From Concept to Community: Unpacking the Work of Designing Educational and Activist Toolkits

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ABSTRACT

Toolkits are an important means of sharing expertise and infuencing practice. However, the work of making and sustaining toolkits is not well understood. We address this gap by conducting 20 semistructured interviews with toolkit designers, focusing on toolkits intended to help practitioners such as librarians, teachers, and community workers. We analyze these interviews to surface key aspects of participants' design journeys: (1) how their projects began; (2) how they conceptualized use; (3) how they collaborated with users; (4) and what happened once their toolkit was released. We illustrate these aspects through three narratives, and discuss our fndings to provide considerations for designers and scholars. We highlight how designers co-construct communities alongside their toolkits, helping us form a more nuanced understanding of the social aspects underpinning toolkit projects. Collectively, these contributions can help us identify challenges and opportunities in this design space, laying the groundwork to increase toolkits' social impact.

CCS CONCEPTS

• Human-centered computing → HCI design and evaluation

methods; Interaction design process and methods.

KEYWORDS

toolkits, design, participatory design, appropriation, evaluation, education, activism

1 INTRODUCTION

Toolkits are a common way to pass on knowledge or materials. The term "kit" was initially used to describe a physical vessel containing materials, tools, or necessities — such as surgical supplies in a frst-aid kit [51]. Today, however, toolkits are increasingly digital, and may contain words and diagrams rather than dressings and ointments. This is emphasized by a four-decade line of HCI research on toolkits for designing, developing, and deploying computing systems [49]. Relatively less research, however, has attended to the design of a growing body of toolkits being released to help communities address sociotechnical challenges such as algorithmic equity [58], the spread of misinformation [8, 24, 57], online harassment [2, 35], and digital surveillance [46]. In the current paper, we focus on such toolkits — those that support educational and activist efforts. For the sake of brevity, we will refer to these educational and activist toolkits simply as "toolkits." Recent work [61, 83] has highlighted why such research is needed, by persuasively arguing that the values and design assumptions encoded in toolkits can guide how users approach such complex problems. These arguments, and the proliferation of such toolkits

more broadly, points to a signifcant, complicated, and not yet well-understood design space.

In this paper we ask, *How do the designers making educational and activist toolkits understand their own work, and what considerations emerge inside of that work?* To address these questions, we interviewed 20 designers about their experiences of working on toolkits. We analyzed these interviews to help us understand some of the design rationale and work that went into making 14 toolkits (i.e., design journeys). We examined toolkits primarily aimed at practitioners such as librarians, high school teachers, and community organizers, to help them teach, create awareness, and promote social change around sociotechnical problems. For instance, a particular educational area we focused on was toolkits for digital media literacy, although we also examined toolkits in other areas to explore larger patterns. We took this approach both to capitalize on our team's familiarity with these areas and to expand the types of toolkits represented in the scholarship — those that do not necessarily locate design power with professional designers [61].

Our paper makes empirical contributions by identifying four interrelated aspects of toolkit design: (1) the toolkit's points of departure; (2) how designers conceptualized the "use" of their toolkit; (3) how users were involved in design work; and (4) what happened after the toolkit was released. We describe some themes that we observed in relation to each of these aspects (e.g. around building community). We furnish descriptive accounts of three toolkits' design journeys to convey the aspects in a holistic and contextual manner, and then present cross-cutting fndings covering all 14 toolkits. These contributions extend the literature by providing more descriptive, emic accounts on making toolkits — i.e., "what happened from the designer's perspective." Based on these accounts, readers can draw conclusions about future interventions in this space. In that spirit, we discuss our fndings to ofer considerations for designers and researchers working on similar kinds of toolkits. In doing so, our research aims to complement existing eforts [83] that study toolkits from external, content-oriented perspectives, to advance more thoughtful and well-considered approaches in this design space.

2   LITERATURE REVIEW: UNPACKING TOOLKITS

In this section, we draw on scholarship from media studies, anthropology, and HCI to outline our understanding of toolkits. We also discuss how this paper extends the scholarship. One of the challenges of studying toolkits is that there are no widely agreed-upon scholarly defnitions of the term. Moreover, there are many labels that can apply to such artifacts (e.g., 'toolbox', 'feld guide'), and the boundaries between these labels are not well-defned either. To be pragmatic, we used a defnition both broad enough to acknowledge this blurriness, and straightforward enough to facilitate recruitment and conversations with participants. The

Cambridge Dictionary defnes toolkits as "a set of tools that are used for making or repairing something" [63]. In this view, toolkits might, for example, curate activities and provide advice to help organize a workshop, or contain items and instructions needed to survive a crisis.

To interpret toolkits with more care and nuance — as sociotechnical artifacts — we turn to literature in anthropology, design theory, and media studies [39, 51, 65, 71]. This work helps us understand toolkits as containing translational resources. In this view, toolkits are objects that transfer knowledge between diferent practitioners, within a variety of environments or contexts. As Kelty

[39] describes, toolkits are "made to travel"; "by taking what works at a local level, attempting to quasi-formalize it, and inserting it into a briefcase so that it can be carried to the next site to repeat its contextspecifc success." Similarly, Mattern [51] characterizes toolkits as boundary objects [72] which are specifc enough to respond to local users' needs but universal enough to "travel" between contexts. How designers of toolkits navigate this tension between honoring local specifcity and reaching a broader audience can have political and ethical dimensions. For instance, Cleaver [12] notes how, in the development sector, toolkits that are shaped by managerial logics can decontextualize and fatten local diferences. These perspectives collectively help us appreciate the proliferation of toolkits and why they matter. As a knowledge-transfer and gap-bridging mechanism, toolkits are a frequently chosen output by individuals and organizations for a range of educational and activist activities: from training bystanders in harassment prevention[2], to doing a digital detox [77], to seeking inspiration for Afrofuturist speculative design [9], to helping community activists conduct technology audits [40].

Understanding the work that goes into designing toolkits might be particularly signifcant for the HCI community because of its orientation towards supporting practice. This is evidenced by a long line of work focused on toolkits to help users prototype, design, develop, maintain, and deploy interactive computing systems (e.g. [4, 19, 23, 25, 44, 59]). More recently, Colusso et al. [13] have argued for the need to explicitly design translational resources that help close the gap between design practice and applied HCI research in domains such as behavior change. Collectively, the HCI toolkit literature has been invaluable in understanding some important dynamics around toolkit design — such as supporting learnability [45], ensuring fexibility [23, 54, 56], and building healthy opensource communities [29, 38, 55].

Our research connects to an important challenge raised by this scholarship: what it means to "use" a toolkit can be ambiguous and highly contextual. It has been remarked many times that the transferal of intentions about use from designer to user cannot be taken for granted [5, 21, 66]. In the context of toolkits, this has perhaps been best captured by Ledo et al. [44] who describe toolkits as "generative platforms designed to create new artifacts, while simplifying the authoring process and enabling creative exploration." In the same paper, they conducted a meta-review of evaluation strategies in 68 published HCI toolkit papers, and note that usability studies of toolkits can be inefective since they are limited to specifc tasks and rarely generalize to how the contents of toolkits are used in real-world settings. At the same time, the need to seriously explore this issue has been highlighted by recent work that has started to treat toolkits as objects of critical inquiry (e.g. [61, 62, 83]). For example, Petterson et al. [61] examined how 17 toolkits frame equity in design and found that they encoded values and assumptions that "risk reducing equity to a hegemonic practice, recreating existing oppression." Similarly, Wong et al. [83] analyzed 27 AI ethics toolkits and suggested that the toolkits risked deprioritizing local social and political concerns, where critical issues around AI ethics can emerge. Overall, this body of work raises important questions that our paper helps to address: how do designers of educational and activist toolkits express specifc notions of use through their designs and understand how others are engaging with their work? How do they collaborate with users to identify issues and areas for improvement, if at all?

