Routledge
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Cognition and Instruction

ISSN: 0737-0008 (Print) 1532-690X (Online) Journal homepage: http://www.tandfonline.com/loi/hcgi20

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To cite this article: A. Susan Jurow, Leah Teeters, Molly Shea & Erica Van Steenis (2016) Extending the Consequentiality of "Invisible Work" in the Food Justice Movement, Cognition and Instruction, 34:3, 210-221, DOI: 10.1080/07370008.2016.1172833

To link to this article: http://dx.doi.org/10.1080/07370008.2016.1172833

COGNITION AND INSTRUCTION
2016, VOL. 34, NO. 3, 210–221
http://dx.doi.org/10.1080/07370008.2016.1172833

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Extending the Consequentiality of "Invisible Work" in the Food Justice Movement

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ABSTRACT

Questions regarding what is consequential for communities are critical for the study and design of learning. Answering these questions requires knowledge of how the social world functions to make certain ideas, practices, and identities visible and potentially valuable. In our longitudinal, participatory design research project, we work with a group of resident-activists seeking social justice for their historically marginalized community. Our aim was to develop new tools (e.g., a software application) and understandings that could make learning consequential. Without making the differential scales of influence and values of participants' work visible, possibilities for consequential learning—learning that extends across multiple positions and perspectives in practices such as community organizing—would be limited.

Questions regarding what is consequential for communities are critical for the study and design of learning. Answering these questions requires knowledge of how the social world functions to make certain ideas, practices, and identities visible and potentially valuable. In our longitudinal, participatory design research project, we work with a group of resident-activists seeking social justice for their historically marginalized community. Following Star and Strauss (1999), in this article we trace and make our work with our study partners visible. Our aim was to develop new tools (e.g., a software application) and understandings that could make learning consequential, which we define as meaningful action that extends across temporal, social, and spatial scales of practice (Hall & Jurow, 2015). Without making the differential scales of influence and values of participants' work visible, possibilities for consequential learning—learning that extends across multiple positions and perspectives in practices such as community organizing—would be limited.

Many of the residents of South Elm,[1] the urban neighborhood where we do our research, face food insecurity, meaning that they have few options in their immediate neighborhood for buying healthy and affordable food. Since 2009, the nonprofit organization, Impact, has been working with residents to address issues of food access and justice across multiple scales of practice. At the local level, they have established a community-based agriculture program. At a broader level, they participate actively in discussions about city, state, and national policies related to the future of U.S. agriculture and how it can better serve low-income and marginalized communities of color. The organization has also developed strategies, including a community-supported agriculture buying club and plans for a resident-owned food cooperative, that are aimed at offering a viable economic alternative to industrial agriculture.

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[1] All proper names are pseudonyms.

A key component of Impact's approach to working with residents for social change is their *promotora* model. The model is an adaptation of the traditional *promotoras de salud* community health worker model. It originated in Latin America with the aim of connecting communities with inadequate access to health care to appropriate resources. The approach, like community health worker models across the world, was developed to build on the shared cultural traditions, linguistic practices, and value systems between community members with limited resources and lay health workers (Siraj, Shabham, Jalal, Zongrone, & Afsana, 2010). This traditional model of using community members to broker between health care institutions and local residents has become the foundation for Impact's health, environmental sustainability, and equity-focused community interventions.

The founders of Impact are two White men who, although they are from outside of the community, have a deep commitment to working with the residents of South Elm to improve their opportunities. Recognizing their positionality and building on their extensive knowledge of community organizing, they purposefully chose the promotora model to guide Impact's work with South Elm's majority Mexican immigrant community. Impact has modified the promotoras de salud model to focus on supporting community members in designing, developing, and tending their own backyard vegetable gardens. The 10 promotoras who are staff at Impact are Mexican immigrants hired because of their gardening talents and desire to work in the community.

