] proposed the use of anticipatory ethics to resolve ethical complexity in technology practice. More conceptually, Lindberg et al. [44] investigated practitioners’ understanding of ethics, revealing that noticing, reflecting, and reacting were three dominant ways in which practitioners approach ethical issues within their organization. Tulloch et al. [60] argued that design researchers must recognize their position within their organization’s ethical ecology to be able to determine approaches that will support them to induce meaningful change. d’Aquin et al. [17] advocated for the need to include data scientists in the discourse around ethics and developed an “Ethics by Design” research methodology for conducting research in the fields of AI and Data Science. And Reijers & Gordin [50] advocated for practitioners to transition from Value Sensitive Design (VSD) to Virtue Practice Design (VPD), arguing that while VSD focuses on the artifacts, VPD focuses on the process and agents enacting the design to ensure that they are virtuous. They remarked that the education of practitioners plays a crucial role in fostering an ethical and virtuous design practice. Altogether, this range of scholarship illustrates different strands of practical and conceptual support within the HCI community to describe and seek to support practitioners in navigating ethical complexity in their everyday practice.

Although HCI scholars have studied different forms of ethical complexity and designed methods that practitioners may employ to navigate these challenges, little research has described how practitioners select, appropriate, adopt, and build methods that resonate with the particular ethical complexity relevant to their practice. As one rare example, Wong [62] investigated the strategies that user experience professionals employ to navigate the ethical complexity within their organization with the goal of inducing ethical outcomes. Findings from their study revealed that practitioners deploy those tactics to achieve three goals, including (1) advocating for the use of UX expertise in resolving those kinds of issues; (2) making their values visible within their organization; (3) altering their organizational processes to make it more ethical. Another example from Shilton [52] illustrates how not only formal methods can be used to encourage an ethical focus, but also a consideration of how organizational forces can be reshaped by creating “values levers” to take advantage of specific moments of awareness in ways that can shift organizational culture and the ability to act. These findings align with prior work from Gray, Chivukula, and colleagues that include descriptions of the tensions that UX practitioners face when seeking to address ethical issues in their workplace [61], the interplay of identity claims and forms of action that are individually mediated [13], and dimensions of practice that can support ethically-focused action [16]. In this paper, we seek to investigate the kinds of knowledge and capacities practitioners rely on to build ethics-focused action plans to achieve their goal when supported

by co-creation activities, and through that framing we contribute to this growing body of research on ethical complexity within HCI by characterizing the navigational maneuvers and roles practitioners employ as they create support tools that resonate with their own experience of design and technology practice.

2.2 (Ethics-Focused) Methods and Design Knowledge

Numerous methods, toolkits, and other resources have been proposed to enable technology and design practitioners to address, evaluate, or develop alignment around ethical issues that impact their everyday work [15, 26, 53]. Methodologies driven by moral philosophy such as *Value Sensitive Design* [25] are likely the best known in scholarly and educational contexts, while practitioners often rely upon toolkits or resources that are oriented more towards specific contexts of use (e.g., the EthicalOS Toolkit¹), technologies (e.g., Microsoft’s *Guidelines for AI Interaction* [3]), or values (e.g., Microsoft’s Inclusive Design Toolkit²). As scholars have previously found, monolithic toolkits or methods are often not resonant with the realities of everyday practice [30, 31] and the ethical design complexity felt by practitioners involves the mediation of many forces which cannot always be considered in advance. Thus, our focus in this paper was to scaffold practitioners’ ability to create their own support tools, using their knowledge of their work environment along with “building blocks” of existing tools to support ethical awareness and action in ways that were salient to them.

To frame these support tools and scaffolding through co-creation, we leverage existing concepts from the design theory literature and prior work that describes how method designers create new methods that allow us to analyze practitioners’ design processes as they create their bespoke ethics-focused action plan. Designers continuously make complex and layered judgments that inform their understanding and operationalization of the problem space and facilitate their engagement in design work [37, 47, 51], and in the context of method design, creative constraints [6] are actively used to shape the problem space and consider potential impact [38]. Nelson and Stolterman [47] describe a set of eleven judgment types which have been operationalized in further empirical work, and in this paper we focus on a subset of judgment types which we assert are particularly impactful in the design of an ethics-focused action plan, including: instrumental, appreciative, and framing judgments. *Instrumental judgments* refer to “the capacity to choose appropriate approaches to design problems, decide from an array of established options, or create new approaches” [46] with a focus on which tools and methods the designer selects, and through what capabilities these tools or methods are operationalized. *Appreciative judgments* refer to the “placing of high value and emphases on certain aspects of a design situation while backgrounding, or lessening focus on others” [37], whereby designers use an appreciative system—or “normative framing of the situation” [51]—to make sense of the design situation in ways that value certain kinds of facets and end states. Finally, *framing judgments* refer to the introduction of constraints to make the problem space tractable “starting from the only

¹<https://ethicalos.org>

²<https://www.microsoft.com/design/inclusive/>

'known' in the equation, the desired value, and then adopting or developing a frame that is new to the problem situation," [20] thereby "creating a working area for design activities to occur" [37]. Across these three judgment types, we would expect issues relating to ecological resonance and the value orientations of the designer and organization to primarily be addressed through *appreciative* judgments; *framing* judgments support the identification of a tractable design space with constraints relating to number(s) and type(s) of actors and specific goals that the designer wishes to support; and *instrumental* judgments articulate to what degree a tool is likely to be relevant or useful in the everyday work practices of the designer while advancing the goals articulated through appreciative and framing judgments.

In our co-creation study, we asked technology and design practitioners and students to engage with existing design knowledge in the form of method "building blocks" that would then inform their creation of an action plan. The idea behind these "building blocks" was inspired by Woolrych et al.'s [64] observation that methods are not used as "indivisible wholes," but rather can be considered as "ingredients" that can be used by designers to form many different "meals." Complementary to this approach to methods is Gray's articulation of method "cores" [31, 32], which refer to "the central conceit or framing metaphor that makes the entire method, or a portion of the method, coherent and potentially interchangeable." In order to maximize the flexibility of existing methods and strengthen the "ingredient" metaphor for our participants, we selected a subset of methods from a larger set of 63 ethics-focused methods from a collection by Chivukula et al. [15] which is the only source to our knowledge that brings together existing and published methods from both practitioner and academic sources. We used this source since it represented the broadest range of methods with an ethical focus in the literature, and we then selected elements within this set to identify a range of potential building blocks, focusing on diversity and breadth rather than a full comprehensive set of *all potential building blocks*³. In total, we selected seven methods that represented diversity of method type and framing and used the visual elements contained within these methods to create 73 building blocks to populate the items contained within the "shop" floor of the virtual co-creation space. Figure 1 provides a worked example of this method decomposition process, including the extraction and thematic labeling of building blocks from an existing ethics-focused method. A complete description of all building blocks, including their source and original context, are provided as supplemental material. We identified building blocks that supported a wide range of ethical concerns that related to potential participant issues, including: supports for aligning team members in ethical decision making, mechanisms for inscribing ethical concerns into design practices, avenues for creating and generating concepts, and practical lists of values or actions.

To allow for easier navigation among these blocks, we first organized them onto three different "shelves" based on their main function (re-imagine the design space, identify ways to make their practice more ethically-focused, decide which values are relevant in their design work) and then further subdivided the blocks into four

subareas based on how we could anticipate them being used (identifying an area of focus, building alignment with your team, creating design opportunities, and evaluation). These characteristics were iteratively created and play-tested by the research team with the goal of supporting the broadest range of action plan outcomes, forming many tangible "hooks" to support different practitioner needs. A full account of the decisions that led to the final workshop are outside of the scope of this paper, but in supplemental materials we include a full visual description of the workshop in Miro and the script we used to structure the workshop to allow other scholars to build upon our work.