Our research brings an emic or insider perspective to these questions. By documenting some regularities in how designers talk about their work, we contribute to the scholarly conversations outlined above. For example, we contribute to work examining

toolkits and feld guides from a critical perspective [39, 50, 51, 61, 83] by describing how some designers think through ethical issues (e.g. the tension between prioritizing local audiences and seeking a broader impact). Our analysis also sheds light on strategies such toolkit designers use to navigate the fuidity of use noted by Ledo et al. [44], and do the work of sustaining their translational artifacts [13] while dealing with limited resources. Collectively, these contributions move us towards a better understanding of toolkit design work, and how to cultivate more constructive and critical perspectives in this space.

3   METHODS

Our study employed a grounded theory approach [11] and incorporated narrative construction techniques [6, 68] to more efectively report the research fndings, providing readers with a deeper understanding of toolkit design within real-life contexts. We collected data by interviewing toolkit designers about their experience of making toolkits. Following the principles of grounded theory, we conducted an inductive analysis of our data through constant comparison, systematically examining participants' design experiences to identify commonalities and variations and to develop thematic insights. We then constructed narratives of three specifc toolkit design "journeys" to integrate these insights and present them in a coherent, relatable manner that tries to honor the distinct lived experiences and social dynamics that shape our objects of study.

3.1   Data Collection

Our empirical contributions are based on remote semi-structured interviews with 20 participants about their experiences of making educational and activist toolkits. We recruited participants by curating a list of toolkits and contacting their designers to request a 75-minute interview; we also performed snowball sampling, asking interviewees if they could put us in contact with collaborators or other toolkit designers. If a toolkit had multiple designers, we interviewed as many as possible to gather multiple perspectives on the same project. As a result, our 20 interviews illuminated the design journeys of 14 toolkits.

We used a purposive sampling approach to select these toolkits. We searched the ACM Digital Library for papers published in CHI, CSCW, and DIS about the development, content, deployment, and evaluation of toolkits. We also conducted a broader web search, using a combination of terms: e.g. one term from the pool "misinformation, disinformation, information, news, digital, media, literacy, community, equity" and one from "toolkit, toolbox, feld guide, resources, collection." We used these two approaches (ACM and web search) because we wanted to build upon existing work on toolkits being done and discussed in these communities, hearing from designers working both within and outside of academia, and who have worked on a variety of diferent materials (e.g. card decks, lesson plans, etc.). We scoped to toolkits for teaching, creating awareness, and promoting social change, aimed at librarians, teachers, or community workers. We also anchored our work by initially focusing on toolkits related to mis- and disinformation and media literacy. This was motivated by our research team's familiarity with these domains, allowing us to leverage our knowledge and networks to facilitate recruitment. We broadened our scope as we gained traction in our recruitment and analysis eforts, interviewing designers of seven toolkits for topics such as Afrofuturist speculative design and making community exhibitions in museums. This helped us gather more diverse perspectives, because our initial approach would have resulted in a sample emphasizing toolkit designers in higher education.

We identifed 54 potential toolkits from these two searches. To minimize recall issues, we excluded toolkits that were not being actively maintained; we also excluded those that were paywalled. After applying these exclusion criteria, we contacted a total of 49 designers of 20 toolkits via email; 20 agreed to participate. Six participants worked on toolkits that we found through the ACM Library. Nine worked on toolkits we found through web searches, and another fve were found through snowball sampling. Of the 14 toolkits we heard about in this study, seven could be broadly classifed under the "media literacy" domain. Authors of four of the toolkits had published peer-reviewed papers about their work; three of these papers appeared in ACM venues.

Our interview protocol involved tracing participants' experiences of working on specifc toolkits as well as designing toolkits more generally. We explored participants' design process by, for example, having them choose a memorable part of their toolkit or an artifact/trace from their design work, which we discussed in greater detail. We also asked how the toolkit was connected to their work more broadly, what happened once the toolkit was "released," and whether they had any advice and refections. At the end of the interview, we asked participants if they would agree to have their toolkit identifed to increase the visibility of their work. All participants agreed, enabling us to provide information on each toolkit in Table 1. We transcribed audio recordings of the interviews using Rev [34], and manually verifed and cleaned the transcripts before analysis.

3.2   Data Analysis

We conducted a thematic analysis to analyze our interview data. We did this in a grounded way (i.e. bottom-up, inductive) with the understanding that we were constructing an interpretation of the

Table 1: A list of the toolkits that we investigated, with the design journeys highlighted

Toolkit Name	Participants	Description	Authors (Approx.)	Initial Release
Library Workers' Field Guide to Designing and Discovering Restorative Environments [67]	P1	Activities for creating restorative spaces in libraries; made during a dissertation project by a Ph.D. student at the University of Washington	1	2022
ConnectedLib Toolkit [14]	P2, P3, P6	Resources to help librarians apply "connected learning" pedagogy; developed by a team of researchers at the Universities of Maryland and Washington	7	2019
News & Media Literacy 101 [10]	P4	Plans to help elementary, middle, and high school teachers make media literacy lessons in their classrooms; developed by nonprofit Common Sense Media	5	2010
Designing Technologies for and with Children [80]	P5, P7	Toolkit to create co-design sessions with children; authored by a team of HCI researchers at KU Leuven	5	2016
Media Literacy Toolbox [74]	P8, P13	Curation of media literacy resources (curriculum, handouts, activities); developed by nonprofit Education Development Centre	4	2020
Digital Civics Toolkit [60]	P9	Resources for educators to help youth explore digital civic life; draws on work of MacArthur Research Network on Youth and Participatory Politics	3	2018
Mind Over Media [41]	P10	Toolkit to help school teachers make media literacy lessons; designed by an academic team at Media Education Lab	3	2015
A Field Guide to "Fake News" [8]	P11	Field guide for journalists and organizations to study circulation of problematic information; output of Public Data Lab, a collaboration of European research labs	4	2018
Algorithmic Equity Toolkit [58]	P12, P14, P17	Toolkit to help members of the public pose questions about governments' surveillance technologies; collaboration included University of Washington, Oxford Internet Institute, Critical Platform Studies Group, and ACLU Washington	17	2020
The Learning Network [78]	P15	Collection of media literacy lesson plans and activities for teachers to use in their classrooms; written and curated by editors at *The New York Times*	9	1998
Building Utopia [18]	P16	Afrofuturist speculative design toolkit to help imagine new futures for marginalized communities; developed by designers and community organizers at Black Women Flourish, Carnegie Mellon University, Georgia Institute of Technology, and Versed Education Group	4	2022
Not a Toolkit! Fair Collaboration in Cultural Relations [26]	P18	Materials to encourage fairer collaboration at European cultural relations agencies; designed by six researchers across different organizations around the world	6	2022
Community Issue Exhibition Toolkit [3]	P19	Toolkit to help institutions such as museums hold community-driven exhibits; designed by the Santa Cruz Museum of Art and History	3	2018
Look Sharp Curriculum Kits [64]	P20	Kits for teachers to integrate media literacy throughout K-12 curriculum; developed by Project Look Sharp at Ithaca College	25	2003

data (i.e. from a constructivist perspective) [48]. We wrote reflective memos after each interview and discussed them as a team, and this practice continued on a weekly basis after data collection was complete. We employed these memos and a round of open coding on a subset of the data to develop an initial codebook, which was iteratively refined and used to code each transcript on ATLAS.ti [30]. This codebook consisted of 12 descriptive codes such as "Toolkit Maintenance" and "Working With Users." Each transcript was coded by two members of the research team, and the team met regularly to make code definitions more consistent and to resolve ambiguities. Following this, the team used the web-based tool Miro [17] to inductively organize each code and the underlying data into subcategories via affinity diagramming. This helped the team develop themes that integrated meaning within and across codes.