In 2014, Impact's gardens produced 30,000 pounds of fruits and vegetables. The neighborhood now has 300 gardens and a waitlist with over 100 residents who want an Impact garden, which includes an irrigation system, seeds, seedlings, and the support of a promotora throughout the growing and harvesting season. As a result of Impact's success, backyard garden participants will have the option to sell their produce to the city's first community-run food cooperative, for which Impact has secured funding and a physical space in the neighborhood. These efforts have not only increased residents' access to healthy foods, but they have also expanded the broader movement for food access and social justice within the city. Impact is now creating innovative forms of community infrastructure to address the systemic issue of food deserts in a community-generated and beneficial way.

These highly visible transformations in the neighborhood are grounded in the less heralded work that the promotoras do to cultivate thriving vegetable gardens and a sense of community among residents. Promotoras design, prepare, and maintain gardens in backyards with residents, some of whom have never grown vegetables and others who have a wealth of experience with farming. The success of the gardens is key to the social relationships that the promotoras have been able to develop with residents. Significantly, it is the promotoras who handle on-the-spot contingencies in the gardens. For instance, when an irrigation hose breaks or tomatoes become infested with a plague, they manage the complaints of irritated garden participants, as one of the promotoras put it, "always with a smile" to represent the goodwill of Impact and its commitment to the neighborhood (see also Hochschild, 1983). Another dimension of the promotoras' work is that they have come to serve as confidants and advocates for residents. The sustained relationships they have developed with residents through growing vegetables with them, returning season after season, and learning about their lives have given them unique access to the private and the collective experiences of community members. Working across hundreds of gardens, this small team of promotoras has learned about the challenges facing many of the neighborhood's residents: access to health care, education, legal services, and concerns with addressing and preventing violence against women. The gardening and relational work has been intertwined, and in fact symbiotic, as promotoras' relationships with community members are rooted in their effectiveness as gardeners.

We learned that the Impact codirectors did not know about the everyday details of the promotoras' work when we, formally and informally, shared stories with them that the promotoras told us about their work in the neighborhood. The directors of the nonprofit were not surprised that the promotora model lent itself to these types of exchanges; they were not, however, aware of the challenges the promotoras faced in trying to respond appropriately to these job demands. This lack of indepth understanding of the promotoras' activities in turn limited the promotoras' abilities to talk about dimensions of their work within the organization, how new promotoras could learn the job of being a promotora, and how evaluation systems for improving promotora performance could be created. The directors' lack of awareness could be explained in part by the fact that, as a very small organization at the time (two directors, a couple

of office staff members, and 10 promotoras), they chose to focus their attention on other arenas that were significant to running the nonprofit. For instance, they were applying for grants, collecting data on the growth and use of the gardens to share with funders, developing relationships with other local nonprofits and community-based groups, organizing the materials and tools to put in gardens, and maintaining the day-to-day functions of the office building. The work involved in starting and running the nonprofit was extensive and, at times, precarious in terms of its sustainability.

As we learned from our research with the promotoras and the directors, the lack of full understanding of the work practices that enable the nonprofit to function went both ways. The directors did not fully see the expansive work of the promotoras just as the promotoras did not know the extent of the directors' work in establishing and running the nonprofit. This is a consequence of divided tasks. The division of labor enacted at Impact was organized to maximize resources and skills and, although well intended, has resulted in work practices that highlight macrolevel inequities related to access to formal education and privileged networks.

What is visible and what is invisible, when, to whom, and why is deeply shaped by issues of power and privilege. What concerned us as researchers working with Impact was how did the organization support equity and opportunity for the promotoras' learning? The question we asked was what might be gained by revealing the extensiveness of the promotoras' work and having it officially acknowledged by the non-profit? Building on that understanding, we considered with the promotoras and the nonprofit directors what kinds of social organization could extend the consequentiality of the promotoras' work across multiple dimensions of the nonprofit's practices and support new learning on the part of the promotoras. Our participatory design research has led us to focus on how power dynamics, connected to different forms of positionality and privilege within the nonprofit, have shaped how the promotoras' labor is represented so as to create greater opportunity for learning and professional advancement. Making these divisions and different value positions visible is, in our analysis, a necessary condition for organizing collaborative design. We use our case analysis to underscore the potential of using a participatory design approach to make critical forms of work visible so as to organize consequential learning with communities.