3 OUR APPROACH

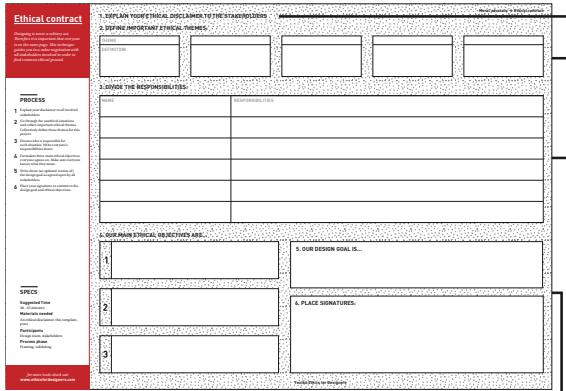
In this study, we engaged a range of technology and design practitioners and students with professional experience in a series of interactive activities through a 180 minute virtual session. Through these activities, the participants organized into groups of either practitioners or students iteratively identified an ethical dilemma they faced in their everyday work, selected relevant components of existing methods, and used these components to construct their own action plan. Across these interactions, we mapped each participant's trajectory of engagement in relation to their area of desired ethical impact, including both iterative toolkit drafts and the process moves that shaped the intermediate and final toolkits.

3.1 Sampling Strategy

We used a stratified sampling approach [48] to build sets of participants for six co-creation sessions, with the strata including current role in design and technology work (student or practitioner), years of experience, industry type, and primary professional role (UX Designer, UX Researcher, Product Manager, Data Scientist, Data Engineer, and Software Engineer). To identify participants, we circulated a recruitment screener on a range of social media platforms, including Twitter, LinkedIn, and Reddit, as well as the professional networks of members of the research team. The inclusion criteria for participating in the co-creation sessions were structured separately for industry practitioners and students. For industry practitioners, the inclusion criteria included current employment in a design or technology-related role in industry with one or more years of experience. For students, the inclusion criteria included some form of past industry experience, such as a professional internship, and student participants primarily included those training to become UX designers and product managers. Our goal for recruiting students and practitioners was to ensure that we included a range of participants with varying levels of experience engaging with ethical complexity in practice and to ensure that insights about how different levels of practitioners operationalize and engage with design methods in practice were represented. For students, the goal was to observe what kinds of ethical supports they felt would be necessary to confront the complexity of their current and future practice without needing to consider pragmatic realities of long-term employment; in contrast, sampling practitioners allowed us to observe the kinds of ethical action plans that might have immediate value in supporting the ethical character of their work. Since our co-creation objective was to empower the participants to identify and seek to address an ethical dilemma they have encountered in

³Additional work beyond the scope of this study is needed to identify the relationship between building blocks as useful generative prompts and building blocks that produce decision fatigue.

Original “Ethical Contract” Method by Jet Gispen



Extracted “Building Blocks” for Our Co-Design Session

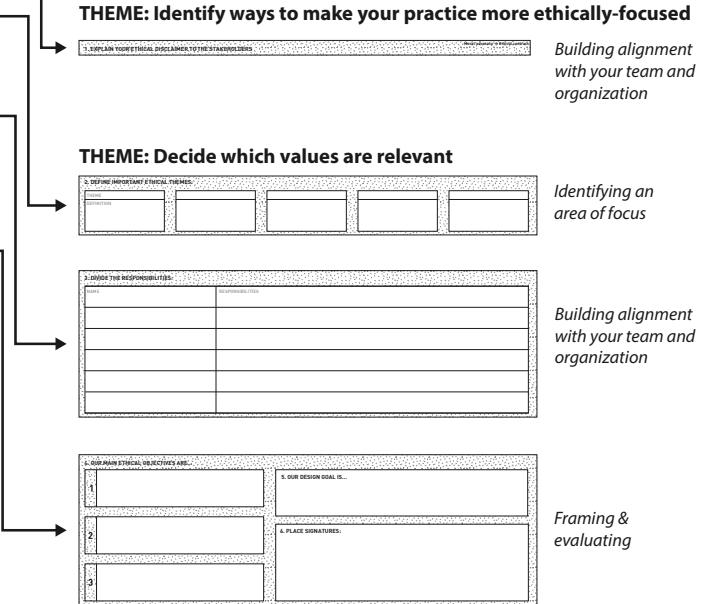


Figure 1: Example of ethics-focused method decomposition into building blocks, including organization of the resulting blocks into themes (bolded) and *use cases* (italicized). The *Ethical Contract* method is originally created by Jet Gispen [29]

their professional practice, our criteria excluded any applicant that had no industry experience from participating in the sessions. In all, our sampling strategy produced a diverse group of practitioners and students from different professional roles and backgrounds.

3.2 Participants

We conducted six co-creation sessions with 26 participants, including a total of 13 practitioners and 13 students. Three sessions were held with only practitioners and three sessions were held with only student participants. Across the three practitioner sessions, participants worked for a range of company types, including Agencies or Consultancies, Enterprise (B2B), and Enterprise (B2B2C) in roles that included UX Design, Product Management, UX Research, Data Science, Data Engineering, and Software Engineering. Across the three student sessions, participants had prior professional experience in UX Research, UX Design, and Product Management.

Before the sessions, all participants (both student and practitioners) were assigned with a unique identifier and icon to navigate the sessions pseudonymously if they chose to do so to ensure that we created a positive space where the participants could share their experience. This study was approved by our institutional IRB and participants were consented prior to their participation in the session. At no time did we observe a participant to feel uncomfortable in sharing their perspectives—especially important, given the

gravity of the issues being discussed—and in contrast, many participants described how empowering their interaction through the session was in helping them shift from feeling hopeless to feeling like there were tangible changes they could make to support more ethically-centered work practices.

3.3 Data Collection

The co-creation sessions were hosted on Zoom using breakout rooms and on Miro, a digital whiteboard platform. The final co-creation experience was visually organized as a virtual “house” on Miro (Figure 2; a standalone PDF of the Miro board is also included in the supplemental material and described in [42]) containing four “floors,” intended to foster an interactive and collaborative co-creation experience that stimulated the participants to collaborate, brainstorm, and work towards developing an action plan that would help them address the ethical complexities they experience in their everyday practice. We relied upon multiple facilitators, who used breakout rooms to support different groupings of participants in interacting with each other across the session. The overall structure, along with questions or prompts participants were asked to consider and relevant collected data, is detailed in Table 1, with a complete documentation of the questions and prompts provided in the supplementary materials.

- (1) The first floor (Figure 2, #1 and #2) was designed to facilitate introductions and reflections on ethical dilemmas the practitioners intend to address.
- (2) The second floor (Figure 2, #3) was designed as a shopping area where the participants could shop for different components that they could use to create an action plan that supported the participant in addressing the ethical dilemmas they identified on the first floor. We populated this floor with a set of 73 method “building blocks,” deconstructed from a set of existing ethics-focused methods and curated to provide a range of “cores” to support different kinds of toolkits and ethical dilemmas. All building blocks and the original method they were extracted from is included in the supplemental materials. Sample “aisles” of the shop included *intention themes* (e.g., “identify ways to make your practice more ethically-focused”, “reimagine your design space”) and “shelf areas” within these aisles contained bundles of blocks organized by *action orientations* (e.g., “evaluating”, “creating design opportunities”, “building alignment with your team and organization”).
- (3) The third floor (Figure 2, #4 and #5) was designed as a DIY workspace where participants used the methods they selected from The Shop to design an action plan. After the initial action plans were created, participants were paired with a new participant in a new breakout room to evaluate their method and identify how it would need to be altered to address a new context.
- (4) The fourth floor (Figure 2, #6) was designed as a gallery space where the participants could share and reflect on the action plan they created. Altogether, the co-creation sessions consisted of a series of activities designed to last cumulatively for three hours, including: 15 minutes of introductory and preparatory activities, 20 minutes for reflection and idea generation, 5 minutes for feedback on ideas, 10 minutes for shopping for methods to resolve identified problems, 30 minutes for developing an action plan to resolve identified challenges, 25 minutes for testing their action plan in a different context and iterating on their plan, and 10 minutes for reflecting on their experience during the session.