To further develop and facilitate sensemaking around these themes, we selected three toolkits and constructed narratives about their "design journeys". In doing so, we drew on research that discusses and offers practical advice on how narrative construction can enhance the clarity and transferability of grounded theory research [11, 68]. We selected the three toolkits to showcase the diversity within our themes, rather than representing typical or exemplary cases. To try and capture this diversity, we developed a list of dimensions of variation, which included how each toolkit related to our themes (e.g. how the toolkit started, what happened after it was released), its subject matter, and the context in which it was developed (e.g. by a single person vs. an established organization). We documented this information in a spreadsheet. For each toolkit, one author filled out the spreadsheet and at least two other authors reviewed this information. After multiple rounds of voting and discussion, we settled on the three toolkits that seemed to span the gamut on the above dimensions.

3.3 Limitations

This research has several limitations that are useful to highlight upfront, so as to generate new research ideas and improve how this work is interpreted. First, a key ontological limitation stems from our broad definition of toolkits. We opted for an expansive definition to cast a wide net, allowing us to sample for variation without prematurely imposing a narrow perspective that could foreclose possibilities in this space. However, this choice limited our ability to understand the potential distinctions between different "genres" of toolkits (e.g., would we have learned something different if we had focused on field guides?). Second, since we used an English-language search, nearly all of our toolkits were designed by English speakers in western countries, which limits the transferability of our findings to other contexts. Third, we did not investigate how widely our studied toolkits were used, meaning that we could not use this as a criterion for selection. As our findings will reveal, grasping usage patterns poses challenges even for many toolkit designers themselves. Fourth, while we learned what we could from our participants in 75-minute interviews, the journey of designing a toolkit can encompass a long time (and we only have one perspective for most of the toolkits). Future research can build on the emic perspectives we share here by using methods that capture more direct and longitudinal knowledge (e.g., ethnographic methods). Finally, our interview approach, which did not involve the analysis of toolkits, allowed limited opportunities to connect participant statements to specific parts of their design, which can introduce gaps in communication. We tried to mitigate this issue through our protocol (e.g. by having

participants bring materials to discuss), but a significant number of our questions led participants to respond in more general terms. One idea for future work, then, would be to systematically analyze toolkits and use the results to create more targeted and specific interviews.

3.4 Positionality Statement

Inspired by the feminist research practice of reflexivity [32, 47], this section describes how our positionality shaped this study. Our team consists of people from different racial, national, and gendered positions at different stages in their academic career (e.g., undergraduate and doctoral students, faculty members, and a postdoctoral scholar) collaborating across two large American public universities. Between us, we hold a diverse set of disciplinary backgrounds (e.g., design, communication, informatics) and relationships to toolkits as a phenomenon of study (from authors unfamiliar with toolkits, to authors who have experience making them). This diversity of perspectives on the research team helped mitigate the risk of a single perspective overly influencing our findings.

As a team, we are motivated by how community-first approaches can help address pressing issues such as diversity and inclusion, countering mis- and disinformation, and especially how academics can work with practitioners and communities to tackle such issues. This motivation is reflected in our study's focus on toolkits whose aim is education- or community-centered. We found resonances in many of the designers' motivations, and in the challenges they encountered around funding, project timelines, and community commitments. We strove to be mindful of these resonances during our interviews, and always used multiple interviewers and a semistructured protocol to help avoid over-directing the conversation. To mitigate these resonances during data analysis, we consciously chose an open coding approach to make the time and space to hear the words and experiences of our participants.

4 FINDINGS

We open the findings section with narratives of three design journeys. In this way, we foreground the holistic nature of the journeys, and show how they grow from the designers' individual experiences and contexts. We then examine findings that cut across the collection of 14 journeys.

To achieve coherence, we organize both the narratives and the cross-cutting findings around four aspects of designers' journeys. The first aspect, *Points of Departure*, reveals how designers' work is shaped and constrained by their positionality, access to resources

(time and funding), and motivations. The second, *How Designers Imagined Use*, illuminates the range of ways designers imagine their toolkit being used, and how they defined that through their design. The third, *How Designers Worked with Potential Users*, highlights some of the creative ways designers work with users to make toolkits (e.g. co-constructing communities of use alongside toolkits). Because design is seldom linear, discussion of the second aspect is somewhat intertwined with discussion of the third. The fourth, *What Happened After the Toolkit Was Released*, captures how designers think about feedback, updating, and their toolkits' longevity.

4.1 Three Toolkit Design Journeys

We sequence these design journeys to show the development of toolkits at diferent scales (e.g. in terms of time, and of the number of designers involved). The frst journey is about a toolkit made by primarily one designer in a small team, over several months. The second journey is about a toolkit developed by a larger team of academics, over two years. The third journey is about a toolkit developed by an entire organization dedicated to translating academic research to practice, over fve years.

4.1.1 Journey 1: Community Issue Exhibition Toolkit.

This toolkit was published by the Santa Cruz Museum of Art and History (MAH) in 2018 under a Creative Commons license. It is a PDF, available at the MAH website, and the website of the nonproft OF/BY/FOR ALL. The toolkit is intended to help institutions curate exhibitions which "use art and artifacts as a catalyst for community action on a specifc local issue" [3]. Below, we focus specifcally on

"We were asking what would be helpful for people, how can we write it in a way where people can see themselves in it without needing to necessarily follow us to a T? We wanted people to be able to fnd their own way using the example that we did. Not everyone is in the same type of museum."

P19 also showed how they tried to account for difering contexts even within a group like "cultural institutions" (see Figure 1). In this way the designers allowed the users to choose the most suitable option for their institution's needs and capacity. In our interview, P19 mentioned budget as a particular constraint, as well as allotted time. In addition, P19's team included a "Mistakes We Made" section to show users that implementation is often messy, and to make the process more relatable and less intimidating. Overall, P19's emphasis that "we wanted people to fnd their own way" illuminates how some designers envisage the agency of their

> **tip** **Tip:** Community partners may have a million ideas for kinds of events they'd like to help host. You know your institution's strengths best. You can save some time and frustration by offering clear event templates or parameters to help partners focus their thinking.

Figure 1: Screenshot of materials shared by P19 during the interview for design journey 1. Their toolkit included tip boxes like this to help users think about how to adapt the materials for their own situations.

P19's involvement in the toolkit. This journey highlights some key ideas which we build on in later sections, including: the designer's role in supporting community perspectives while creating something with an authorial "voice"; the support of open-ended use that lets users "fnd their own way"; and the process of moving on after toolkit release.