Consequential learning

A goal of our participatory design research is to work with promotoras in order to understand what matters to them and how, through our work with them, we can organize social structures so that these aims can be accomplished. Drawing on sociocultural and situated perspectives on learning, we understand consequential learning to be learning that extends across temporal, spatial, and social scales of activity (Hall & Jurow, 2015; Jurow & Shea, 2015). What is considered consequential learning, importantly, is that it is historically contingent and shaped by the shifting social practices and values of communities (Lave, 2012). This participatory design project considers the networks of people, institutions, artifacts, and historical practices that together, at any given point in time, have powerful consequences in communities (Tuomi-Gröhn & Engeström, 2003). These elements of networks shape the social organization of activity, including persons and the distribution of technologies (Beach, 1999).

Understanding what matters to people requires studying their lived experiences, how their lives are shaped by and shape social and institutional practices, and within that, the possibilities for imagining new forms of life (Erickson, 2004). In our work with promotoras, we focused on what Strauss (1985) refers to as *articulation work*, which is a way to conceptualize how work is woven together through the actions of people, tools, activities, and meaning in particular places and times. Articulation work is especially useful for helping us understand how people engage in work that involves multiple levels of activity, distributed action, and divisions of labor oriented toward both shared and distinct goals. Strauss (1985) distinguished between explicit articulation work, for example that which is defined in workers' official job descriptions, and implicit articulation work, which includes the tasks, strategies, and beliefs that people employ to accomplish their work in real-time interaction. Building on his extensive empirical investigations of the work of nursing, Strauss identified strategies that nurses used to get their work done, and to facilitate

the work of doctors. Nurses engaged in practices of persuasion, compromise, and manipulation to manage both routine procedures and those situations that were unexpected and required improvisation. We have found that promotoras' work involved similar types of implicit articulation work in order to grow gardens and manage their relationships with residents and between residents and Impact. In order to organize for more consequential and equity-oriented futures, we follow Suchman (1995) in surfacing this work that was largely *invisible* to the nonprofit leadership so that it can be understood, valued, and coordinated with other forms of valued organizational practice, participation, and knowledge. It is important to note that both the promotoras and the codirectors of the nonprofit engaged in work that was partly hidden, each to the other. Our approach to participatory design research makes the broader network of the nonprofit's practice visible, open to contestation, and available to design for learning that could create different ways of working together.

Research design

Our ethnographic and participatory research was organized around the design of participant structures, identity and knowledge trajectories, and tools that could enhance Impact's approach to food justice and community advocacy. Our primary partners in this project are the promotoras. Although there are many aspects of the promotoras' and the research team's identities and experiences that are relevant to our relationships and research, we note some that have been most significant. The majority of the promotoras (nine of 10) are women who range in age from approximately 30–50 years; there is one male promotore. All of the promotoras have some facility with English although all are native Spanish speakers. In regards to education, the majority of the promotoras do not have advanced degrees. At the time of our study, most of the promotoras held more than one job. Impact hired promotoras because of their gardening skills primarily and their interest in connecting with members of the community. Verónica, the lead promotora and our closest collaborator, actively recruits possible promotoras to join Impact. She is strongly committed to selecting promotoras who want to be community advocates and draws on her 12 years of experience as a social worker in Mexico to guide this advocacy work.

The research team is made up of four women who all have advanced academic degrees and are within the same age range as the promotoras. Three of the researchers identify as White and are scholars working in the field of education; one is a first generation Indian-American professor of education. Although none of the team members have lived in South Elm, Teeters' father grew up in the neighborhood and both she and Jurow live in the midsized city in which South Elm is located.