3.4 Data Analysis

We began by transcribing all video and audio produced during the co-creation sessions into text using Dovetail, a qualitative data analysis software tool. We then duplicated the artifacts created by participants during the co-creation sessions into a new Miro board to allow for data analysis and comparison across sessions while preserving the original content. Our analytic focus for this paper was on the elements of the Miro space where participants were able to indicate their ethical dilemmas and initial problem card, their initial DIY Room outcomes, their context card, and their revised action plan. Each of these artifacts was collected and grouped for each participant (see Figure 3 as an example of this grouping for one of the participants). We also consulted the transcripts from the breakout rooms main rooms to identify or clarify the evolution of the elements on the board as a source of data triangulation to ensure we understood *what* the action plan included and *why* the

participant chose to select or combine the elements in the way that they did.

As a research team, we collaboratively analyzed these data, employing qualitative content analysis, role analysis, and thematic analysis. All analysis stages involved six researchers, including the principal investigator, a graduate student, and five undergraduate students. All researchers were trained in qualitative analysis and had prior experience working on qualitative, ethics-focused research projects. The data analysis steps for this project included familiarizing ourselves with the data, journey mapping by individual participant, qualitative content analysis across all participants, and role analysis and thematic analysis across all participants. In the subsections below, we describe the activities conducted during each of the stages, including: familiarizing ourselves with the data, creating artifact-focused journey maps, and our use of thematic analysis to describe the roles and process moves of the participants.

3.4.1 Familiarizing Ourselves with the Data through Content Analysis. We began by familiarizing ourselves with the artifacts generated by the participants during the co-creation sessions. We sensitized ourselves with the content of the entire dataset, in some cases reflecting on sessions we had facilitated and in other cases engaging with data collected with other facilitators for the first time. We focused on identifying the issues the participants came to the session hoping to address, how they proceeded to design an action plan that responded to those issues, and the kinds of changes they made when iterating on their action plan. When engaging with these data, all researchers applied preliminary codes to the artifacts that related to our research questions using a qualitative content analysis approach [41]. We then discussed the codes generated from this exercise and reflected on different interpretations of the data. Across data from all sessions, we found that the participants sought to design an action plan to help them accomplish a range of different objectives, including: disseminating and fostering ethical awareness within their organization or team; changing a current process within their organization, while implicitly characterizing existing processes as unethical; or focusing on a small yet urgent ethical issues within the context of their practice that they believed need to be addressed. We also found that the participants employed multiple strategies to design their action plan, including a reframing or operationalization of their ethical concerns to make them tractable. Based on these initial findings, we decided to use a combination of reflexive thematic analysis and role analysis—using a visual journey map to ground the trajectories of participants in the sequence of co-creation activities that supported the design of their ethics-focused action plan.

3.4.2 Identifying and Characterizing Participant Trajectories through Journey Mapping, Role Analysis, and Thematic Analysis. Building on our reflections from our preliminary analysis, we used journey mapping, role analysis, and thematic analysis to trace, characterize, and analyze the trajectory of each participant during the co-creation sessions.

Journey Mapping. We began by collecting all artifacts created by each participant as one collection, tracing the ethical problems the participants listed in their problem cards at the beginning of the session, the ethical challenge they elected to focus on during the

Co-Creation Stage [Space from Figure 3]	Questions	Data Collected
Introduction [Welcome Lobby]	a) Can you tell us the name you would like to go by during the session? b) your industry role? and c) what you're looking forward to in this workshop?	Audio
Reflection & idea generation	a) What are some of the ethical dilemmas you have experienced? b) what are some of the situations or contexts in which you felt uncomfortable as a result of an ethical issue? c) what are some things that you wish you could do but are unable to for any reason? d) And lastly we ask that you consider any advancements in the field or future consequences that you may have concerns about	Text & audio
Problem space [Prep Room]	Can you tell us about the problem card you created?	Audio & card
Developing an action plan [DIY Room]	a) What are you thinking of making? b) Are there any difficulties you are facing in creating this action plan? c) Do you want any feedback from your partner?	Audio & action plans
Testing the plan [Test Drive Room]	Can you walk us through how would you go about applying this action plan in the selected problem context?	Audio & refined action plans
Final Reflection[Gallery]	a) What did you learn from your experience of creating your action plan? b) What are some things you wish you had time to do but couldn't? c) what are the things you learned about your own design practices?	Audio

Table 1: This table highlights the different probing questions that were posed to the participants during the different stages of the co-creation session. The first column represents the different stages of the co-creation session. The second column represents the questions posed during each of the stages. The third column represents that kind of data collected for analysis during each stage of the co-creation session.

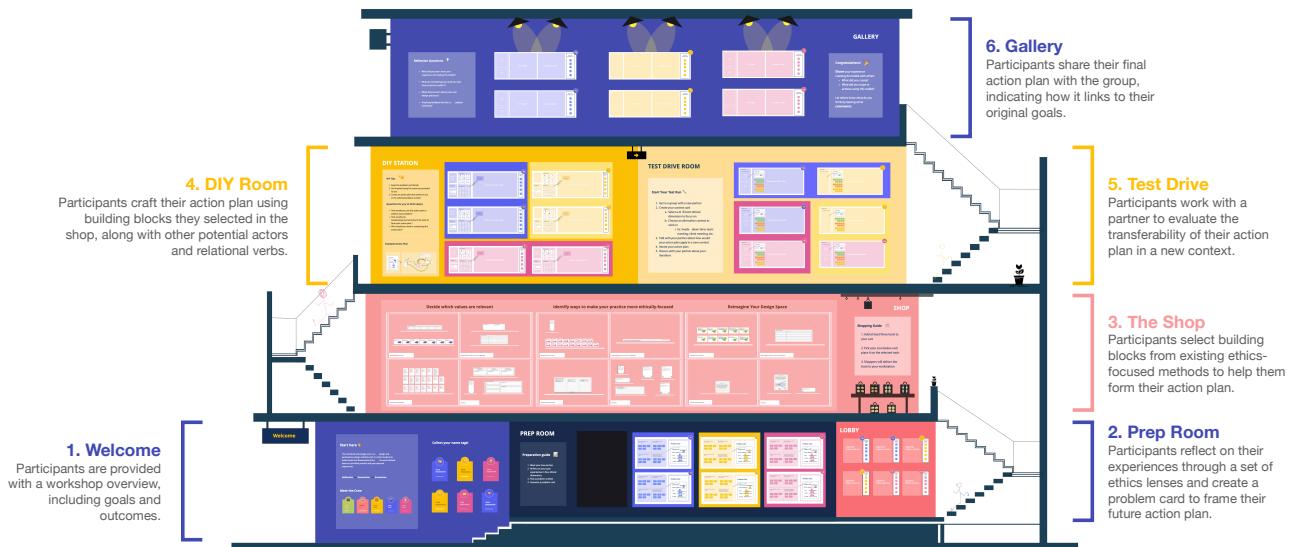


Figure 2: Co-creation session experience on Miro with six activities organized across four “floors.”