Points of Departure: P19 described having a long relationship with the MAH, starting as an intern, and later helping to run a community exhibition called *Lost Childhoods: Stories of Santa Cruz County Foster Youth.* As part of the process, P19 produced a toolkit. P19 wanted to help institutions such as museums do communitycentered work "with integrity," i.e., running events that "do the relationship-building frst, get people involved and then decide what the end result was going to be," rather than vice versa. P19 noted that their aims and approach to the toolkit grew from their time as a community organizer. The experience taught them that although events may help museums engage marginalized communities, the relationships "fzzle" afterward, which P19 says "breaks my heart." The toolkit was one way to intervene in that dynamic, and served as P19's fundamental motivation: their "north star." This motivation shows how toolkit designers can be driven by a desire to alter the way a process is performed, and possibly even shift historical power imbalances.

How Designers Imagined Use: P19 argued that the toolkit-writing team wanted as broad an audience as possible. While the toolkit addresses museums, P19 intended it for use by *any* cultural institution: "a gallery, a cultural center or even a performing arts center." In their toolkit, they specifed: "There are many ways to make a community issue exhibition that can be scaled to ft your organization's size, scope, and mission...adapt this toolkit as you see ft" [3]. We followed up to enquire about this line. P19 said:

toolkits' users.

How Designers Worked with Potential Users: To develop the toolkit, P19 and their co-designers refected on and wrote down their process of running the *Lost Childhoods* exhibition, especially how they collaborated with the foster youth community. P19 said that the writing primarily involved three people, and they also checked with interns at the MAH who had been foster youth, to validate that their experiences were being accurately captured. P19 described their own role as keeping the "pieces together" and writing the toolkit over 4-5 months.

P19 expressed that the frst phase of toolkit writing — translating a full year of community organizing into written form — was particularly hard. They described facing several difculties. First, the writing brought a feeling of conficting responsibilities, to the MAH and to the community: "I care so much about the community that I don't want to feel like I am writing about them in an objectifying way, right? I was kind of a nervous wreck for the entire time. It was a fear of misrepresentation." This demonstrates how writing a toolkit can be emotionally taxing, especially when it involves abstracting real community work into procedures and case studies. Second, P19 said that as a result of making toolkits, designers can feel that they are being perceived as experts on the toolkit's subject — a phenomenon which P19 found distinctly uncomfortable, as they wished to avoid "centering myself as the expert." Here, P19 indicates the tension between centering the voice of the community and communicating their own knowledge authoritatively. What Happened After the Toolkit Was Released: P19 said that they and the other co-designers all moved onto diferent jobs after completing the toolkit. Consequently, the toolkit is no longer being updated. When we enquired about its use, P19 mentioned that certain museum professionals have used it, and that some MAH visitors purchased it and P19 even signed copies. P19 said they could see the toolkit had been downloaded, but they had not looked at the metrics in a long time. This sequence of

events was mentioned in many of our interviews: Designers made a toolkit, then moved onto diferent projects or jobs, and were no longer in a position to update the toolkit or assess its use.

P19 did, however, note that part of the toolkit had taken on a life of its own: a graphic showing how decision-making can happen in teams. P19 told us that MAH adopted this graphic for future projects, which shows how toolkit-making can create unexpected byproducts. These byproducts are taken up by different audiences who value specifc sub-parts of the toolkit, not necessarily the whole. This can make it hard to determine where the toolkit's ending points are, or understand how it is used in the world.
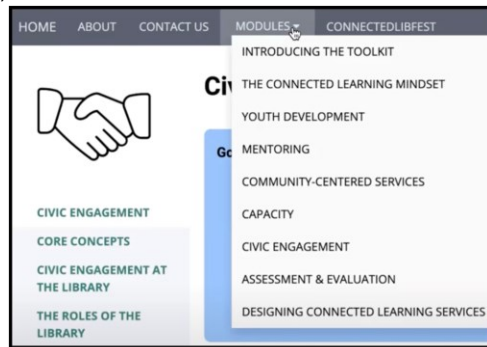
focus. This highlights how artifacts such as toolkits are tied in part to the needs and expectations of grant funders. However, P3 expressed that even within the sphere of libraries, there were a "wide range of experiences" to consider. The designers wanted the toolkit to be "accessible and useful to a wide variety of librarians," but they found this "difcult to make reality."

As a solution, P3 adopted the metaphor of a prism. She explained the metaphor this way: "You have an idea or a concept, it goes into the toolkit, and then our job is to kind of refract it." For P3, their toolkit shows a spectrum of ways by which an idea could be translated into practice. This way, there can be something

Figure 2: Screenshots of materials shared by P2 during the interview for design journey 2. Left: Menu showing how the ConnectedLib Toolkit was organized into diferent modules; Right: Sample media materials promoting the ConnectedLib Fest

4.1.2   Journey 2: ConnectedLib Toolkit.

This toolkit [14] was created by seven people in various academic roles across the Universities of Washington and Maryland, starting in 2015. The team developed this toolkit with two grants from the Institute of Museum and Library Services (IMLS). The grants' goal was to provide public youth librarians with free resources for infusing their work with the principles of connected learning [36], an educational framework that aims to help learners build on their existing interests using social support from adults and peers. The toolkit is structured as a website with a Creative Commons license. In the following journey, we refect the experiences of three of the toolkit creators: P2, P3, and P6. Ideas that this journey illustrates, and that we build upon later in the paper, are the toolkit's multiple points of departure, the metaphor of toolkit as a "prism," and the hosting of a community event to explain toolkit use and encourage takeup.

Points of Departure: The *ConnectedLib Toolkit* was born of a desire to help spark a deeper conversation among youth librarians about applying the Connected Learning framework [36]. P3 explained that youth librarians generally turn to creating programs to bring youth patrons into the library. The toolkit's purpose was to help public youth librarians think of other ways to achieve their goals, besides running programs.

While the *Community Issue Exhibition Toolkit* had one clear point of departure, an initial ending of the *ConnectedLib Toolkit* in 2019 led to a second point of departure. After initial dissemination, the research team heard feedback from users that the toolkit did not meet the needs of rural and small libraries. Therefore, the designers submitted a second grant to IMLS, opening a second phase in which they worked closely with rural and small library partners to update the toolkit with examples relevant to their contexts. The latest iteration was shared in 2023.

How Designers Imagined Use: P2 explained that the team focused specifcally on targeting librarians because that is IMLS's

relevant for any youth librarian wanting to explore connected learning, regardless of their circumstances.

Another way the designers ensured the toolkit's relevance was by making it easily adaptable. For example, the content was structured as modules, enabling users to deploy the parts that fulfll their needs, instead of going through the entire toolkit (see Figure 2, left-hand side). P3 said the designers anticipated the needs of librarians who had "one afternoon to look at this," as well as those who could "spend a couple of months" with the content. Here, the designers show that they trust users to make choices that best serve their needs.

A fnal detail about how these designers conceptualized use is their choice of examples across the toolkit. P3 explained that the right examples could help inspire users to apply the toolkit in their own lives. For example, the designers' consultations with rural librarians produced a set of 50 virtual sticky notes, containing ideas inspired by connected learning. The designers then featured these notes in the revised toolkit, to show rural librarians how connected learning can apply to their circumstances.

How Designers Worked with Potential Users: In the project's frst year, the toolkit designers conducted almost 100 interviews with public youth librarians across the country, asking about their practices. Through these interviews, the designers learned that librarians were already implementing aspects of connected learning but needed support. The designers then recruited librarians for participatory design workshops, drawing from pools provided by their partner libraries. In these workshops, librarians gauged the issues they faced and the resources they needed. The partners also identifed the module topics which became the toolkit's content. After publication of the frst toolkit version, the designers worked more closely with rural librarians, carrying out participatory design to make the modules more relevant for rural libraries.

