Community Collectives: Low-tech Social Support for Digitally-Engaged Entrepreneurship

Julie Hui[1], Nefer Ra Barber[2], Wendy Casey[2], Suzanne Cleage[2], Danny C. Dolley[2], Frances Worthy[2], Kentaro Toyama[1], Tawanna R. Dillahunt[1]
University of Michigan School of Information[1], Eastside Community Network[2]
Ann Arbor, MI; Detroit, MI USA
juliehui@umich.edu, barberbiz@yahoo.com, wendylcasey@gmail.com, suzannecleage0@gmail.com,
arrendayl.dolley@gmail.com, worth23karat@yahoo.com, toyama@umich.edu, tdillahu@umich.edu

ABSTRACT

With the rise of social media, entrepreneurs are feeling the pressure to adopt digital tools for their work. However, the upfront effort and resources needed to participate on these platforms is ever more complex, particularly in underresourced contexts. Through participatory action research over two years in Detroit's Eastside, we found that local entrepreneurs preferred to become engaged digitally through a community collective, which involved (a) resource-connecting organizations, (b) regular in-person meetings, (c) paper planning tools, and (d) practice and validation. Together, these elements combined to provide (1) awareness and willingness to use digital tools, (2) regular opportunities to build internet self-efficacy, and (3) ways to collectively overcome digital obstacles. We discuss our findings in the context of digital engagement and entrepreneurship, and outline recommendations for digital platforms seeking to better support economic mobility more broadly.

Author Keywords

Entrepreneurship; Digital Divide; Digital Literacy; Participatory Action Research, Qualitative Methods, Community Informatics

CCS Concepts

•**Human-centered computing → Human computer interaction (HCI)**;

INTRODUCTION

In 2019, one in three Americans reported participating in small-scale entrepreneurship through side gigs, largely in part due to the diminishing availability of long-term stable employment and shift towards on-demand labor [28, 97]. In order to support this growing entrepreneurial way of working, digital platforms have begun to implement new approaches to engaging new users. Recently, Facebook pledged to "train 1 million people and small business owners" through their online initiative "Learn with Facebook" [3]. YouTube provides an online "Creator Academy" where they scaffold the process of building a channel through "Boot Camps" [7]. Airbnb Experiences, where locals host short activities like cooking classes, provides an online resource center with general tips, like how to take high quality photos and write an event description [1].

Despite these efforts, there still exists a stark digital divide in who is able to benefit from the "democratization" of digitally-enabled entrepreneurship [21, 50, 90]. Previous work finds that digital tools for entrepreneurship disproportionately favor those with pre-existing advantages, such as a strong social capital, self-efficacy, and communication skills [21, 90]. In addition, participation on digital platforms is ever more complex with respect to technology access, algorithm awareness, property ownership (i.e. car, store), and insurance [13, 14, 21, 43, 69, 72, 88]. In effect, entrepreneurs with limited avenues for learning about these requirements are burdened with both navigating how to use these platforms while also securing the myriad resources needed to participate.

Previous work on supporting digital engagement among under-resourced populations has focused on analyzing design methods [46], outlining opportunities for technology [21], and implementing new technology [64]. Unlike this previous work, we studied the introduction and adoption of existing digital platforms among entrepreneurs in under-resourced areas where expertise networks are limited and the work is isolating [37, 95]. Specifically, we build on prior work emphasizing the importance of social support in motivating digital engagement [84, 100], thus informing the following research questions:

- **RQ1:** How does social support facilitate digital engagement for entrepreneurship in under-resourced[1] communities?
- **RQ2:** How can local communities leverage their existing assets to provide social support for digitally-engaged entrepreneurship?

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[1]Community members were asked how they preferred to have their socio-economic status described. They chose "under-resourced," which we use throughout the paper.

We define *digitally-engaged entrepreneurship* as small-scale entrepreneurship (i.e. involving <5 people [36]) that might benefit from engagement on digital platforms like social media for marketing (e.g. Facebook, Instagram), event management platforms to sell tickets (e.g. Eventbrite), and gig work platforms to connect with new customers (e.g. Airbnb Experiences).

Following participatory action research principles of working "with" rather than "for" communities, we aimed to uncover how entrepreneurs in under-resourced communities *preferred* to become digitally-engaged, rather suggesting or assuming interventions [56, 65, 76, 77]. We performed a 2-year long study involving a collaborative team of university researchers, local entrepreneurs on Detroit's Eastside, and a local non-profit (Eastside Community Network). Residents perform entrepreneurship by designing and running educational tours of Detroit's local history and culture.

We found that in order to support digital tool use for entrepreneurship in under-resourced areas, there must be an on-going and available ecosystem of social support. In our study context, this took the form of a *community collective*[2]. The process of co-developing the community collective surfaced four primary elements: (a) resource-connecting organizations, (b) regular in-person meetings, (c) paper planning tools, and (d) practice and validation (RQ2). We then provide qualitative evidence through interviews and observations for *how* these elements combine to support (1) awareness and willingness to use digital tools, (2) regular opportunities to build internet self-efficacy, and (3) collectively overcoming digital obstacles (RQ1). We discuss these findings in relation to prior work on digital engagement and entrepreneurship in HCI and conclude with implications for how under-resourced communities and digital platforms could apply these elements to support a more inclusive and sustainable approach to digital engagement for entrepreneurship.

LITERATURE
Our research is motivated by previous work on the barriers to digital engagement that under-resourced communities face. In this section, we motivate why it is important to study digitally-engaged entrepreneurs in HCI and outline challenges the study population might face. We then present opportunities for building on related work about how social support can foster digital engagement.