Our interactions with the promotoras have been conducted largely in Spanish. Teeters learned Spanish while working in Mexico, and has been both a researcher and translator for the team. Other members of the team have some capacity with Spanish and use it when they can; this is likewise the case for the promotoras' use of English. The sense of vulnerability and shared responsibility for communicating with each other that our collective linguistic capacities have created has helped put us on a more equal playing field when it comes to sharing our thoughts and feelings.

We were introduced to the Impact cofounders by members of the city mayor's policy team who were leading an initiative focused on urban farming as a way to bolster the economy and the health of city residents. The mayor's group had heard about our research interests in studying learning in the food movement and believed that we could help Impact articulate the fundamentals of their promising promotora model so that it could be replicated elsewhere in the city. The Impact cofounders viewed our education background as an asset for creating a promotora curriculum and introduced us to the lead promotora who then facilitated our relationship with the promotora team. Over 3 years, our relationships with the codirectors and the promotoras have developed in ways that we had not initially anticipated. The codirectors have, for instance, recognized the strength of our connections with the promotoras and the value of our analytic perspective on how to design for a more participatory approach to learning. As a result, they have invited us to help them think about how the organization can be more responsive to the promotoras' desires for greater leadership opportunities and issues of cultural diversity within the nonprofit.

As our relationship with the promotoras has developed, they have also positioned us strategically to share their concerns and advocate for their views with the codirectors and the nonprofit's board of directors. We have willingly embraced these opportunities and played these roles so that we can contribute in a way that is highly valued by the organization.

Our research was guided by two questions. First, what might be consequential for promotoras, and how could we find out? Second, what kinds of social organization, including new forms of infrastructure and activity structures, could make consequential learning possible (Hall & Jurow, 2015)?

To address our first question, what could be consequential for promotoras, we engaged in a year of ethnographic research. Our fieldwork included conducting interviews with promotoras and the Impact cofounders, reviewing artifacts on the promotora model, and participant observation of Impact's work in the community. We learned from the promotoras that they had limited structured time and space to share their visions, questions, and critiques with each other. Their work in the gardens was demanding and enacted individually; as they shared with us, they wanted more time to talk with each other. In an effort to provide a reflective space for their thinking, we codesigned and led, with the promotoras, a professional development workshop series (three half day sessions over 3 months) focused on enhancing the promotora model. Through the process of planning and implementing the workshops, the promotoras had the opportunity to articulate their work in a way that had not been made collectively explicit. Through the process of engaging in dialogue with each other and with outsiders (i.e., the researchers) who were not familiar with their day-to-day practices, they detailed the nature and extent of their work in the community.

We videotaped the workshops and collected promotoras' written and multimodal responses to workshop prompts (e.g., What does it mean to be a promotora? How could Impact be improved?). Based on these data sources, we identified the promotoras' areas of expertise and collected information on their desired areas for future growth, which included: training in gardening techniques, time for collective reflection and sharing of strategies, communicating with residents, and developing valued professional/business skills.

Our analysis drew attention to a key theme across the data sources, namely that the promotoras felt that the extensiveness of the work they did with community members in their gardens was not understood nor fully valued by other members of Impact's staff. How they learned to advocate for and support community members who face disproportionate inequities, as related to access to economic, educational, and health resources, was implicit in their work practice. This point strongly resonated with our readings of feminist sociological research on work that is devalued, underpaid, and invisible (e.g., DeVault, 2014). This understanding of the promotoras' articulation work informed the next steps of our participatory design work.

To address the second question, we shared our emerging findings about the promotoras' existing and desired expertise with the promotoras and the Impact directors. We listened to what they viewed as important, how they imagined using the information we shared, and how the constraints of their practices shaped how they could take up our findings. As university researchers, we considered the resources and expertise we could bring to this work and how it could foster learning that could become consequential for the promotoras, their work, and their community.