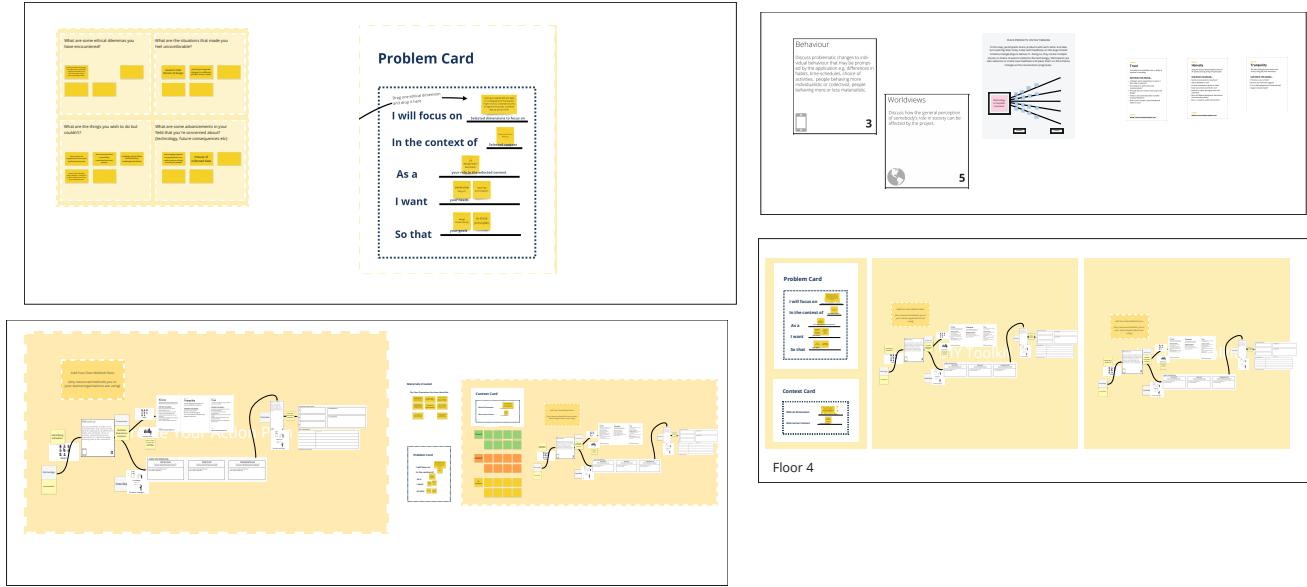


Figure 3: An example of an artifact-focused journey map for a single co-creation participant.

session, the ethics-focused methods items they picked for designing their action-plan, the final action plan they created from those ethics-focused methods, and their reflection at the end of the session on their rationale for creating the action plan (see an example of this collection in Figure 3). We paired the artifacts created on the Miro Board with the video and text transcript produced from the sessions to describe the rationale provided by the participants for the different actions they took during the session, reflexively engaging with the following sensemaking questions:

- How would I characterize the trajectory of this participant?
- What are the qualities within this trajectory that appear to be especially interesting or pivotal?
- Does the participant engage in an iterative refinement of their concerns as compared to where they started?
- Does the participant re-characterize or re-frame their initial ethical concern as they are confronted with these new tools?
- Do participants find resonance between their ethical challenges and the ethics-focused method building blocks, or do they experience a misalignment between their objectives and the method building blocks?
- How does the participant frame technical portions of their work as ethical (or not)?

Open and Axial Coding. As we went through this analysis process, we individually produced open codes and memos to characterize the trajectory, roles, and process moves made by the participant both in setting up their problem space and throughout their journey of designing their action plan. After producing these codes, we collaboratively discussed the range of roles and process moves we had identified, using an axial approach to move from open codes to constructed final codes. As a group, we considered multiple data points, different researcher experiences coding, and engaged in negative case analysis to identify our final set of roles and process

moves. After this individual analysis, we evaluated each participant journey map as pairs to reflectively engage with the interpretations of others in the research team—an important early recognition of our reflexive engagement as individual researchers and as a team.

Role and Process Move Analysis. We continued our analysis by using *role analysis* [12, 14, 36] to characterize the stance(s) participants took towards their action plan development process and its relationship to their felt ethical complexity and *process move analysis* (inspired by descriptions of instrumental and framing design judgments; [33, 37, 46, 47]) to characterize the approaches that participants used to make the design of their action plan tractable. Across both of these forms of analysis, we relied upon a reflexive thematic analysis approach [9], acknowledging that our findings are impacted by our positionality as researchers and that our philosophical commitments and experiences as researchers of ethics shape how we formed interpretations of our co-creation data. The findings from our role and process move analysis are detailed in Section 4.

To conduct our *role analysis*, we began by considering the framework of Chivukula et al. [14], which characterized the ethical roles and identity claims that socio-technical practitioners embody when navigating ethical complexities. We iteratively investigated the ethics-focused roles the participants in the co-creation sessions took on as they created their ethics-focused action plan, including evaluation of how these different roles were manifest, how those roles influenced the ways the participants navigated the session, and the kinds of action plan decisions that were motivated by these roles. Additionally, this analysis enabled us to describe how participants often took on different types of roles to navigate their felt ethical complexity depending on which part of their organizational ecology they were directing their action towards. We conducted this analysis by examining the types of problems and ethical concerns

the participants raised, the method building blocks they selected to solve those issues, the goals they intend to achieve by solving those issues, and their reflections at the end of the session. The final set of roles from our analysis is detailed in Table 2.

In conducting our *process move* analysis, we identified participants' use of framing, instrumental, and appreciative judgments [47] to describe how practitioners actively shaped their action plan and corresponding problem space. We investigated the distinct judgments that participants in the co-creation sessions used to navigate their design space, including their management of felt ethical complexity, identification and iteration of problem scope, selection of relevant ecological components. These process moves revealed shifts in the participant's negotiation of their problem space and frame (e.g., relevant constraints, goals, items in or out of scope) and the appreciative judgment they used to inform values that were central, peripheral, or specifically excluded from their action plan. The final set of process moves from our analysis is detailed in Table 3.

3.5 Researcher Positionality

The authors of this paper include researchers from two large, research-intensive public universities in the Midwestern USA and a university in India. The research team has previously engaged in multiple research projects relating to technology and design ethics, and as a group we have educational and professional training in design, psychology, ethics, and computing and are passionate about fostering ethical awareness in design and technology practice. We approach ethics in design as a multidimensional concept and with the understanding that different groups connected to HCI engage with ethics in varying forms and as a result seeking to achieve various objectives. Our focus is on supporting designers that will take on the responsibility for designing ethical products that protect the interests of users, and in doing so we seek to empower practitioners with tools to support them in their design practice towards achieving the ultimate goal of designing ethical products for their users and fostering ethical outcomes within their practice. We acknowledge that our understanding of ethical complexity—as augmented by experiences of practitioners that we have identified in previous studies—impacted the form of the co-creation materials that participants engaged with, and also shaped our facilitation practices through which we collected data.

4 FINDINGS

In Section 4.1, we describe three primary roles participants played as they created their ethics-focused action plans, indicating how these roles enabled participants to both activate their ethical focus and engage their felt ethical design complexity. In Section 4.2, we then describe three process moves that participants used to navigate the design of their action plans, including ways they managed the complexity of their ethical dilemma in relation to their appreciative (value-related) and instrumental (tool-related) judgments.