Becoming an Entrepreneur in the Digital Age
With the growing shift toward on-demand labor and fewer opportunities to acquire long-term stable work, workers are increasingly having to "self-entreprenuerialize" to make ends meet [97]. Small-scale entrepreneurship (e.g. side gigs, side hustles, micro-businesses) provides a way to generate supplemental income, buffer against potential layoffs, and prepare for unexpected financial crises [50, 97, 99]. Yet, entrepreneurship is not easy, and involves creating one's own employment opportunities by acquiring needed resources, connecting with mentors, and making short- and long-term plans [95]. In addition to these myriad tasks, entrepreneurs today are also

increasingly expected to learn about and navigate the complex digital landscape of social media [49, 50, 90]. In many cases, this involves investing upfront labor and resources just to participate. Both Gina Neff [79] and Brooke Erin Duffy [31] describe how people take on increasing risks and invest additional time and resources to strive toward professional aspirations, whether through creative pursuits or joining a startup. Duffy refers to this as "aspirational labor," which might include activities like quitting one's job in hopes of becoming a social media influencer full-time. However, this behavior has primarily been studied among middle-income populations who can take on financial risks by relying on personal savings or family support [31, 39, 79].

Our study is less about entrepreneurs who are currently digitally engaged, as covered in this previous work [12, 21, 51, 50, 89], and more about people contemplating entrepreneurship but face barriers of entry as far as technology and other resources are concerned. For instance, in order to crowdfund, project creators are often expected to invest in high quality marketing material and provide an existing proof-of-concept to succeed [50, 52]. Yet, the ability to do so is often contingent on one's socio-economic status and strong within-network wealth and knowledge. We study these barriers to digital engagement in the context of local entrepreneurship, which we define as the process of creating and recombining local resources with the intention of making a profit [95]. In the case of under-resourced populations, the upfront costs to perform local entrepreneurship can be a huge financial burden.

Digital Engagement in Under-resourced Contexts
Barriers to online participation have been studied in various income-generating activities. For example, while job-search platforms aim to make the job application process easier, many users have never written a digital résumé or know what to include, which leads them to abandon these platforms prematurely [104]. Massive Open Online Courses (MOOCS) hope to democratize career development, but are often inaccessible to users in under-resourced areas [25, 26]. In the case of MOOCS, under-resourced populations are interested in participating if they are aware of the platforms and benefits they could offer [22]. Yet, the majority of MOOC users continue to be higher income, suggesting limitations to existing pathways of engagement. For instance, perceptions of digital tools and risks to engagement deter digital participation among groups who face greater socio-economic risk [45, 50, 55].

Many solutions to supporting digital engagement proposed by industry [1, 3, 7] still assume basic ability and motivation to use these tools, thus creating invisible barriers to fruitful technology use in under-resourced contexts [105, 106]. Few have outlined approaches to digital engagement for professional work outside of formal education [59, 80], traditional workplaces [57], or international development contexts [78, 107]. Yet, digital skills are seen as critical for the social and economic development of under-resourced communities [18, 23, 48, 104]. Researchers are now calling for greater attention to be paid to supporting more advanced digital skills, like being able to build professional networks online and strategically using different tools [101, 102, 107].

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[2]Community members decided on the term "collective" because it described "people coming together to build something together."

The majority of this work has occurred in the information and communication technologies for development (ICTD) space, where researchers have explored setting up tech centers as a way to provide informal access to Internet and computers [60, 85], only to find that people were primarily motivated to socialize online rather than perform "professional" activities, like taking online classes [17]. Such studies have focused on areas of the Global South where basic technology access and expertise are considerably limited [78, 107]. Conversely, we explore the use of digital tools in one U.S. city in the Global North where impacts of the digital divide are less extreme, but still highly salient [10, 24, 82, 104]. Despite broadly used labels of Global North and Global South, an understanding of how local neighborhood- or city-level wealth influences digital engagement in both regions is critical for taking a more nuanced approach to HCI research in under-resourced contexts around the world [12, 50].

Social Support and Digital Engagement
While previous studies of tool use for professional purposes primarily focused on the "digital" aspect of these skills, such as learning typing to create reports [87], our work focuses on understanding how to support the surrounding social and cognitive capacities intertwined with effective use of these technologies. These skills include determining which technologies are appropriate given one's goals and level of resources.

Previous work highlights the importance of sense of community and social inclusion in motivating digital engagement [84, 100]. However, marginalized users are less likely to engage online if they do not perceive the platform to be "for them" [15, 104]. Psychological factors, like internet self-efficacy [34], are critical in motivating people to consider adopting digital tools [61]. While previous work has focused on fostering *online* connections between people to motivate online engagement [15, 62, 68], we focus on the role *offline* connections play given the importance of in-person relationships in generating trust in under-resourced contexts [24]. Previous work finds that under-resourced groups are more likely to rely on their local social network of family and friends to build digital skills and self-efficacy [101]. Some of this is touched upon in recent work by Ogbonnaya-Ogburu et al., who describe how digital literacy training for returning citizens should involve the surrounding social ecosystem of family, friends, and employment [80]. Others find that offline engagement positively influences online engagement for activities like local governance [35] and general contributions to online communities [74, 94]. We expect social support to be particularly important for entrepreneurs because the work can be highly isolating during early stages [95], and expertise networks hard to find in under-resourced areas [50].

METHODS
This work was inspired by a previous study to identify the technical and non-technical requirements to performing entrepreneurship, namely small tour businesses, in under-resourced communities [21]. Whereas this previous research identified the importance of social support, it posed future work opportunities to understand *how* such supports could be implemented sustainably. We answer this call by working in collaboration [65] with local entrepreneurs and a local organization, the Eastside Community Network, to identify what existing assets *within* the community could provide social support, and how these supports could be implemented *while actively attending to the preferences of community members*. Participatory action research was used given its emphasis on building equitable partnerships between all entities involved and leveraging the strengths and resources within the community [56, 76, 77]—principles shared by a variety of community-based approaches [27, 29, 54, 44, 40].