To develop a case study of organizing for consequential learning, we have focused on the process of codesigning a software application (called the Promotora App) that could support the promotoras in designing surveys that would allow them to collect, aggregate, and analyze data on what they believed was most essential in regards to their work in the community. We reviewed data sources on the initial impetus for the design and then analyzed how the use of the new tool affected the social organization of the promotoras' work, its representation within Impact, and its durability as a practice.

Organizing together for consequential learning

The work of Impact and the promotoras over 6 years has been consequential for residents because it has changed their access to healthy and affordable food as well as how residents relate to one another. For instance, through the networking of the promotoras with residents, a sense of community has developed

among neighbors who shared vegetables with each other, mobilized for local actions around transportation and safety issues, gathered for cooking classes, and got together for neighborhood celebrations. The promotoras wanted more from their work, however. From the perspective of Verónica and the more senior promotoras in the group, they wanted to enhance the quality of the advocacy work that they were leading in the neighborhood. For others, such as Davíd and Jocelyn, improving their practice involved learning better gardening techniques. In the following, we present how we collaborated with the promotoras to surface and name the aspects of their work that were not fully understood by diverse stakeholders interested and affected by Impact's work. Our aim in doing this was to help them coordinate their work into broader networks of practice and participation.

Surfacing and naming the Promotoras' invisible work

From our work with the promotoras, we learned that some of the invisible work that they do includes: dealing with residents' irritation with, for example, broken timers supplied by Impact or infested tomato plants, responding appropriately to residents' challenges unrelated to the gardens including domestic violence and health problems, and representing Impact as a positive resource for community change in the neighborhood. The promotoras did not have specific trainings on how to manage all of these kinds of issues in the field, but they were tasks that they often faced in their work.

Working in a community with a large number of immigrant residents, from Mexico but also from Somalia, Vietnam, and the Philippines, posed significant and unanticipated challenges for the promotoras. The promotoras handled these interactions in improvised ways based on their own experiences of being immigrants and, sometimes, on limited understandings of the cultural practices of different racial groups. For example, when Impact needed residents to complete surveys on their backyard garden program, the promotoras went door-to-door to invite participants to complete the pen and paper survey. Not only was the task of transcribing the handwritten notes into a computer-based database tedious, the process of collecting the survey responses was complicated due to issues of coordinating survey design with the language and literacy practices of community members. As the lead promotora shared, "One obstacle that I think is that people don't have education. People do not know how to read and write. So, when I do a survey, it is hard" (Verónica, December 14, 2012). When residents did not share the literacy practices assumed by the nonprofit staff survey designers (e.g., ability to speak or read English), the promotoras had to read the survey to the residents, asking them questions, such as, "How well did your promotora meet your needs?" These interactions were sometimes uncomfortable because they demanded residents to provide face-to-face evaluations of the promotoras' work, which led to suspect data. The work that the promotoras were required to do in these situations went above and beyond their official job description and although it was largely invisible to the nonprofit leadership, it provided the foundation for what the promotoras were able to do with residents in their backyard gardens.

In regards to gardening, the promotoras also engaged in implicit articulation work. The promotoras wanted to improve their knowledge of gardening because they each faced problems in the gardens and felt limited in what they knew about how to solve them. They often turned to the Impact directors for advice and to the Internet for improvised solutions. They lamented that the directors would observe their work and "just say 'Perfecto,' everything looks good," even when, as the promotoras shared, they knew things weren't perfect (Alejandra, March 28, 2014). This response made the promotoras feel that they were undervalued and that the nonprofit leadership did not fully understand all that went into their work. Although the organization provided training on gardening techniques, soil science, and communication with residents, they reported that the trainings were not deeply grounded in their daily work practices. They did not think that this was an efficient approach to sustaining the gardens and their relationships with garden participants. Further, they felt that their lack of knowledge put their relationships with residents at risk and made them feel unprofessional. The promotoras desired a more situated, hands-on approach to receiving feedback that could address the work they had to do on-the-spot.