4.1 Roles

4.1.1 The Advocate. An *Advocate* represents instances where participants sought to take action based on their intrinsic interest and awareness of their ethical role within their team or organization.

This role indicates the participant's interest in translating their personal awareness to others within their organization, *advocating* for specific causes they felt would increase ethical engagement, including, for example: accessible design, privacy protection, design inclusivity, prioritizing user needs, encouraging open communication, or even the importance of sketching in the design process.

The Advocate role often emerged early in the co-creation session as participants considered the ethical dilemmas they faced and how they wanted to reconcile them. For example, PS02C⁴ (UX Research Lead) explicitly stated on their problem card "*I want to advocate for UX research or invest in UX research so that we can create user-centric products and services*" in their situation where "UX research [is] not being supported by stakeholders" in a team workflow. PS01B (an Enterprise B2B2C UX Designer) linked their focus of advocacy towards a specific unethical phenomenon, framing their problem card around: "*interaction manipulation [...] like dark patterns or nudges*" with a goal to "*do better design projects with less bad mental health consequences*" on the users.

Participants also employed the Advocate role to consider preempting future unethical events they felt should not be allowed to happen, or to prevent the future reoccurrence of past events. For example, PS01A (a Product Manager and former Designer) described their concerns about the ethics of engaging with the Metaverse, as a technological advancement rather than a current design, stating:

"I've been really interested in the concept of the metaverse [...] and it's exciting, but it also really scares me because I know that there needs to be a bunch of research and there needs to be a bunch of stakeholders looped in from the beginning to make sure that this is a technology that's used for the greater good and not for anything else. So I think I just have like a bunch of questions about it and I want to learn how to better be an advocate or put myself in a space where I can help advocate for like the better side of the technology than the negative."

Similarly, reflecting on their past industry experience in relation to ethical awareness recently acquired through their formal education, SS01A (a UX Design student) remarked: "*I'm in a Disability and Technoscience class right now and learning about technocentrism and reflecting on my internship, I noticed that there were some things that should probably not happen in the future.*" Participants that took on this role were often, in addition to playing the role of an advocate, open to taking actionable steps that would ensure that their action plans achieved the results they expect. For instance, SS01A started designing their action plan intending to communicate and advocate for "accessible design" within their organization. However, while creating their action plan, they realized that their advocacy would be more likely to thrive in an open-minded team, which prompted a brief exploration of the practicality of building such a team through a Reformer role (discussed in later sections) before transitioning back to developing an advocacy-focused action plan to spread awareness of the need for accessible design within their organization.

⁴Participants are referred to by identifiers throughout the findings section. PS indicates a practitioner session and SS indicates a student session, the number indicates which of the six total sessions the participant engaged in, and the final letter indicates the unique participant in that session.

Ethical Role	This role...
<i>The Advocate</i>	seeks to take action based on an intrinsic interest and awareness of their ethical role within their organization. Their focus in building their action plan through this role is to translate their personal awareness to others within their organization.
<i>The Operationalizer</i>	identifies a component of their practice and experience that relates to ethical awareness, but does not situate that knowledge in relation to broader ecological complexities that might have given rise to those ethical issues. Their focus in building their action plan involves honing a small “piece of the puzzle” without addressing ecological implications of the proposed plan.
<i>The Reformer</i>	recognizes that their vision of ethically-focused action is not equally shared by others in their organization. Their focus in building their action plan through this role is to activate their intrinsic desire for ethical change in ways that might effect substantial change at the organizational or professional role level.

Table 2: Ethics-focused roles that participants employed to navigate the creation of their action plan.

4.1.2 The Operationalizer. An *Operationalizer* represents instances where participants identified a component of their practice and experience that they felt related to ethical awareness, but did not situate that knowledge in relation to broader ecological complexity that may have given rise to or otherwise shaped the initial ethical concern. This role indicates the participant’s interest in honing a small “piece of the puzzle” without addressing the ecological setting for their proposed action plan, either avoiding consideration of key stakeholders or otherwise limiting their treatment of ethical complexity. The *Operationalizer* role was the least common role participants took on during the co-creation sessions and was more prominent among student participants as compared to practitioners.

Operationalizers typically focused on their own professional role and responsibility, using this professional knowledge as a frame to explore how their action or inaction might impact, induce, or otherwise shape downstream unethical outcomes. However, unlike the *Advocate* or *Reformer* roles, participants embodying the *Operationalizer* role did not actively seek to define or engage with the complexity of those downstream unethical outcomes or the upstream forms of complexity that may shape the emergence of ethical concerns. For example, PS03F (a Software Engineer) considered software bugs as a matter of ethical concern (i.e. “imperfect code”), but did not actively engage with the upstream ethical complexity that might have given rise to the software bug or the ethical impacts that might be produced downstream if bugs were left uncorrected. When describing why they felt software bugs were unethical, PS03F mentioned that “*the thing that I’ve found in my career is that the second pass at something [...] will always be like four times as efficient as the first time. And that’s just how it works*” and their goal through the action plan was “*I or someone else doesn’t have to go back and fix it.*” Implicit in their sentiment is that software bugs arise due to a lack of due diligence and insufficient effort; hence, their overarching ethical frame that they used to operationalize their action plan was about “*chasing the constant dream of perfection—the perfect code,*” thereby motivating them to design an action plan to enable them to eliminate errors in code production. SS02D, a student with prior industry experience as a Communication Designer in advertising, also took on the *Operationalizer* role to navigate their ethical complexity while developing their action plan. In their case, they focused the design of their action plan with a goal of operationalizing and supporting their creativity and self-expression

as a designer to mitigate ethical tensions, recognizing that “*advertisement is something that users hate—so to some extent, there’s an ethical problem just before I do my design part*” as “my design is not evaluated by data and sales” but desiring for their “*output to be valuable, both in terms of design creativity, as well as the value for users.*” When their action plan was critiqued by another participant, they expanded the scope of their plan to include the implications of a lack of ethically-grounded creativity on end users.

In general, participants taking on the *Operationalizer* role while creating their action plan possessed a more limited understanding and awareness of the nuances of their own ethical complexity, either framing professional values as ethical without describing the interplay of values themselves (i.e., highlighting the efficiency of code without considering downstream negative impacts of buggy code to users or society) or identifying aspects of professional practice without considering the positive ecological impact of better support (i.e., using creativity not just as an indication of professional role but also as a tool to further interrogation of potential negative impacts of decisions using a speculative positioning).

4.1.3 The Reformer. A *Reformer* represents instances where participants recognized that their vision of ethically-focused action was not equally shared by others in their organization—a situation they desired to change. This role indicates the participant’s interest in building an action plan that would activate their intrinsic desire for ethical change in ways that might effect substantial change at the organizational or professional role level.

Participants taking on this role often sought to change structures and processes within their organization that they deemed to be unethical, including changing their project scoping and approval process to ensure that potentially harmful projects are not approved and democratizing their design process to make it easy for any designer to utilize suitable design methods or processes. For example, PS03B (a Data Scientist) stated on their problem card that their intention to design an action plan would be “*to introduce an instant ‘stop project’ criterion within our data project scoping process so that projects can be stopped when a potential harm is discovered and to ensure that projects are not launched until ethical release criterion are met,*” thus demonstrating that this participant is not merely advocating for personal change, but want to induce and activate the change to reform their design team or organization.