As is expected in action research, the research team, involving the community partners and university researchers, were actively participating in the research outcome through an interactive process of planning, acting, and reflecting [47, 77, 86]. In this case, the elements of social support implemented throughout the research process were collectively evaluated and iterated upon to account for evolving goals and preferences. We took "action" with the community partners by collaboratively creating the community collective. Since its inception, the collective has become a change-oriented entity within the neighborhood by creating a mission statement around educating new entrepreneurs, voting on a board of leaders, and developing partnerships with local organizations.

Context
Our research setting was on Detroit's Eastside. According to the 2015 U.S. Census Bureau's American Community Survey, the per capita income on the Eastside is $15,611, the median household income is $25,980 [16], and 84% of students receive free or reduced lunch. The neighborhood is predominantly African American, with disproportionate unemployment rates of 13.6% for African American working-age adults, compared to 5.9% for working-age White adults [11]. In conversations with the Eastside Community Network, entrepreneurship is considered one of their constituents' top interests because it provides opportunities to work on something personally meaningful and make side income. There are at least three entrepreneurial support organizations that serve this area, as well as libraries that offer free entrepreneurship classes through the Small Business Administration. While these organizations primarily support the business side of entrepreneurial development (e.g. how to write a business plan, finding a bank loan), they cite aspects of digital engagement (e.g. how to create and manage a Facebook Page) as a top priority of their constituents. The latter, however, is not yet adequately addressed in their curricula.

Similar to past work [21], we focused on supporting the creation of small neighborhood tours given the minimal startup costs, lack of special training requirements, ability for participants to leverage their unique local knowledge, and opportunity to become a viable income-generating business. The idea of "tour businesses" were seen as a way to regain control over local narratives. By describing the community in their own words, community members were able to shed light on both its assets and complicated history as an educational exercise for tour participants, who came from both within and outside the city.

Community and University Research Team

Local Non-profit. Prior to the start of this study, we established a relationship with a local non-profit, the Eastside Community Network (ECN), whose mission is to "develop people, places and plans for sustainable neighborhood growth on Detroit's Eastside." We first engaged with ECN to ensure that this project reflected the interests of the community. The research idea was shared with the leadership of ECN, during which they provided feedback and agreed to provide a local meeting space. Members of ECN leadership were regularly updated on our progress both in-person and online and were invited to participate in the meetings as their schedules permitted.

Local Entrepreneurs. We recruited participants on a rolling basis from August 2017 onward through open online and offline fliers, emails, and social media posts at least once a month. Seventeen local entrepreneurs attended at least one meeting from 2017-2019, 12 returned after their first meeting, and 6 succeeded in leading profitable tours by September 2018. Some people attended one meeting just to "see what was happening in their neighborhood," explaining the slight drop in attendance for first-time participants. As of April 2019, five others are still in early to mid planning stages. Participants were primarily women (13 F, 4 M), between the ages of mid-30's to mid-60's, and were all African American. All participants either lived or had some form of employment in Detroit's Eastside. All participants knew how to type, had a social media presence (primarily Facebook), and had access to the Internet. Local entrepreneurs chose their own pseudonyms to preserve anonymity.

University Researchers. The university research team consisted of three university faculty members. Combined, our experience spans two decades of research in technology as it relates to employment, socio-economic development, and entrepreneurship. All researchers have taken considerable care to educate themselves on the history of Detroit's socio-economic environment by attending and volunteering for community events, reading local historical narratives, and attending both practice and completed tours. In an attempt to be as transparent as possible, we expressed our motivations for engaging in this research to the local community in an introductory presentation and throughout whenever people inquired. Our motivations broadly included identifying new opportunities for supporting economic mobility through entrepreneurship, and understanding the role technology plays in this process.

Timeline

Participants who succeeded in giving tours typically solidified their tour ideas within two months of initial participation, held their first practice tour within six months, and their pilot tour within eleven months. For example, Casey and Barbara attended their first meeting on Sept. 28. They decided on Nov. 14 to collaborate and give a tour together about urban agriculture based on their mutual interest in gardening. On March 31, they held a practice tour. They started advertising their pilot tour in May via Facebook, Eventbrite, email listservs, and fliers. Then, on June 16, they held a pilot tour, which attracted 43 customers, and sold $1,175 in tickets ($751 in profits due to Eventbrite and bus costs). Overall, six participants led successful neighborhood tours that garnered on average $980 in ticket sales and $500 in profits per tour. The remaining interested participants are in planning stages. Three participants have begun to expand their businesses beyond tours to cooking classes, pop-up dinners, and gardening experiences.

Data Collection

The findings presented in this study represent results from September 2017 to September 2019. We collected data through regular observations of meetings and tours, and interviews with participants. Notes were taken by at least one research team member at each of the meetings. Overall, this included about 100 hours of observation notes. Interviews were performed with nine of the most consistent participants. We asked about their motivations for participation, their experience so far, and what they have and hope to learn. We interviewed five participants about their tour plans and expectations, and after their tour to reflect on their tour results. We audio recorded and transcribed all except two interviews. We took notes, as per participant preferences, for those interviews that were not audio recorded. We also took notes, photos, and videos of the pilot tours and have only used the photo and video data for the tour leaders' publicity material. Tour customers signed a photo and video release form before the start of the tour. In addition, all research activities were reviewed and approved in advance by the university Institutional Review Board.