Similar to P19 from the previous journey, the ConnectedLib designers described a balancing act of honoring their community's

knowledge while also trying to share their own expertise and change people's mindsets. The ConnectedLib designers walked this tightrope via the principle of "mutual learning." P2 explained that they deferred to their library partners regarding the toolkit's content. She expressed that the partners were "steeped in the library world and very steeped in connected learning," which put them in a good position to advise on the granularity of the content and how it would resonate with other librarians. At the same time, P2 explained that the librarians' thinking was shaped by their own positionality, including the constraints imposed by the library systems and by their jobs. This led the designers to push to change the librarians' mindsets, while remaining respectful of their expertise. "A lot of what we did was just talk with them and kind of push them a little bit and change their thinking about what their role in youth programming could be," P2 explained. Overall, the ConnectedLib designers' experience highlights how participatory design workshops can be a two-way street for toolkit designers and community members [69].

What Happened After the Toolkit Was Released: At time of interview, our participants were actively engaged in the postrelease phase of their toolkit. While they had initially written up an intricate assessment plan as part of their grant, the clash between grant timeline and librarians' programming schedules made formal assessment impossible. This highlights how it can be difcult for designers to see their toolkit used in real-world settings.

Instead, the participants focused their eforts on ConnectedLib Fest [43], a two-day virtual event aiming to build community around the toolkit (see media materials, Figure 2, right-hand side). At the time of the interviews, the participants had 250 registrants, and were planning activities such as panel presentations and opportunities for librarians to share their experiences. When asked about post-fest plans, P2 expressed a feeling of "anticipatory sadness," indicating that the user engagement work would be difcult to continue after the grant ended. P2 also said she was concerned that the toolkit would soon feel "stale," as the team lacked the funding to continue updating it in the face of changing technologies. However, P3 told us one way in which the team had already worked to prevent this: avoiding examples of specifc technologies in the toolkit, thereby making it "as future proof as possible." Because of this, she said she felt the toolkit will "be relevant for a long time."

4.1.3 Journey 3: News & Media Literacy 101. This toolkit was created by Common Sense Media [53], a 20-yearold nonproft that designs media literacy materials for schools and families. We initially reached out to interview P4 about the organization's *News & Media Literacy 101* [10], a collection of lesson plans designed for elementary, middle, and high school classrooms in the U.S. and the U.K. The interview, however, touched more widely on Common Sense's work, including the *Digital Citizenship Curriculum* [52], which started around 2009. This journey highlights important ideas such as the infuence of organizational resources on toolkit creation, the "transcreation" of material to ft local contexts, and the notion of "evergreening" content for greater longevity.

Points of Departure: The points of departure for *News & Media Literacy 101* highlight the scale that toolkit creation can achieve, and the type of work that can become more prominent at the level of an organization focused on toolkit creation. By "scale," we mean the number of designers and users involved, as well as how the
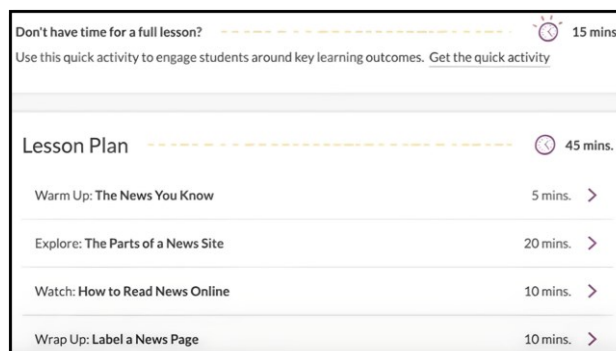

Figure 3: A screenshot shared by P4 during the interview for design journey 3, showing the quick and full-length options of lesson plans ofered by Common Sense Media.

organization draws on a variety of partnerships. P4 has a leadership role at Common Sense Media, and manages a content development team that developed *News & Media Literacy 101.* This toolkit is part of the larger Digital Citizenship Curriculum, used by over a million teachers worldwide [53]. At Common Sense, P4's work is also supported by a UX team and another team devoted to professional development for toolkit users, particularly teachers. The organization's partnerships include an arrangement with Project Zero at the Harvard Graduate School of Education. This partnership allows Common Sense to draw on ongoing scholarship to create materials that present best practices.

Project Zero also highlights an important motivation that shapes the way P4 sees her work — as curation and translation. P4 emphasized that these processes have been integral to her mission. "My goal when I started at Common Sense was to translate academicspeak into actionable, understandable things for teachers," she said. She described how she and her team curate the Digital Citizenship Curriculum, drawing from vast amounts of potential resources from partners, the internet, and prior curriculum iterations, and making strategic decisions about what to include – and, as importantly, what to exclude. This drive to keep materials well curated led her team to create *News & Media Literacy 101* by selecting key resources from the curriculum.

How Designers Imagined Use: P4 emphasized that, for toolkit materials to translate across boundaries, the materials need to appeal to local people in local contexts. She emphasizes that this work is better called "transcreation," rather than "translation," highlighting that such work is a creative act akin to designing something new. P4 explained, "'Transcreation' is taking a piece of content, and it's not just the language translation — you're having to maybe recreate pieces of that content to be culturally relevant." For its U.K. curriculum, Common Sense changed the names of characters, the sports used in examples, and the guidance on media law. "That kind of stuf really matters when you're trying to be relevant to students and teachers. So we tried our best," she said.

In our interview, P4 identifed that adaptation is difcult. By doing transcreation work, she said that Common Sense can reduce the work that practitioners must do when tailoring materials. Such transcreation work can be resource-intensive, however. So far,

Common Sense's videos feature only American children, not British, because video is expensive to create.

P4's explanation of the transcreation process demonstrates a certain conception of toolkit use. Not only did she see transcreation as a necessary part of adaptation when crossing cultural boundaries, she also saw a crucial role for her designers in this work. How Designers Worked with Potential Users: P4 talked about making important decisions about educational materials, such as the length and presentation of lessons. While these decisions require much internal work and thinking, P4 also described how paying attention to the results of extensive consultation and testing helps Common Sense meet user needs. This includes holding focus groups and carrying out UX research. "Most of our website changes come from UX research," P4 said. "We have somebody who meets every week with educators or parents, depending on what we're looking at."

P4 noted how Common Sense also benefts from leading professional development activities with teachers, building long-term relationships that can be leveraged to gather feedback on new materials. This professional development is carried out in many modalities — physically in schools, through webinars, and asynchronously. In addition, Common Sense coordinates with school leadership to help ease adoption. "We have templates that schools can fll out to fgure out, where does news media literacy go? Who teaches it?... How do you make that happen?" P4 said. This approach highlights how toolkit outreach eforts can be highly systematic.

One way that consultation shaped usability was in helping Common Sense provide appropriate levels of detail in its lessons. For example, feedback from users led P4 and her team to develop 15minute versions of their 45-minute lessons. Figure 3 illustrates both of these versions of the lessons in the toolkit. This addition, P4 said, created "a little bit of internal uproar," but she thought the user feedback was critical. "You listen to the teachers. They are saying, I have no time... Well, what are you gonna do? You're gonna provide them what they can do [in that time]." P4's comment suggests a tension for toolkit designers: On the one hand, reaching a broader audience may require abstracting material or making it shallower. On the other hand, seeking to make material more detailed and nuanced may overwhelm some users, shrinking one's potential audience.