Participants taking on the Reformer role often began planning their desire for reform by identifying ways to advocate to and sensitize their organization or design team of either the need to change their existing processes to prevent an unethical event from occurring or to alter their process as a response to an ethical breach within their organization or team. For instance, PS01D (a UX Researcher) took on the Reformer role to “design collaboratively,” “rethink principles,” and align it with organizational values, taking into consideration the barriers they could encounter at the team and organizational levels such as design accountability and power dynamics in business. Similarly, SS02A—a student who came from a professional UX design background—started by taking on an Advocate role, seeking to build awareness and alignment in their team and organization to focus on user transparency. Through their action plan design process, they shifted towards the role of a Reformer by refocusing their efforts on defining responsibilities strongly within the organization and the coordination between these roles in ethical product delivery and design, which they felt would help to “align design process with values of transparency,” “sensitizing the team on why this would be beneficial to the users,” and “aligning the value system mission of the company to the customers.”

As participants using the Reformer role built out their action plan, they often transitioned back-and-forth from an Advocate role—which focused on modification of their own ethical practices—to a Reformer role that sought to create broader impact on organizational or disciplinary processes and structures, thereby making these more ethical practices the “new normal” and a shared goal within their organization or team. This shift between roles, and the kinds of action plan constraints represented, demonstrates that Reformers are usually interested in realizing material changes on the organizational or structural level and are not typically satisfied with only sensitizing the actors within their organization (including themselves) of the need to make those changes.

4.2 Process Moves

4.2.1 Refining. The process of *refining* refers to the act of narrowing a design frame by identifying areas of focus or removing constraints, thereby facilitating more focused attention to specific kinds of detail in the participant’s action plan. This process move does not alter the overarching appreciative system used to evaluate the success of outcomes, but rather focuses the participant’s attention on scoping into more specific or constrained aspects of their original design space.

We identified two distinct refining moves: 1) where some participants began refining from the moment they articulated their goal on their problem card to focus on a very particular ethical scenario, and 2) where a few participants chose to refine only after a period of exploration, engagement, and iteration on their action plan. For instance, refinement occurred with PS03F (a Software Engineer) whose goal was to optimize the process of bug fixing and assign ownership to issues, which they had framed as a matter of ethical concern. PS03F’s action plan focused on this specific process, and their efforts during the workshop was to hone their approach to encourage a more efficient experience: “*I realized halfway through creating it that it’s very set in stone, like a bug triage plan. And because two, there’s only really one way to make perfect code and that’s*

to iterate on it and to find the issues, resolve them, learn from them and carry them into the future.” This judgment of what it meant to be more “ethical” for this participant was framed through the role of an Operationalizer, which when paired with their refinement focus, created a practical action plan that was useful in optimization but perhaps strayed away from typical views of what it meant to “be ethical.” Thus, in this case, using the refinement process move without considering other relevant details minimized—and perhaps even flattened—the participant’s understanding of their ethical design complexity beyond the incomplete reification of “optimization.”

Another variation of refinement can be illustrated with SS02A (a UX Design student), who used the refining process move to target the alignment of team responsibility in service of their goal of improving transparent and honest design practices. While this participant primarily took on a Reformer role, they recognized the need for realignment and adoption on an organizational level, such as “*dividing the responsibilities, [such as] different stakeholders and their responsibilities*” but focused their design efforts on team alignment while removing constraints relating to the organization at large. Thus, SS02A’s objective was to start small, with the latent assumption that the “ripples” of their action plan may later make larger “waves” on an organizational level to achieve their overall goal. We observed a pattern of participants taking on the Reformer role to refine their action plans, likely because these participants were seeking to work within the footprint of what was already possible or available in their work context.

Finally, as an instance of beginning their refinement later in the construction of their action plan, PS01B (a UX Designer) employed the refining move later in the workshop to cut out detail they had built in the initial round which focused on designing for their “team meetings,” to a constrained focus to further hone their action plan in a way they felt was more focused for their “heads down-time.” Their approach was: “*So enriching my scope, I thought about how to make my action plan more personal, thinking about the designer and making changes to do that.*” To elaborate, PS01B felt that “ethics is personal and subjective, so [refining to focus on self] will work” in contrast to trying to solve for a whole team which might only end up in “heated” discussions and no conclusions.

4.2.2 Expanding. The process of *expanding* occurs when a practitioner extends their design frame by including additional components, areas of focus, or areas of ecological complexity, thereby facilitating or anticipating broader functionality, additional stakeholders, or more than one use case. This process move may completely change or alter the overarching appreciative system used to evaluate the success of outcomes. The expanded set of constraints that define the new design frame then indicating a prioritization of certain appreciative factors that may not have been present (or present to the same degree) in un-expanded form.

Participants utilized the expander process move in two primary ways, including: 1) creating an action plan which has an expanded focus as compared with their initial dilemma or goal, where they added elements they came to realize were salient to addressing their ultimate goal; and 2) shifting to this process role from the refiner process role to illustrate a potential new application of an action plan, hence expanding its potential through additional detail.

Process Moves	Through this move, ...
<i>Refining</i>	the practitioner narrows their design frame by identifying new areas of focus or removing unnecessary aspects, facilitating more focused attention to the detail of their action plan. This process move does not alter the overarching appreciative system used to evaluate the success of outcomes.
<i>Expanding</i>	the practitioner expands their design frame by including additional components, areas of focus, or areas of ecological complexity, facilitating broader coverage of functionality or use cases. This process move may completely change or alter the overarching appreciative system used to evaluate the success of outcomes.
<i>Diverging</i>	the practitioner alters the directionality of their design process based on emergent goals or interests, facilitating outcomes that appear more actionable or are better aligned with their goals. This process move is characterized by a change in the appreciative system that redefines what success means for the practitioner.

Table 3: Process moves that participants used to navigate and shape their problem space.

In the first case, the expanding process move was typically undertaken when the participant felt that their in-development action plan required additional elements or focus areas to make it successful if it were to be applied within their chosen work context. For example, SS01B (a UX Design student) commenced the co-creation session with the goal to understand the ethicality of certain design and business decisions made by their organization. However, while building their action plan, this participant expanded their focus to frame ethics in relation to the creative freedom they felt designers should have. This participant believed that creativity could be a starting point for the organization to respect users' freedom and autonomy. In addition, SS01B knew they would need to involve additional stakeholders in relation to their goal, thereby expanding their field of action as well: *"I could relate my problem to trust and autonomy because if you're talking about users' freedom of choices, then it's important to build trust between the organization and the users."* This expansion involved not only a wider field of view with more actors in the organization, but also an appreciative frame that shifted from a focus on ethicality in general to ethical considerations that could be guided by designer creativity.

In the second case, SS02C (a Product Management student) started the session with the goal of improving communication practices in "product review meetings" so that concerns from each team could be addressed while aligning everyone in the approach they were taking to address these concerns. To achieve this goal, the participant designed their action plan to map communication including between stakeholders, among cross-functional teams, within the teams, and even in individual meetings. SS02C mentioned their desire for this expanded role of communication, noting the range of organizational facets they sought to re-shape: *"Group conflicts, our discussion of the worldviews and perspectives the different departments, how their approach was, what the issues were in their data collection—all of these things should be identified and also clarified by all the different stakeholders available, including the clients. [...] I think that is a culture within the organization rather than something a tool could fix."* The focus shifted from addressing communication issues in particular review meetings to the need for a cultural change at different stakeholder interactions, thereby bettering the communication practices in the organizations. Another example is when PS01D, a UX Research practitioner shared an analogous example in their action plan, where they sought to "get

buy-in from different stakeholders and then how to collaborate across teams"; as part of this goal, they expanded their focus to represent many different professional roles, including "*designers, PMs, and other stakeholders relevant to marketing*" and used behavior and value cards from the Shop to expand again when recognizing "*that organizations also have values. So maybe bringing those in to align people and then using those as a lens as well.*" PS01D recognized more and more areas for potential expansion as their design process went on, reflecting: *"It's about how with time we can slowly try to influence these different parts or where things would come in. I wish I had more time to actually go through everything and add in more things."*

4.2.3 Diverging. The process of *diverging* occurs when a participant alters the directionality of their design process to facilitate outcomes that appear to be more actionable or which they feel are better aligned with their goals. This process move is characterized by a change in the appreciative system that redefines what success means for the practitioner. The shift in appreciative system can be either congruent with an existing appreciative frame with the addition of a new element that shifts its focus, or represent an entirely new appreciative frame that allows for new consideration of previously added action plan materials.