Our ongoing observations at Impact in concert with our analysis of conversations we had with the promotoras also revealed a contradiction in the organization of the nonprofit. Namely, there was a tension between the stated goals of resident empowerment and the arrangement of work opportunities available

to the promotoras. The promotoras primarily led the manual labor of putting in gardens, while the White, college-educated staff from outside the community was in charge of the office work. The promotoras noted this division and desired access to more skilled professional labor opportunities in the office and beyond. They wanted to develop greater proficiency using technology, analyzing data on their work, and using English as part of these processes. We understood the promotoras' desires for these kinds of practices in relation to their lives' broader sociopolitical contexts and to what they believed others would expect of them as higher-ranking and more highly paid professionals (e.g., business skills and greater English language capacity).

Coordinating Promotoras' work into broader scales of influence and participation

Imagining how we could leverage our understanding of the promotoras' invisible work to disrupt and reorganize practice was the next step of our participatory design research. We wanted to organize an intervention that could be consequential for the promotoras and their community—consequential in the sense that it could cut across the multiple scales of practice and participation that constrained the possible futures for residents. As brokers between the promotoras and the Impact directors, we offered suggestions for changes to Impact's organizational structure (e.g., including promotoras in board meetings) and their data collection practices. We believed that these structural transformations could facilitate greater access and opportunity for the promotoras. In the following, we present one of our codesigned interventions: the development of the Promotora App. This software application, which we codeveloped with the promotoras and the Impact directors, was designed to help articulate the different networks and value systems of the two groups. Our aim was to extend what was possible for both sets of stakeholders as well as for the work of the organization as a whole.

We ended the first year of our research with Impact with a list of recommendations to improve the work opportunities for promotoras within the organization. These proposals were generated by the promotoras and the nonprofit directors as part of the final workshop that we had organized with the promotoras to name the different dimensions of their work. We developed this activity in response to promotoras' stating that they wanted a greater say in the organization. Specifically, in small groups that included promotoras and the two cofounders, who were invited to participate in the workshop on just this day, ideas were proposed for improving Impact. One concern raised by a few of the promotoras was their desire to have a way to share gardening knowledge and strategies with each other. A research team member asked if it would be useful to develop some kind of a notebook for gathering the collective knowledge of the promotoras and the directors around gardening strategies. We initially thought this could be a simple notebook with images and text developed by the promotoras and the directors with room for expansion. Our intention in introducing this new tool was to create a way for the promotoras to inscribe the fullness of their work into the nonprofit's data infrastructure. We wanted to support the promotoras in reconfiguring the values of the organization by making and using a tool that could privilege their work and support its potential.

Through analysis of the multiple data sources we had collected from the workshops and through more traditional ethnographic means, we recognized an opportunity for codesigning a multipurpose tool that could meet the promotoras' various desires spanning from documenting the fullness of their work practices, creating opportunities for sharing collective knowledge, and opening up pathways within Impact for further skill and professional development. Discussions with experts in the field of technology and development helped us see the potential of designing a software application with the promotoras that they could use to accomplish their diverse goals. We learned of models that used technology for empowerment and community development, in particular with women and marginalized populations in India, Chile, and Kenya (e.g., Kleine, 2011). The possibility of codesigning a multilingual software application with the promotoras to collect and analyze data on their own work resonated with us. The promotoras and the directors of Impact were also enthusiastic about creating a software application that could streamline the promotoras' work and provide more comprehensive data collection.