Analysis

The goals of the analyses were to identify *what* elements of social support were particularly supportive for digitally-engaged entrepreneurship (RQ2), and *why* these elements were proposed and continued to be used by the local entrepreneurs (RQ1). The university research team analyzed observation and interview data through two main rounds of coding. Focused coding, used to identify major higher level themes in the data [91], was used to identify the primary elements of the community collective. These elements form the main themes in the findings. In these sections, we discuss other activities that were tried, but ultimately dropped and why. In the second round, we used evaluation coding, which assigns merit, worth, or significance to elements of a program or policy [91]. We used the data to identify why the elements identified during the first round of coding were proposed and how each was perceived as useful by community members in fostering digitally-engaged entrepreneurship. These themes make up the sub-sections in the findings.

Throughout these coding rounds, the university researchers followed member checking practices [67], which involved iteratively sharing the results of data analysis with the local entrepreneurs and non-profit. We discussed the findings during meetings and in interviews with local entrepreneurs to hear their perspective on whether and why identified community collective elements were (or were not) useful. Both the local entrepreneurs and institutional partners were also invited to read through drafts of the paper and provide feedback to make sure the findings reflected the reality of their experiences.

FINDINGS

The community-engaged research process led to the co-development and implementation of the *community collective* as a way to provide regular social support for entrepreneurship and related digital tasks. The elements of the community collective included (a) resource-connecting organizations, (b) regular in-person meetings, (c) paper planning tools, and (d) practice and validation. The higher level sections outline what community-identified elements of social support were supportive for digitally-engaged entrepreneurship (RQ2). Subsections describe why these elements were proposed and continued to be used by the local entrepreneurs (RQ1). Throughout, we describe how we identified these elements and implemented them within the study context of Detroit's Eastside.

Resource-connecting Organizations

Per participatory action research, university researchers first approached the local non-profit organization to identify mutual interests around community development and economic mobility. We found that the non-profit connection was critical in the sustainability of the collective by attracting new members (via the non-profit listserv, fliers, and general status within the community), connecting them to other resources and partners, and motivating leadership among members.

Ongoing Access to Resources and Connections

It became clear to the local entrepreneurs that being able to use technology for their tours requires a host of other resources that many entrepreneurs from higher-income areas might take for granted. In our study context of tours, one of the primary resources provided through the an organizational partnership was transportation. Tour leaders expressed that few areas of Detroit were walkable given its sprawling nature as a "car city." The challenge of transportation is exacerbated by Detroit's economic history where 81% of businesses left between the 1940's and early 2010's, creating large swaths with little economic activity [8]. In fact, some of the tour leaders' goals were to highlight new businesses in different neighborhoods.

In a meeting with a representative for Airbnb Experiences, one tour leader asked how Airbnb supports transportation for Experience users. The representative suggested using public transportation or Uber. While these modes of transportation may be feasible in more population dense locations with stronger urban infrastructure, most of the tour locations in Detroit were 5-10 minute drives between each other, which could have taken an hour or more by public transportation. While ridesharing applications were an option, they could only hold very small groups of about four people. Travis, who gives historical tours full time explained that he tried giving a small tour with a van, but ultimately the profit he made from such a small group was not worth the time he invested. To identify more affordable transportation options, tour leaders discussed people within their network who might have connections to bus companies. The local organization also offered to contact the bus company they use for transporting local constituents. In the past year, the university partner also worked with the local organization to co-author a successful grant for these transportation costs and provide income for local entrepreneurs coordinating future meetings.

The resources and connections provided through the local organization also helped with sustainability beyond just grants. For instance, tour leaders suggested creating mutually beneficial partnerships with local institutions (e.g. museums) who could provide infrastructural support in exchange for tour expertise. During these conversations, tour leaders expressed that their connection with the local organization would be critical in developing these initial relationships given their social capital in the community. Since these conversations, a local well-known community organization asked Faith to give her music tour for events, in which the organization rented the bus and paid for her tour services. Barbara and Casey were approached by other entities, including a state representative, to give their agricultural tour. Given their growing presence in the community as tour leaders, the local entrepreneurs have started to plan an "Expo" to be held at the local organization community center in order to make connections with tour related businesses, like hotels and transportation companies, as well as to attract potential new members.

Building Relationships with Digital Platforms

Local entrepreneurs realized the benefit of organizations for making connections with digital platforms as well. For instance, organizational partners used their network connections to invite representatives from various entrepreneurial support platforms, such as Airbnb Experiences and a local crowdfunding platform, to speak about how their tools could support the local tours. Following discussions with these representatives, tour leaders pointed out how using these entrepreneurial support platforms could expand their ability to reach wider customer networks, like people "from Europe." When explaining to a new tour leader how tour publicity works, a veteran tour leader described:

> "We used Eventbrite to publicize. [Anon] and [Anon] posted fliers. But, the benefit of Airbnb Experiences is that they are already popular. What's nice is that it is promoted through their ecosystem." -Casey

Even though much of this knowledge could have been learned through just reading the platforms' websites, having a representative visit the community and answer questions specific to their business goals, helped to build trust with the platform and ease concerns about adopting a new tool.

Tour leaders also sometimes asked the organizational partners to make connections with outside organizations to help with publicity efforts. For instance, after overhearing a discussion on how to connect with tourism-related businesses in the city (e.g. hotels), the Director of Neighborhood Growth for the local community organization offered to connect the tour group with the Detroit tourism board, which hosts an active tourism webpage for city visitors.