An example of choosing an entirely new design focus was illustrated by SS02D, who came to the session hoping to design an action plan that would enable them to develop creative advertisements that did not manipulate users. However, during the session they realized that this goal was too complicated to solve: *"I started the session with the goal of developing creative design advertisements that are useful for users. However, maybe this question is too abstract to solve, and maybe I got confused about what kind of solutions I can build."* In this case, diverging resulted in a shift to a completely new design goal of resolving team conflicts during design, recognizing that the success of the initial goal would have been too difficult to measure.

The diverging process move also occurs when the participant realizes that a foundational problem needs to be solved before their particular action plan can become meaningful—often realized through a prior expansion process move.

"I started by wanting to understand how data security affects the user, particularly when their data is compromised. However, before we talk about this, we have to first of all as an organization discuss what kind of behavior would lead to a data security breach and what we can do as an organization to prevent such from happening. [SS02B]"

For instance, SS02B (a UX Design student) originally wanted to design an action plan to foster honest design practices and enhance user data protection practices. However, while developing their action plan, they realized that their objective might receive low uptake if the organization was not already sensitized to the need for user data protection. As a result of this realization, they diverged and expanded their scope to create awareness about the need for user data protection within their organization, thereby attending to both upstream and downstream considerations that framed their original appreciative focus.

Some participants also employed the diverging process move as a way of governing and maintaining control over ethical complexity. For instance, PS01A (a Product Manager) remarked: *"As I was creating my action plan, I found it quite difficult because I kept on realizing that there were many, many more steps, and I was trying to figure out exactly where my plan would all fit in. And so I thought maybe I should start with an internal co-design where you go through and discuss project goals, ideas, technical restraints, among other things."* In this case, the participant recognized complexity through the expansion process move and then diverged in how they wanted their action plan to address their felt complexity—moving from an individually-focused action plan to one that had the potential to produce reform on the organizational level.

5 DISCUSSION

In this study, we have identified how design and technology practitioners and students with professional experience created action plans to support their everyday work practices with a focus on the roles and process moves that enabled their action plan creation process. In this section, we describe how these roles and process moves relate to prior work on method design, laying the groundwork for enhanced spaces for practitioners to design methods that support their own work practices. First, we illustrate how practitioners' trajectories of action plan design were mediated by their experiences, disciplinary role, ethical sensitivity, and other factors. These factors demonstrate how different roles or process moves when creating new supports can either illuminate new areas of ethical concern or potentially create a new environment for ethics-washing⁵. Second, we evaluate the different types of constraints that participants used to create a more tractable environment for the design of their action plan, connecting practitioner trajectories to known patterns of method design by researchers, thereby demonstrating the efficacy of scaffolded method design spaces such as the co-creation environment we used in this study along with opportunities for practitioners to support their work practices through other types of spaces. Finally, we identify challenges and opportunities in using

action plans to orient practitioners towards action in their work environments.

5.1 Practitioners Leveraged Different Trajectories to Build Bespoke Action Plans For Their Work Context

The trajectories of engagement by participants with their action plans revealed an interplay between their felt ethical complexity and the use of method building blocks to form and iterate upon an action plan. These trajectories emerged organically, co-constructed through the intentions and goals that participants brought with them (including the lived reality of their work context and role) and the materiality of the building blocks and co-creation environment we used to structure their interactions. Some practitioners struggled to break out of the "box" of their own professional role in this process, operationalizing ethics in relatively narrow ways that limited their ability to have a broader impact within their team organization. Others recognized *too many* ecological links between their own role and the organization or industry at large and became bogged down in trying to "fix" everything across their entire team, company, or industry. Also, interestingly, years of experience did not seem to be a strong indicator for success in building a reasonably scoped plan; instead, job roles tended to predict success more consistently, with practitioners from UX or product management focused roles finding it easier to build actionable plans as opposed to those from more technical roles.

Building on our findings in this study, we seek to better understand what our participants struggled with and how these action plan design processes might be better supported in the design of future spaces for ethical engagement by practitioners. The roles and process moves that we have identified are relevant to any trajectory of action, and may serve as a preliminary analytic vocabulary to consider how ethical concerns are considered or inscribed into support materials.

Design and technology practitioners and students seeking to make ethical changes had to confront the change they sought to promote. Those that were already comfortable with their own ethical positioning worked to *reform* their organization or profession and those with less experience interrogating their ethical role tended to *advocate* for practices closer to their own experiences and practices. However, if the participant's ethical experience or knowledge is insufficient, the outcomes could lead to incomplete or naïve action plans that are difficult to implement or address only portions of the underlying ethical issue. Participants that had already pre-framed their ethical concerns tended to *operationalize* their current knowledge of the situation when considering what kinds of impact they wanted to have. However, these action plans could present only partial solutions that might not address root causes, consider ethical issues from only a single stakeholder position, or perhaps at the worst, result in plans that "ethics wash" a space and give practitioners a false sense of security that ethical issues are being addressed, mirroring known limitations and criticisms of ethics checklists [63].

Practitioners and students, depending on their knowledge of their ecological setting, may easily recognize areas to "scale up"

⁵According to the Carnegie Council for Ethics in Environmental Affairs, "Ethics washing, like greenwashing in some respects, is the practice of feigning ethical consideration to improve how a person or organization is perceived." [1]

their action plans through *expansion* or *diverge* from their original goals after recognizing new aspects of ecological complexity through reflection. Similar to practitioners' work as *operationalizers*, practitioners that are most confident in their knowledge of their existing ecological complexity may focus their efforts primarily on *refinement*, with the assumption that they have already identified root causes and practices that need support. These links between role and ethical support mirror other kinds of process or organizational changes, where a practitioner must consider which types and numbers of constraints allow the situation to feel tractable and malleable.

5.2 Practitioners Used Purposeful Constraints to Support Their Exploration of Ethics-Focused Supports

In this paper, we assert that design and technology practitioners are perhaps best-placed to create ethical supports that are resonant with the ecological complexity of their everyday work. Building upon prior work that has described how method designers utilize knowledge and a range of creative constraints to make the design space for a new method tractable, we are able to identify how our co-creation materials enabled design and technology practitioners to build their own bespoke action plan, which we frame here as a bespoke *design method*. We build upon two primary categories of decisive constraints—proposed by Biskjaer and Halskov [6] and operationalized for method design practices by Gray et al. [38]—*intrinsic* and *self-imposed* constraints (including sub-types referenced below) to map the participants' use of creative constraints in structuring their action plan design process.