Given these desires, we expanded our team to include three graduate students from the field of information and communication technologies for development (ICTD). The group of students with whom

we collaborated was all male; two identified as White, one as African American, and none as bilingual. All of the students were experienced with software design and had a strong desire to create technologies that could enhance Impact's food justice work in South Elm. The group's necessary, but at times myopic, focus on the technical dimensions of the software application design combined with their exclusive use of English to talk about the application constrained their ability to interact effectively with the promotoras. Building on our research on the promotoras' work, specifically knowledge of their schedules, language abilities, and interests, Teeters and Jurow organized a set of joint design sessions between the promotoras and the ICTD students. We facilitated and translated these sessions so that the participants could engage with each other effectively.

The Impact directors and the promotoras agreed that the functionality of the software application should mirror surveys that the promotoras had used previously to document their garden work. These surveys were designed to capture information about topics such as pounds of vegetables grown and how residents were using the produce. In addition to these basics, the promotoras shared their desire for different features. Marta suggested the inclusion of a Facebook-like interactive forum that could support sharing gardening problems and solutions among promotoras. Other promotoras agreed that this would be a good way to learn from each other's experiences. We emphasized that the software application could be a powerful tool for documenting both the promotoras' improvised gardening fixes as well as their on-the-spot community advocacy work. Through conversations with the promotoras we decided that the software application should include a *comment box* that would allow the promotoras to include, in free-form writing, information related to their community advocacy work (e.g., what problems did residents share? what resources did the promotora provide?). The ICTD students, with the support of the research team, used this information to inform the design of the Promotora App.

Codifying the promotoras' work of managing the contingencies of growing gardens and acting as community advocates for a largely immigrant community, which had been largely invisible within Impact's organizational structure, is an integral component of promoting greater social justice. Documenting the fullness of the promotoras' work allows for it to be enhanced, expanded upon, and potentially replicated in other communities. Following trainings on using the Promotora App led by Verónica and the research team along with a year of practical experience using the application in the gardens, a number of new kinds of activities have become possible. Some of the changes instigated by the use of the Promotora App include: the easy accessibility of information via the use of the application to provide nearly on-the-spot feedback to improve promotoras' practices in the field; the ease with which to generate systematic information on the promotoras' impact on the neighborhood; and learning on the part of the promotoras to use a powerful technological tool that allows them to share and extend the reach of their practices across expansive, geographically dispersed networks. The promotoras have also created monthly surveys to gather a variety of information related to their work, ranging from community demographics to pounds of vegetables harvested.

As the promotoras have become more familiar with this technology, their use of the application has extended beyond its design. For example, the promotoras use it as a forum to gather photos to share with their community, near and far. Through using the Promotora App, they have also become more comfortable exploring other components of the tablet, which are always carried with the promotoras. They are now using it to search for recipes and gardening tips, to access community resources, and to engage in forms of diversion. The software application has created ways for the promotoras (as well as the nonprofit directors and other staff) to communicate with each other about their work, to share their pride in the gardens they have established, and to talk with one another about their sustained relationships with the garden participants.

The limits and dilemmas of our design

With the use of the Promotora App, the promotoras' practices have been extended to connect with powerful and far-reaching networks that include, but are not limited to, neighborhood residents, potential funders, and city policy makers. Although this application has allowed for the promotoras to codify their work, it has also revealed tensions and needs within the organization to provide the promotoras

with greater opportunities for training and advancement. As one example of this, in the first months when the promotoras used the application, we discovered that they were not uploading the information to the nonprofit's server. The promotoras had been collecting resident data on a daily basis and saving the information on the tablet, but they had not been submitting it via the application. This, as we found out from observing the promotoras use the application, was a multidimensional misunderstanding. The promotoras hit the *Save* button in place of the *Submit* button, assuming that *Save* was the safe, more inclusive option. We and the ICTD students made assumptions about how the software would be used while the promotoras used it in ways that to them were intuitive. The promotoras were frustrated with the Promotora App's seeming ineffectiveness and did not have a staff member dedicated to technology to ask for help. When our team, including a researcher and a technology student, worked with the promotoras in a small meeting, the problem was readily identified and addressed. The deeper significance of this misunderstanding was that we had made assumptions about how the promotoras would use the new tool based on our own histories and experiences with technology.