Regular In-person Meetings

In-person meetings were initially held because the local organization emphasized the importance of offline socialization for building initial connections between community constituents. While we considered switching to call-in meetings once everyone got to know each other, local entrepreneurs continued to push for meeting in person and even requested meetings be

held more regularly. In the first six months of the collective engagement (September 2017 to February 2018), meetings were held monthly. Twice-monthly meetings started in March 2018 and continued into Summer 2019. Options to call in to in-person meetings digitally were also requested and added starting February 2018 to accommodate for people who could not attend in person. Digital attendance to in-person meetings was minimal, but these options were provided whenever someone requested them. By regularly engaging with others working on similar goals, local entrepreneurs were able to develop new professional relationships, share advice and feedback, and negotiate technology use on their own terms.

Building Motivation and Self-Efficacy for Digitally-engaged Entrepreneurship

The majority of collective members described how they considered giving neighborhood tours for years, but never implemented their ideas. They had the desire, and the necessary basic skills to organize tours, but did not take formal steps to implementing their ideas until they met others working towards similar goals. Developing relationships with other local entrepreneurs helped boost motivation and self-efficacy around entrepreneurship, which also influenced intentions around technology use. In other words, local entrepreneurs desired a reason to engage online before doing so.

Early on, the meetings provided a space to express ideas with peers, which helped members crystallize the purposes of their tours and build confidence in carrying them out. Many found that they shared motivations to support the local community by raising awareness around historical knowledge (e.g. Detroit's role in the underground railroad) or current issues (e.g. updating a local park). For instance, Fredrick, who is the president of a public housing complex, shared how he wanted to "empower the [residents] to tell their story." This conversation sparked an entire discussion around what it was like growing up in Detroit, which in turn inspired others' tour ideas. Following that discussion, Dan decided he wanted to give a tour sharing the history of his childhood neighborhood, and Percy decided he wanted to give bike tours of his local park to raise funds for park maintenance. These ideas built on prior ruminations by each person, but it was during the initial meetings that collective members drew on one another's energy and committed to their ideas.

Similar dynamics occurred throughout the two-year period as members continued to provide advice and feedback, develop new professional relationships, and share support tools for carrying out this work. In-person meetings also had expected functions, such as building trust among members, providing support and encouragement, and holding members accountable to monthly or bi-weekly progress. We do not belabor these points, as they are well-established in the literature on team and organizational dynamics [103], but we still highlight them as important.

Overall, regular in-person meetings provided an informal atmosphere that helped increase and sustain self-efficacy month to month, separate from more tangible increases in digital or entrepreneurial knowledge and skill.

Negotiating Technology Use

Perhaps the most visible aspects of the in-person meetings were opportunities to collectively work through both technical and non-technical problems and learn about new tools. For example, one tour leader wanted to visually plan out her tour route, and learned from another member about Google Maps. While the university researchers also knew about this tool, having the advice come from another local tour leader helped make the tool more approachable. Another participant, who had more technological experience and already created her own business website, expressed coming to meetings to learn about additional digital support tools.

> "I want to know [how to use tech] because I just want to...I get a message everyday that somebody's following me on Instagram, and I'm like, 'Well what does that mean?' I don't understand that. I have the book, *Pinterest for Dummies*...I need to know how they mesh. At first, they were saying you should pick three [social media platforms], but nowadays, it's like everybody's doing all of them, you know?" -Barbara

Similarly, Ileen, who has run a tour business for over 20 years using only flyers and her phone wanted to learn how to use Eventbrite and Facebook pages to find new customers. Dan, who hoped to give tours of his local park, expressed that he wanted to learn how to create hyperlinks in online text, so that he could write a blog about different points-of-interest. Soon after, he created a blog using SimpleSite in which he posted pictures of all the signs he wanted to replace using proceeds from his tour.

The meetings provided opportunities to not only learn about technologies, but also collectively work through challenges that were more likely to surface in under-resourced contexts. For example, Casey and Barbara spent ten months planning their Urban Garden Tour before giving the pilot tour in June 2019. After being exposed to Airbnb Experiences, they decided to pivot their business to an "Experience" where they could teach people how to cook. However, when brainstorming potential experiences, Barbara and Casey had difficulty figuring out where to host the Experience at a low cost. They were stuck on this challenge for 8 weeks, until other tour leaders helped them brainstorm potential solutions.

> **Casey:** [The Airbnb Representative] said we should stick with what we have passion or experience in. But, I couldn't figure out what to do without the expensive venue and the 20% [Airbnb] overhead. That's a lot. I looked at Airbnb Experiences around the country and they all had their own storefront.
> **Faith:** So, they had everything already set up.
> **Casey:** But, I don't have that (storefront). If you don't have all that set up, it'll be over $100 [to rent a space per event]. We called commercial kitchens and no one picked up.
> **Faith:** What about schools with cooking programs?
> **Barbara:** My friend said she could let us use her space on the [location].

Figure 1. Example of how a filled out tour idea worksheet was used to inform one local entrepreneur's Facebook Event description.

Following this conversation, Casey and Barbara submitted an Airbnb Experience idea within the next two weeks. These types of interactions happened more frequently as tour leaders got to know each other better.

Paper Planning Tools

While regular meetings sustained personal motivation of collective members, there were also other obstacles to progress that required additional planning tools. We detail one example here, and illustrate how paper planning tools bridged the way to integrating digital tools into one's entrepreneurial practice.

Paper Worksheets to Scaffold Technology Use

During the initial phases of tour planning, discussions at several meetings seemed to go in circles without resolution or progress. Collective members kept sharing ideas with one another, but focused tours and concrete itineraries were not emerging. Collective members often took notes during these meetings on paper journals and notebooks, despite suggestions to keep notes digitally, so as to facilitate easier transitions to Facebook Pages or Airbnb Experiences applications.