Intrinsic constraints framed participants' engagement in the workshop, including their understanding of their work environment and beliefs about how methods might be used as a type of knowledge to support their work practices. First, constraints related to the participants' *epistemological framing* surfaced in relation to their initial desire to participate in the workshop (a form of self-selection bias in its own right), including the goals and motivations they brought, relevant knowledge they had about their felt ethical design complexity based on previous industry and educational experiences, and their pre-conceived notions about what was or was not "ethical" in relation to these practices. Second, participants *pragmatically activated* constraints to link their goals and desired outcomes when building methods supports for their practice, including their focus and desired outcomes stated on their problem card and connections to the complexity of their work context. These constraints focused participants' attention on the question: What can methods accomplish to better support *my* practice?

Self-imposed constraints were intentionally applied by participants to shape their design space. We recognized the interplay of three different types of self-imposed constraints that impacted participants' design of their action plan. First, constraints relating to the *identification of methodological insufficiency* impacted the structure and purpose that participants set out for their action plan, including the ethical dilemma or problem they selected and the kinds of conditions they set out to change or re-shape through the introduction of a toolkit. This selection was primarily realized through the Advocate, Operationalizer, and Reformer roles. Second,

constraints relating to *selection of opportunities within the design ecology* included the articulation of embedded assumptions about what their discipline or professional role could contribute, and how this role could relate to other members of the organization or the organization at large. This selection was operationalized through the Expander, Refiner, and Diverger process moves. Third, constraints relating to *framing through prior design knowledge and intention* structured the design of the action plan, including method "building block" elements that we provided that appeared salient to the participants, their selection of other potential actors and verbs in the DIY room, and the visuo-spatial organization of these elements in their final action plan.

Overall, we found that participants were able to relatively readily identify method building blocks to support their action plan design. This implies new opportunities to disseminate, categorize, and make discoverable not only a range of methods or toolkits, but also to "atomize" these forms of design knowledge in ways that support re-use, re-organization, and the generation of completely new approaches to supporting ethically-focused work. For instance, existing toolkits and methodologies such as Microsoft's Inclusive Design toolkit contain both overarching support structures and individual components that might be extracted as ethically-focused methods in their own right. We ask, building on our co-creation engagement with practitioners, how might these toolkit elements become more directly tractable as design objects, and further—how might we then break down these components that often represent distinct design methods further into building blocks that might enable new downstream configurations of methods.

5.3 Practitioners' Action Plans Underscore Challenges and Future Opportunities in Supporting Ethical Engagement

Across these trajectories, we identified three main challenges that practitioners confronted in their action plan trajectories that may be productively addressed or problematized by future research or practitioner engagement. Importantly, more knowledge relating to these key ecological considerations would add both to the creation of practitioner-led supports and to the design methods literature more broadly. While we focus our language on "action plans," building on the co-creation environment we used in this study, most of our findings should also be transferable to alternative spaces that seek to support the creation of new supports for practitioners.

First, the use of existing knowledge—both through the provision of building blocks and common ecological elements and verbs—was overwhelming for many participants, often because they had no strong mental model for what a final action plan might "look like" or at what level it might be used to operationalize or shift ethical focus in their organization or professional role. In this sense, our findings are highly illustrative in supporting future design interventions that address different frames for different levels of engagement, including pre-framing: 1) in relation to time (e.g., things that could change this week versus over a year), 2) type of interaction (e.g., convincing a manager, building team alignment), or 3) combination of stakeholders (e.g., something done alone versus with members of two or more disciplinary or professional roles)?

Second, participants generally were able to identify *many* goals they wanted to address, and multiple levels of complexity that could be considered alongside these numerous potential goals. Thus diverging and expanding activities were—for many participants—a means of deciding what impact they wanted to have during the workshop, and may indicate a need to support the creation of many *different* action plans—representing different purposes, scale(s) of desired change, audiences, and use cases. This finding allows us to question how future practitioners and scholars can support the creation of action plans as an *everyday* activity, and not just one that is completed a single time. Design interventions that build upon our findings might better identify how to select the right scale or scope of action plan so it actually gets used, recognizing that all supports will be iterated on while in use.

Third, while participants' use or implementation of their action plans in their everyday work context was not part of this study, numerous instances in the action plan design process indicated participants' consideration or "projected use" of the action plan as one trigger for iteration or refinement. Future versions of co-creation scaffolds to support action plans might include intentional periods of priming, implementation, incubation, and iteration over a period of time—perhaps weeks or months—to better map the intentions and goals of practitioners with the realities of their practice, shifting the action plan from "just another method" to a meaningful extension of one's praxis.

6 IMPLICATIONS AND FUTURE WORK

While existing method design and implementation practices have largely focused attention on the method prescription itself, our work identifies a new area of research focus: facilitating spaces for practitioners to design methods that support their own work practices. Rather than viewing method design as distant from practice and revealed primarily or only through method prescriptions (see also [38] for a critical view of method design practices), we question what opportunities could be realized for scholars, educators, and practitioners alike if we view the majority of practitioners as *capable of creating tools to support their own work practices*. This reorientation of method design practices could draw on histories of tool use and adaptation in other creative contexts, such as the creation of ad hoc tools in hackerspaces [5] or the formation of customized work practices, software, and collaborative techniques to support the creation of fan art [2, 40].

In addition, a consideration of differing disciplinary roles and years of experience as part of the method ecology [28] could support future work in evaluating different types of spaces for practitioners to design methods. For instance, while we only considered groups entirely composed of practitioners or students with professional experience in this study, a heterogeneous grouping of practitioners and design students may promote reflection on a broader range of ecological factors that influence design decisionmaking. Similarly, because disciplines construe ethical concerns in different ways [8, 16], future studies could evaluate how members from different disciplines negotiate the design of ethical supports in a shared environment—with practitioners coming from different disciplinary traditions and years of experience approaching the same ethical complexity with differing levels of sensitivity or breadth. While the

co-creation environment we designed for this study appeared to be effective in scaffolding various aspects of ethical inquiry and action (i.e., through problem cards, building blocks, and a space for the construction of a bespoke method), our identification of roles and process moves may also be helpful as researchers consider the creation of other generative spaces to support practitioners' design of methods.

We have also framed the need for additional types of design knowledge—including method building blocks, methods, and toolkits—to support designerly efforts that are conducted by individual practitioners, design teams, and organizations. While method prescriptions have become increasingly standardized in some ways over the past decade, drawing on both the success of IDEO's Design Thinking framework and the popular *Universal Methods of Design* text, the creation of a wholly new collection of methods (since none of the ethics-focused building blocks we used in this study are present in either existing collection of methods) offers the opportunity to question how—and in what presentation formats—methodological guidance to support ethically-centered practice could be structured. Future work could include analysis of the components that were used by participants to structure their action plans and the creation of scaffolds and other supports to aid practitioners in identifying salient components of methods, at a number of levels, that could form or inform bespoke practice-resonant methods. Additionally, scholars and educators could investigate how and at what levels of fidelity these bespoke methods should be specified to support differing types of performance.

7 CONCLUSION

In this paper, we report on trajectories of action plan design undertaken by a range of technology and design practitioners, revealing patterns of support that were useful for these practitioners in building action plans that were resonant with their practice and opportunities to better situate and support the creation of bespoke design knowledge that has ecological resonance for practitioners within their organizations. We identified that practitioners used advocacy, operationalization, and reformer-focused roles when designing their plan and considering its implementation. We also identified three different process moves that practitioners used to engage with the framing of their plan, including refining, expanding, and diverging moves that enabled or constrained their ability to address the felt complexity of their ecological setting. We conclude with opportunities for these method design efforts to be better scaffolded, and call for new ways to categorize and organize design knowledge to support ethically-focused design and technology practices.

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