What Happened After the Toolkit Was Released: P4 explained that Common Sense actively maintains toolkits by reviewing and updating their website frequently, making adjustments in response to user needs. "Every few years we always want to keep on the pulse. What do educators need help with in the areas that we address?" P4 said. This process is aided by consultations with teachers and school leadership.

One idea P4 shared to reduce the burden of ongoing maintenance involved "evergreening" the toolkit materials, similar to P3's "futureproofng." P4 noted how when the curriculum launched in 2010, it referred to specifc media platforms such as MySpace, in an attempt to be culturally relevant. Two years later, she said, "We found that wow, teachers are writing in saying that's not relevant. You can't say MySpace... My students are laughing." P4 realized there was a trade-of. "You're giving up that level of connection with [the students]." One solution that she uses is the Project Zero approach of invoking "digital dilemmas" with no right or wrong answers. This helps shift the focus from particular technologies to the kinds of problem-solving that can occur across multiple platforms.

As with adaptation, P4's approach to maintenance shows how toolkit designers can support their users. While perhaps teachers could update materials to refect changes in technology, Common Sense aims to make their lives easier by evergreening the content. At the same time, P4 expresses that evergreening is not enough. Keeping toolkits relevant, she indicates, requires user consultation processes to be ongoing, and content updates to keep apace.

4.2 Cross-cutting Findings

Below we complement the narratives of the three design journeys with fndings from all of the interviews we conducted. *4.2.1 Points of Departure.* The three design journey narratives illustrate how toolkits are shaped by many factors. We heard how toolkits can emerge in a variety of contexts with diferent designer positionalities, access to resources, and motivations. Examining our interviews more widely, we observe how toolkit designers can have various professional roles: master's or doctoral students, like P3, P5, or P16; professors, like P2 or P10; nonproft organization employees, like P4 or P19; even an editor at a large daily newspaper, like P15. By examining how participants were situated, we see that the three journeys we described exemplify wider patterns. Some toolkits began like P19's did, as smaller group or even solo eforts, driven by the passion of one or a few designers. For example, P1's toolkit for helping librarians make restorative spaces was part of her dissertation work, and stemmed partly from a "recurring desire to be of service to this feld." Other toolkits can have greater material resources. This was exemplifed by P15, an editor at *The Learning Network* at *The New York Times*. She described how their toolkit creation eforts were supported by staf who vetted "millions of [website] comments" and judged upwards of 16,000 contest entries from children each year.

Our participants also shared how the histories of their toolkits can be complex and layered, both enabling and constraining their design work. For example, P8 described how the materials for the *Media Literacy Toolbox* came from several diferent projects over multiple years, but only came together once the organization found additional funding. "We had to wait for stars to align," P8 said. Similarly, P20 described the 20-year evolution of Project Look Sharp's "curriculum kits": from VHS tapes, to PDFs that were hundreds of pages long, to targeted and searchable web-based resources. These examples highlight that toolkits seldom have one single starting point. Rather, they come about through a slow and long-term accumulation of ideas.

4.2.2 How Designers Imagined Use. In the three design journey narratives, participants refected on what it meant for users to use their toolkits. Here, we elaborate on these diferent views of use, drawing on interviews with all of our participants.

We found that participants employed diferent metaphors for their creations, instead of or in addition to the term "toolkit." These included prism (P3), toolbox (P8), feld guide (P1, P11), roadmap (P14), recipe or recipe book (P11), and case study (P5). Several participants suggested intentionally choosing these metaphors to convey certain ideas. For example, P1 described her process of deciding on "feld guide":

> "I really struggled for a metaphor before it was a feld guide. What is it? Is it a toolkit? Is it a toolbox?... I went with 'feld guide' because it sort of matched the academic lineage of fnding environments, going to environments. So I went with that. That was a choice I made" (P1, Library Workers' Field Guide).

More broadly, participants suggested these metaphors can help orient their thinking about more open-ended toolkit use, and about supporting users in such use. For example, although P5 and colleagues explicitly framed their work as a co-design toolkit [80], they also thought of it as a "case study": a demonstration of an idea. As P5 explained, "Toolkits are useful as an inspiration, but should not prevent individual people from thinking for themselves and trying to find the best configuration that suits a specific context." In this view, P5 implies that one way to use a toolkit's material is as creative inspiration — unexpected and open-ended in ways that should not be circumscribed by the designer's imagination. P11 also aimed to inspire users, in the manner of a "recipe book." This metaphor suggested other ways of thinking about how toolkits might be used and appropriated.

> *"One of the biggest inspirations was the recipe book, because it's something that you can replicate, modify, you can change your ingredients. But still, you have sense about the process"* (P11, Field Guide to "Fake News").

P11's comments can help us appreciate how recipes have dual implications when it comes to use. On the one hand, a recipe is a set of concrete, ordered steps, implying a certain amount of direction, or "sense about the process." On the other hand, as P11 explains, recipes let users "change ingredients," making adaptations to accommodate local circumstances.

This example speaks to the idea that designers can actively scaffold users in thinking about the application of toolkit materials to their own contexts. P11 was not the only participant who indicated how they might account for their toolkit's "travel." We can also recall P4's (from Common Sense) idea of "transcreation." Similarly, the *ConnectedLib Toolkit's* modular design was a way to allow users to choose from a menu of options, allowing for user appropriation. This is comparable to the experience of P8 (*Media Literacy Toolbox*), who recalled designing her toolbox to allow users with more knowledge to jump in at later points. Thus, P8 said, she was "quite intentional about choosing 'toolbox' because...it was not as integrated as some toolkits are in terms of walking a user through a series of resources."

Aligning with Ledo et al. [44], participants alluded to the difficulties that these open-ended forms of use pose for efforts to conduct formative or summative evaluation of their work. Several participants expressed that it was difficult to understand how their toolkits were being used, and that most of the evidence they had was anecdotal. P11 said, "I really regret not [implementing] an accurate evaluation on how people were using the field guide... for understanding better if what we were trying to convey really happened." Other participants, such as the designers of the *ConnectedLib Toolkit*, pointed to how tracking and measurement are always difficult in the real world. P10 (*Mind Over Media*), meanwhile, described how problematic she found the requirement of "fidelity," which is often stipulated by federal funders in education. She explained, "If you do not include a measure of fidelity, you don't get funding because they're not going to fund a project where any teacher could do it any way they wanted." P10 said she saw fidelity as a "fucking fiction" because it did not see teachers as creative professionals — as designers — who determine what works best for their own classrooms. She said of her own team, "We value that... We don't play the fidelity game."

Some participants suggested that one way to support both creative use and evaluation was to co-construct a community of users alongside the toolkit. We can recall the examples of how the ConnectedLib and Common Sense designers did this, through an online festival and through professional development for teachers. We heard similar accounts from P20 and P1, who ran frequent workshops to gather feedback on what community members thought of their toolkits, and on how they were appropriating them. We will further examine community co-construction in the next section.

4.2.3 How Designers Worked with Potential Users. As the preceding section shows, grappling with difficult aspects of design can require turning to the users. In fact, all the designers we spoke to carried out some degree of user consultation. Working with users took a number of forms for our participants. Some, such as the *AEKit* designers, used focus groups. P11 used design sprints, while P7 (*Designing Technologies for and With Children*) and P9 (*Digital Civics Toolkit*) described classroom observation. P10's user base tried out toolkits and reported back on their experience in webinars. Describing a variety of creative approaches, P18 (*Not a Toolkit!*) recalled, "Once the roundtables were done, we also had a lot of interviews that we took online one-on-one, we had surveys and we used a video survey... and the user testing... many of those actually happened in person all over the world."