Collective members were, on the whole, comfortable typing on a computer, phone, or tablet. But, they reported that they felt documenting their thoughts directly on these technologies seemed too official during the early stages of their work. They wanted to keep their brainstorming "unpublished" until they were ready to share online. They preferred transferring their written words to digital platforms only after their thoughts were organized and solidified on paper (Figure 1).

In response, the university researchers created and provided paper worksheets, developed using iterative design methods typical with developing paper-based scaffolds [58]. The initial designs of these worksheets were informed by how collective members were taking notes already, such as listing out tour stops, and what they planned to say and do at each each stop. The researchers went through 3-4 iterations of the worksheets by soliciting feedback from collective members both during meetings and in interviews, and observing how worksheets were being used. Throughout this process, we found that collective members liked some structure, such as prompts for completing certain tasks (e.g. writing a script) and examples of what content looked like (e.g. example scripts). ECN was also particularly excited about the worksheets because they

saw it as a concrete way to structure and sustain participation in the collective long-term.

In total, five business planning worksheets were developed with the intent to help collective members think through choosing a tour focus, organizing an itinerary, writing a tour script, outlining marketing materials, and determining the budget. Their content was very simple for the most part. For example, the tour itinerary worksheet was a two-column table with one column for listing tour stops and the other column for descriptions of each stop.

Scaffolding Peer Feedback

These worksheets also served as effective prompts to advance tour planning. In the meeting in which the itinerary worksheets were introduced, for example, the conversation quickly focused on specific itinerary stops, logistics, and the content to be shared by the tour guide. By the following meeting, some collective members returned with completed itineraries. Other collective members did not fill out the worksheets they took home, but came back with other materials prompted by the worksheet. For instance, Dan took home a script-planning worksheet, and returned the next week with a physical map book to explain his route, and scrap paper with a written script of what he was planning to say at each stop. Even though he did not fill out the worksheet itself, it had motivated him to think formally about his itinerary. When Faith was ready to create her Facebook and Eventbrite page, she used what she had written on a tour planning worksheet to determine what to type for her "About Me" and event description (Figure 1).

The worksheets also helped structure peer discussion and feedback around one's ideas. For instance, the suggestion to use Google Maps only came about after someone else saw the locations for someone's tour listed out on the tour itinerary worksheet (Figure 2):

> "When we're there at the meeting and actually do hands on, how when we actually mapped out the route. I didn't know that you could do that on MapQuest or Google Maps. I didn't know that you could do it...I would have never known to even ask anybody. It's something simple, but it saves a lot of time for me. I still use it now." -Casey

Overall, paper scaffolds for thinking through the tours played an essential role in breaking through cognitive obstacles dur-
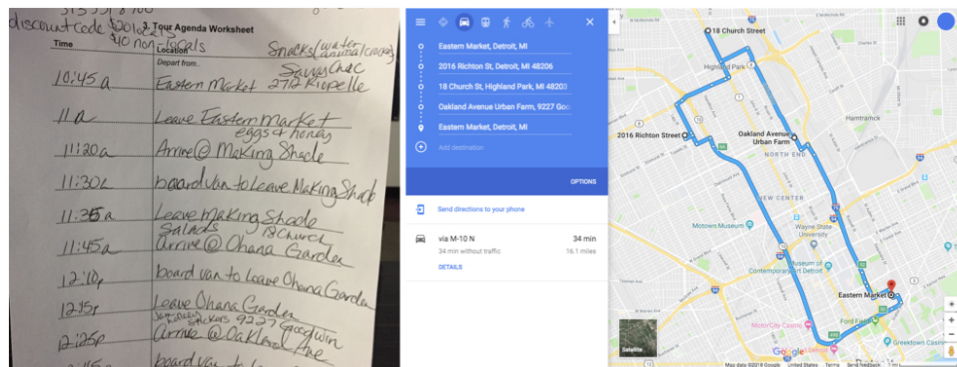
Figure 2. One local entrepreneur only learned about using Google Maps after describing her plans on paper with peers during a meeting.

ing planning, supplying further motivation to attend to the planning process itself.

Practice and Validation
Only after practicing their tour did tour leaders reflect on the benefits of planning and technology use. As described by previous work [50], risk-taking for entrepreneurship is not embraced in resource-constrained communities where there is very little buffer for failure. For these reasons, it was critical that tour leaders had opportunities to see the outcomes of using technology to boost their business activity in a low-risk environment.

> "I had no idea we could make the money that we made...You have to research, you have to plan. You have to get your timing right. You have to publicize, you have to get the people to come. You can do it as a fundraiser for your block club." -Theresa

The pilot tours were the first times tour leaders experienced the reality of their entrepreneurial aspirations. When asked how she felt after her pilot tour, Faith said, "I'm a bad ass woman, that's what." This excitement of carrying out her tour sparked greater motivation to continue planning and participate in learning activities [9]. Faith explained that the tours are only one part of a larger business idea to expand music tourism and education in Detroit. She has since applied to a local entrepreneurial accelerator program to build out her vision. Similarly, Casey and Barbara only started to understand the role of technology in their business after running the practice and pilot tours. They saw that practice tours provided an opportunity to take publicity photos needed to attract initial customers, while publicising and selling tickets on Facebook and Eventbrite helped them attract customers outside their personal network. After their pilot tour, visitors to Detroit found their Facebook Page and arranged private tours of urban gardens via Facebook Messenger. Since then, they have become more invested in trying out other new tools.

While performing and attending practice and pilot tours were one of the biggest motivators for sustained engagement online and offline, it is important to acknowledge how the in-person meetings and paper worksheets were critical in scaffolding the initial preparation for this to happen. For instance, Casey, who had wanted to turn her love of gardening into a business for

the past six years, described how participating in the collective was the first time she had followed through with her business ideas:

> "I think sometimes it's fear that stops me and not just, oh I gained interest in something else. I think it's that I get, what is it called? Paralysis analysis. I over analyze...I'm always starting and never finishing anything and never seeing anything through, so this is the first time since I've become involved in agriculture where everything is all pretty connected...All of my training and workshops and things go to support this work that I do." -Casey

Those who succeeded in giving tours were motivated to continue their entrepreneurial efforts. Theresa and Rosalynne plan to give another history tour, and have already given two practice tours since then. Casey and Barbara are considering giving another urban agriculture tour and planning to host corresponding cooking classes in partnership with some of the farms. Others maintain planning momentum by seeing the success of their peers.

DISCUSSION
This work uncovers how local entrepreneurs create alternative avenues to digital engagement that utilize the social ecosystem of their communities. We show how pathways to online engagement should not just be provided digitally, especially among groups who are initially not comfortable or aware of such platforms [20]. Inspired by calls-to-action to create more inclusive approaches to digital engagement [21, 90, 98], we involved local entrepreneurs and a non-profit directly in a 2-year long participatory action research process to identify how social support aids in digitally-mediated entrepreneurship (RQ1), and what these supports could look like in the local community (RQ2). We contribute to a more nuanced understanding of digital inequality by surfacing community preferences for low-tech approaches to digital engagement.

Low-Tech Social Support Ecosystem
The outcome of this research engagement resulted in the formation of a *community collective*, which includes four elements of what we consider a low-tech social support ecosystem: (a) resource-connecting organizations, (b) regular in-person meetings, (c) paper planning tools, and (d) practice and validation. In this context, we consider "technology" broadly as

"the general tasks, techniques, and knowledge utilized when humans engage in any productive activities" [81]. This definition was introduced by information systems researchers to conceptualize technology beyond just "machinery." The elements presented in this work reflect principles rooted in development frameworks that emphasize equitable partnerships with community members and building on local assets [32, 33, 73, 75].

Our work finds that participation in community collectives provided three main benefits for digital engagement in entrepreneurship: (1) awareness and willingness to use digital tools, (2) regular opportunities to build internet self-efficacy, and (3) collectively overcoming digital obstacles. Below, we discuss these themes and connect them to prior literature in digital engagement and entrepreneurship in under-resourced contexts. Finally, we conclude with concrete implications for the design of social media and gig work platforms to support digitally-mediated entrepreneurship.

Awareness and Willingness to Use Digital Tools
Digitally-engaged entrepreneurship is deeply socio-technical in that the resources and relationships realized online are almost always rooted in offline trust and connections [19]. While previous research finds that people with some technology comfort can go online individually and figure out how to use new tools, this primarily applies to higher educated non-marginalized Internet users [101]. We found that *regular in-person meetings* with others working toward similar goals was essential to foster the antecedents to digital engagement, including awareness of which digital tools to use for what purpose. These activities begin to address ways of building complex digital skills, like deciding what tools to use for different work tasks [90, 101, 102].

For some tour leaders, it took months of hearing about certain digital tools and seeing peers use them before they tried it themselves. In other cases, they expressed greater interest in using digital tools (e.g., crowdfunding platforms, Airbnb Experiences) after meeting with and asking questions to local staff representing these platforms–connections made possible via *resource-connecting organizations*. These observations reflect similar findings in health behavior change, which shows that it usually takes months of contemplation and regular exposure before people feel ready to change and then actually take action [83]. We extend this research to digitally-engaged entrepreneurship. We argue that to support digital tool use in under-resourced areas, there must be an ongoing and available ecosystem of support just to foster awareness and willingness to use technology in the first place. The elements of the community collective helped provide some structure to such an ecosystem.

Regular Opportunities to Build Internet Self-Efficacy
Multiple local entrepreneurs expressed that they wanted to start a tour business for years, had access to Internet and a personal computer, and had basic digital literacy. Yet, not until they participated in the collective did they start exhibiting internet self-efficacy [34] by drafting out plans and transferring them online. Some tour leaders were aware that other entrepreneurs used social media, like Facebook Pages, to publicize their businesses, but not until *regular in-person meetings* did they consider using these tools for their own work. In order to maintain this momentum, opportunities for *practice and validation* through pilot and practice tours were critical in proving how digital platforms were useful in bringing in customers. Similarly, tour leaders knew how to write, type, and come up with tour ideas. But, they preferred outlining and getting feedback on their publicity plans offline using *paper planning tools* before transcribing them online. They were also more likely to share their progress and give feedback in-person before engaging with each other online. This suggests that planning out their ideas offline first where they were most comfortable, helped reduce anxiety around sharing their work with peers and publicly on digital platforms. Similar to existing findings in Global South contexts where technology access is often much more limited [78, 107], we show that paper-based tools and in-person engagement are still preferred mediums to build internet self-efficacy in Global North contexts, like the U.S.

Collectively Overcoming Digital Obstacles
The upfront work and resources needed to participate on digital platforms can be complex and resource-intensive with respect to background checks, insurance, property (e.g., car, home) maintenance, and property ownership [88, 13]. Many digital platforms, like Airbnb Experiences, intended to make entrepreneurship more accessible are still out of reach for those in under-resourced communities because platform use requires "basic" resources, like transportation and space, needed to host experiences regularly.