Meanwhile, for designers such as P4 of Common Sense Media, user-led work often took the form of professional development and training. P9 explained how her project fostered "professional learning communities." In these communities, teachers developed and sometimes even published their own curricula, and the toolkit designers attended community meetings to help inform toolkit development, "learning alongside teachers." Participants including P10 and P20 also described soliciting toolkit materials directly from teachers. P15 told us that during the early years of COVID-19, when *The Learning Network* used outside funding to designate 100 teachers as *New York Times ambassadors,* "I don't think there was anything we published in 2020–2022 that wasn't in some way [from the teachers]."

Something many of these designers had in common was their description of these activities as community-building. This portrayal of users as "community" often demonstrated both the type of relationship designers sought to cultivate, and their perception of those on the other of the toolkit. P14 of the *AEKit* emphasized that his team's approach involved treating the community as their "epistemic equal," and learning from and with them, instead of treating the designer as the external expert. Participants said that working with communities in this way helped them to better understand user needs.

At the same time, our participants emphasized that co-constructing a community also brings challenges. P17 noted that, "the academic timeline and prerogatives feel misaligned with what [local] organizations need, which isn't always a design artifact...that doesn't get easily sent to CHI." P17's quote shows us an important trade-off toolkit designers contended with while doing long-term communitybuilding work. Several participants also talked about the challenge of building trust with the community. P1 recalled a difficult situation, when one of her workshop participants started crying. In this moment, P1 realized she had to decide whether to continue with the normal workshop programming, or to "pursue this heart space that builds trust and actually has integrity." Prioritizing trust, she chose the latter.

Another issue was the emotional challenge of learning that material one has labored over simply isn't working. As P14 said,

> *"There's nothing more sobering and eye-opening than to go and speak to people whose positionalities are quite diferent from your own and have them look at the work you've done and say, 'I don't understand this. I don't know what you're doing'"* (P14, AEKit).

While P14 found himself "chastened" by this sobering experience, he also refected that in the end, such a challenge was itself a beneft to the process, and to the designers: "It's the... experiences of pushback that were probably the most educational for all of us."

A fnal challenge designers refected on was just how much work went into recruitment for the community. For some participants (e.g. P4, P10, P20), their communities grew over time and were then leveraged to support each new toolkit. For others (e.g. P1), creating a toolkit required building a community from the ground up. Highlighting the importance of working with communities, P10 strongly urged us to think about "relationship development as core to the process of toolkit development."

4.2.4 What Happened Afer the Toolkit Was Released. In the design journey narratives, participants told us that their toolkits experienced diferent sorts of endings. Here we bring ideas from the other design journeys to further illustrate, frst, how designers felt about their toolkit endings; second, what they understood "endings" to mean; and third, steps they took to plan toolkit endings and extend toolkit lifespans.

Most participants expressed negative feelings about the postrelease phase of their toolkits. Six of our participants expressed dismay about not knowing how their toolkits were being used, and more yearned for constructive user feedback. P10 (*Mind Over Media*) spoke about how previous eforts had fallen into "a black hole of nothingness." She ofered another metaphor: "It's like dropping it into the ocean, and watching it sink slowly down to the bottom of the sea. You might feel good, your funder might feel good. You have no measurable impact, right?" For some participants such as P12 and P5, the citations accruing to the paper about their toolkit served as a kind of stand-in for the impact of the toolkit. For others, endings provoked more resignation. P5 said, of fnishing his Ph.D. and leaving the toolkit behind, "It is not a pity. Yes, probably it is, but on the other hand, well, it's the way things go." P5's comment reveals some ambiguity, but ultimately a sense that the toolkit had to end because of the change in P5's own role and resources. Some participants expressed having to move on from their toolkits for professional reasons: lack of funding; collaborations ending; or moving on to new job opportunities. Participants like

P18 (*Not a Toolkit!*) and the *AEKit* designers noted that their toolkit had a natural ending point, and that they had moved on. But despite the challenges, some participants said they were pushing themselves to work beyond the confnes of their role. In

the words of P9 (*Digital Civics*) and P13 (*Media Literacy Toolbox*), they often updated the toolkit "on our [their] own time."

When we prompted participants further, we found that they understood toolkit endings in a number of ways. In the simplest terms, most toolkits have a point where they are "released": a PDF

is posted online, a website goes live, or in the case of P16 (*Building*

Utopia Toolkit), a deck of cards is printed. And sometimes,

participants did see these as ending points. But often, they saw toolkits as things that could continue to be iterated. For these participants, releasing their toolkit represented a transition to a new phase in their work: keeping the toolkit alive. For example, P1 explained, "Part of the launch [of the toolkit] is to have monthly meetups to discuss the activities, do them together, iterate upon them, that sort of thing."

At least half of the 20 participants discussed how they considered toolkit longevity while creating their toolkit. One way of thinking about longevity is how to make content resonant over a long time-scale. Like the *ConnectedLib* and *News & Media Literacy 101* designers, who practiced "evergreening" or "future-proofng," P20 also argued for the need to focus on lasting lessons. Meanwhile, a second approach for dealing with post-launch uncertainty had designers drawing on their community relationships. For example, P10 (*Mind Over Media*) said that the "black hole of nothingness" was what drew her to change her group's approach, so that it would focus on professional development activities. For P10, not only are these materials more likely to be used because of how they were developed, but such activities allow for active monitoring of use. Similarly, P1 talked about how her monthly "meetups" helped her community use the *Library Workers' Field Guide.* P1 refected:

> *"I don't want to just release this document and cross my fngers that people will use it and that it will remain relevant... It is nothing without being used, unless it were to be maybe a statement, let's say. But that's not what it's there for. It's there for people to actually repair a bit, heal a bit"* (P1, Library Workers' Field Guide).

Here we see P1 leveraging the community she has created to help ensure toolkit use, and in turn, to help address her motivations for creating the toolkit in the frst place. We see how thinking about the toolkit's end-stages helps P1 fulfll the promise she held out for the toolkit in her points of departure. In this way, P1's refections help bring our toolkit design aspects full circle.

5 DISCUSSION

At this point, we have presented narratives about the design of three toolkits, and cross-cutting fndings based on the entire set of 14. We see these empirical contributions as working towards a theory about the work involved in making educational and activist toolkits. To this end, we discuss three considerations for designers and scholars who want to achieve impact by working on such toolkits.

5.1 Consideration 1: What Happens Once the Toolkit is Released

Our fndings suggest that it can be helpful for design teams to consider how long they want their toolkit to persist, and discuss how best to prepare for that. Some of the toolkits we examined, such

as the *Library Workers' Field Guide, ConnectedLib,* and *News & Media Literacy 101,* were released many months, or even years ago, but the journey of designing them — of making materials more relevant or better organized — continues. In keeping with this, over half of our 20 participants mentioned that maintenance and longevity had been concerns during toolkit creation. For instance, both P4 from our third design journey, and P3 from the *ConnectedLib Toolkit,* explained that planning for longevity early on

can allow teams to curate content to be more evergreen, thereby reducing subsequent maintenance burdens. To be clear, these post-release plans can be humble. For P18, P19, and the designers of the *AEKit,* toolkit release marked an ending, and an opportunity to move on to new beginnings. Their perspectives remind us that not every project can, or even needs to, be maintained. If toolkits risk fattening local diferences [12, 51], there is something prudent in designing them for a particular time and place, and letting them eventually fade away to make room for the next thing.