Previous research on aspirational and venture labor outlines how middle-class entrepreneurs can often rely on personal saved up wealth to make initial investments in these resources [31, 79]. Conversely, we find that in under-resourced contexts, entrepreneurs take a more collective approach in order to participate. *Regular in-person meetings* allowed participants to realize the skills and resources they had as a group. One participant was already an experienced tour guide; another had close contacts with transportation companies; while another had multiple creative ideas for tour themes. Together, they relied on each other's assets to both promote their own tour business and strengthen the collective as a whole. This confirms previous research, which finds that residents of under-resourced communities often work together to overcome socio-economic challenges [30]. Our work shows how these collective activities are also being leveraged to participate on digital platforms for entrepreneurship.

Implications for HCI
Existing tech-mediated supports [1, 3, 7] may foster digital engagement among those with adequate resources and comfort using online technologies. But, in order to encourage digitally-engaged entrepreneurship in under-resourced communities, low-tech community-based avenues of social support were needed to initiate action (Figure 3). We found that involving community members in the research process helped identify locally-available solutions and pathways to sustainability.
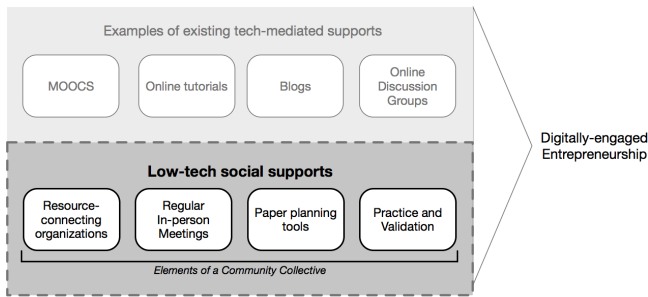
Figure 3. Existing tech-mediated supports (above) may foster digital engagement among those with adequate resources and comfort using online technologies. But, we found that low-tech social support (below) encouraged digital engagement among entrepreneurs in under-resourced contexts.

Industry-Community Partnerships

Digital platforms that market themselves as in support of entrepreneurship, such as Airbnb [1], Facebook [2, 3], and Uber [5], could develop connections with local organizations (e.g. non-profits, advocacy groups) to identify unique challenges to digital engagement in their communities and co-develop structures that make sense locally and long-term. Currently, platforms like Facebook are holding one-off events in different cities to support platform awareness and networking [2, 4]. But, it is unclear whether these events are attracting a representative population from under-resourced neighborhoods or having a lasting impact on digital engagement. Digital platforms could work with local organizations to support *regular in-person meetings* where people share best practices for platform use, while *paper planning tools* could help people outline requirements and seek feedback from local representatives in preparation for online engagement.

Platforms could also foster additional opportunities for *practice and validation*, such as connecting new entrepreneurs to try out and give feedback on each others' services. For instance, Airbnb Experiences could connect aspiring guides with each other to test out their experience flow and hospitality, two key components of the Experiences vetting process. Or digital platforms could encourage local businesses (e.g. transportation companies) to support low-stakes practice runs in exchange for publicity. These activities would not only encourage new and continued engagement on digital platforms, but also build professional social networks within the community.

Fostering Sustainable Cooperatives

HCI researchers have also been exploring how member-owned cooperatives could counteract the power imbalances experienced in emerging entrepreneurship-related contexts, such as in gig work and the sharing economy [38, 63]. Cooperatives allow members to identify issues they experience at work and share resources in order to change socio-economic structures from the ground-up [93]. However, identifying how to foster sustainable cooperatives and engage marginalized communities has been an ongoing question in this line of work [38, 6]. Our study provides one in-depth example of how a collective of entrepreneurs from an under-resourced community leveraged their local assets to organize and engage digitally in a way that worked *for them*. Examples from our data demonstrating efforts towards sustainability include how local entrepreneurs

developed business partnerships with organizations beyond the local organization, incoming requests to give future tours, a community-led leadership structure within the collective, proposed membership funding models, and plans to hold a community event to attract new members and resources. In terms of implications for technology, platforms like Facebook could facilitate the formation of business cooperatives by connecting people setting up business Pages in similar industries and surfacing events where they can meet in person. Such ideas promote designs that help reduce burdens of organizing often placed on marginalized populations [92].

We emphasize that the community collective elements identified in this research could be used for inspiration, but is in no way a set-in-stone template for all other communities. These initial suggestions informed by our research are meant to outline potential opportunities for how digital platforms could tap into under-resourced populations that are interested in using digital tools for their entrepreneurial work, but desire alternative avenues to getting started [24, 41, 66, 96].

LIMITATIONS AND FUTURE WORK

We acknowledge that the community collective elements identified in this study context may not work for other under-resourced communities considering solutions appropriate for one context may be inappropriate for others [53, 70, 71]. While local meetings and the idea of tours were considered normal forms of community and entrepreneurial engagement on Detroit's Eastside, this may not be the case in other places that are not based in cities [42], or have different ways of organizing and communicating. This collaborative investigation is an initial attempt at outlining elements needed to support digitally-engaged entrepreneurship. We encourage other researchers and practitioners to continue testing out these elements in their community contexts to identify other case studies and opportunities for improvement.

CONCLUSION

If we are to believe that digital platforms can enhance the work of entrepreneurs, we should pay as much attention to the socio-economic factors involved in what it takes to become engaged online. In this study, we seek to provide a more comprehensive understanding of how to support digitally-mediated entrepreneurship in under-resourced contexts. Through a participatory action research approach, we co-develop the concept of a community collective, which involves (a) resource-connecting organizations, (b) regular in-person meetings, (c) paper planning tools, and (d) practice and validation. Together, we find that these elements provide the combined ongoing social support needed to foster (1) awareness and willingness to use digital tools, (2) regular opportunities to build internet self-efficacy, and (3) collectively overcoming digital obstacles.

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