Exploring the merits of such ideas requires a better understanding of the ethics of 'leaving' or 'winding down' toolkits. If we opt to understand this post-release phase as a moment of technology handover, we can draw upon several lines of work for guidance — from the literature on building communities through participatory design [7, 20, 33, 47, 79], to maintaining open-source software projects [15, 28, 37, 73], to sustaining civic-technology projects [31, 76]. The latter body of work, for example, teaches us that effective handovers require building on accessible technologies from the start, consulting with users about how much ownership they want over design post-release, and proactively training those users in the skills needed for maintenance [76].

Our fndings reveal that toolkit designers are already engaging in such relational work. For example, we learned about eforts such as the ConnectedLib Fest [43], P1's meetups after releasing the *Library Workers' Field Guide,* and P10's extensive use of webinar events [42] to cultivate a professional learning community. These eforts can help us see toolkits as not just collections of materials, as they often are, but also as sociotechnical systems that involve human relations, infrastructures, and (per Dantec and DiSalvo[16]) the work of "constituting publics rather than products." This view suggests several opportunities for future work. Our paper has documented how a sample of designers approached the post-release phase of toolkits, but future studies could examine this phase more specifcally to help develop better practices and explore the relationship between toolkits and the publics they constitute. For example, we could ask: Are there particular infrastructures that researchers could create (e.g., alternatives to GitHub?) to support designers working on toolkits with communities?

5.2 Consideration 2: What It Means to "Use" the Toolkit

Before a toolkit can be released, however, there is the work of designing to support use, and the concurrent work of envisioning that use. Designers can make better decisions (e.g. around structure, content, and the burden of maintenance) by interrogating their assumptions about toolkit 'use.' For example, if 'use' involves creative remixing, it can be helpful to design content that highlights what might be easily substituted and what might be risky to change. However, our fndings suggest that understanding such 'use' can be conceptually difcult. We heard our participants grapple with this by deploying a range of metaphors, such as a roadmap, a prism, a recipe, and a menu. These metaphors point to at least three views of 'use': adhering to toolkit materials closely; adapting them to circumstance; or letting them serve as inspiration. Our participants described trying to accommodate these diferent approaches; all too often, however, they found that they lacked a clear idea of what users actually did with their toolkits in real-world settings. This made it difcult to assess the efcacy or impact of their designs. Aligning with Ledo et al.'s [44] observations, participants also highlighted that some methods of

evaluating usability and efcacy can undermine the contributions of educational and activist toolkits. For example, P10 expressed frustration that funders often evaluate toolkits with the assumption that certain types of users - e.g., high school teachers - follow toolkit materials like a script, without any modifcations. She stressed that in reality, designers seldom have visibility into how users appropriate toolkit materials.

These fndings highlight that researchers need to investigate and interrogate what people do when they use toolkits. The metaphors and ideas shared by our participants can be an important starting point. Specifcally, they help foreground the emotional and creative aspects of toolkit 'use,' such as inspiration or remixing. From this starting point, deeper investigation might help us develop better usability testing methods that account for these aspects of use. Here, we see value in enlisting and extending the arguments of scholars who have theorized diferent forms of use, such as Bijker's [5] work on interpretive fexibility, Redström's [66] notion of design after design, and Dix's [21] concept of appropriation. Their work can help us develop a richer vocabulary around toolkits based on different forms of use. They can also provide guidance. For example, Dix [21] has ofered several useful principles for designers to help them account for appropriation in their work, such as prioritizing modularity, exposing intentions, and encouraging sharing. Our research highlights how these principles intersect with toolkit design, particularly in the educational and social justice space.

5.3 Consideration 3: The Toolkit's Points of Departure

Our last consideration has been implicit in the previous two. How designers approach the post-release phase of their toolkit - or support diferent kinds of use - is inevitably shaped by their points of departure. These points include the designers' positionalities, existing connections, available resources (including but not limited to funding), and motivations. This, we feel, was implied in all our interviews as participants shared aspects of their journeys with us — such as building a toolkit out of a deep desire for cultural change, having to move on from toolkit projects for professional reasons, designing a toolkit alone under tight deadlines, or scrounging for resources to keep a toolkit alive for over a decade. Social and activist toolkits can be presented as authoritative solutions to problems [51], but our fndings remind us that they are designed by those who have their own perspectives on what is important and on which problems need to be solved, as well as material limitations that constrain what they can achieve.

It can be particularly valuable for future toolkit designers to refect on their position in relation to the community for which they are designing the toolkit. For example, P19's discomfort around centering themselves as an expert highlights a tension between listening to a community's expertise and producing something that confdently supports that same community. Such tensions support Mattern [51], Petterson et al. [61] and Wong et al.'s [83] calls to think through the politics of toolkits: the issues of what is considered more or less important, and of who is prioritized. But our participants' journeys also remind us that simply being told what to refect on is not the same as skillfully solving issues identifed through said refection — or creating the kinds of structures that make such refection possible. So this consideration is also an invitation to HCI researchers to think about how we might draw on research about designing in refexive and thoughtful ways [1, 22, 27, 47, 70]. For example, Vink et al. [81] note that refection

on design itself creates political implications that require further unpacking, through questions about such contested notions as "the good" and situated knowledge. Perhaps the range of starting points we noted in our findings can help other toolkit designers identify assumptions relevant to such questions, giving them a stronger basis for reflection on their community engagements.

As a final point on the politics of toolkits, we make this closing observation: Not only can toolkit designers benefit from reflecting on the work and politics of toolkits, so can the HCI research community. We are struck by how our participants worked to not only create their toolkits, but also to cultivate the relationships necessary for impact, even as they noted how such work can go unrecognized in academia — or as P17 pointedly said, "doesn't get easily sent to CHI." An implication here is that it might be useful for us as a scholarly community to rethink how we evaluate, and possibly even encourage, these kinds of translational contributions. This aligns with recent conversations about the growing need for our research community to improve how we review toolkit contributions [82], and more broadly, about how we think and talk about labor in HCI [75]. On one level, this has been part of our aim with this research: exposing features of translational work, hidden to us under normal conditions, that might benefit from more serious consideration of ethics, practical aspects of toolkit design, and community needs. By attending to some of the ideas put forward by our participants — e.g., seeing educational and activist toolkits as a site of community building — researchers in this space might be more innovative and understanding of such work. Doing so can help us bridge research and practice in more meaningful ways.

6 CONCLUSION

In this paper we considered the experiences of 20 designers of toolkits, an important means of transferring knowledge between practitioners. This analysis helped us address the question: *How do designers of educational and activist toolkits understand their own work, and what considerations emerge inside of that work?* Our answers help us move toward a theory of the work involved in making such toolkits. Through three designers' journeys, as well as cross-cutting findings, we show how this type of toolkit design work is shaped by points of departure, how designers imagine use, how they think about their toolkit's afterlife, including updates and maintenance, and how they work with potential users. We discuss our empirical data to offer considerations for toolkit designers, such as having an intentional plan to continue or discontinue their toolkit, considering how (if at all) to support appropriation, and reflecting on their relationship to community. Similarly, we have provided considerations for researchers, highlighting opportunities to investigate the ethics of winding down toolkit projects, support greater reflexivity in toolkit design, and explore better evaluation methods. We conclude with an appeal for the HCI community to revisit how it values the work of making toolkits.

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