A second challenge facing the use of the Promotora App revolves around the division of labor related to who uses the application to do what kinds of activities. One of the reasons we initially designed this new tool with the promotoras was to create the opportunity for them to collect, analyze, and represent data on their own practices. In its current use, the promotoras are collecting data on their work in the gardens; however, the issue as to who is going to analyze and represent these data—promotoras, office staff, or a combination of both—is being considered seriously by the nonprofit. As our example with saving and submitting data illustrated, the promotoras did not have easy facility with the technological needs of the organization, which demanded fluency with maintaining and upgrading devices and using them for monitoring, evaluation, and grant writing. This tension is an expected part of introducing new tools into a complex cultural and historical activity system that includes racialized, gendered, classed, and linguistic dimensions rather than an inherent limitation of the Promotora App. It points to the need to examine critically how the tool fits into and potentially challenges the standard operating procedures at the nonprofit. Without considering this tension, the tool could lead to a reproduction rather than a transformation of some of the inequitable work practices that we surfaced through our ethnographic research on the promotora model. Of note, the directors are interested and engaged in the ongoing process of considering how to best support the promotoras in use of the tool as well as other opportunities for professional development.

Discussion

All forms of representation foreground some dimensions of practice and obscure others. What is seen and what is invisible, to whom and why, helps researchers understand what matters in an organization and whose perspective is valued. The technical and human organization of Impact led to an incomplete perspective on the promotoras' work. This limited the promotoras' capacity to see, critique, and voice what they thought mattered in regard to the success and potential of Impact's work in the neighborhood. Studying the invisible work that people do allows us to take a more "ecological understanding of workplaces, materiality, and interaction" and can alert us to the issues of justice and injustice that they sustain (Star, 1999, p. 379).

Surfacing the promotoras' invisible work matters for naming what is part of "the job" and what is not. This has implications for how others, including the directors, office staff, the nonprofit's board of directors, and potential funders understand the promotoras' role, how promotoras can learn to do their job, and how training materials and evaluation systems get created. Articulating the multiple dimensions of the promotoras' work could contribute to how the promotora model gets developed and adapted over time and space in such a way that promotoras can enter into new scales of influence through their developing work practices. Impact has, for instance, heard the results of our participatory design efforts and is considering how to transform their practices alongside the promotoras' changing practices. The organization has expressed interest in documenting the promotoras' work more fully in order to secure grants focused on community health work. Of significance is that this documentation of invisible work is becoming an object of interest because the Impact leadership has, through discussions both with the

research team and the promotoras who have gained greater confidence in sharing their perspectives, come to recognize and value the everyday work of the promotoras. For learning to be both equitable and consequential, it has to have pathways on which people and practices can travel. Part of the work of supporting equity-oriented consequential learning involves making practices visible and of value to diverse groups of people in and across multiple contexts.

The ongoing and unjust treatment of people marginalized along race, gender, class, and language lines are entrenched in the histories of the city and the neighborhood. Creating new pathways for promotoras to articulate the type and value of their work does not mean that others will acknowledge and validate the significance of their work. In other words, visibility is not enough. To highlight and fully realize the complete role of the promotoras within the neighborhood, Impact will need to remain dedicated to advocating for, training, and seeking out new and inventive ways to develop the competencies of the promotoras alongside the growing competencies of the organization. The promotoras will need to remain involved in the data collection and analysis made possible by the application and continue to cultivate their vision for themselves and their role in their community.

Our 3-year partnership with Impact has given us insight into the practices that facilitate meaningful participatory design research. We share these insights as lessons learned and hope that others can benefit from them as well.

Lesson 1: Focus on what matters to your partners while recognizing that what matters may change

Participatory design research allows for the inclusion of diverse perspectives on what kind of learning matters, why, when, where, and for whom. This set of questions is critical for researchers of learning to ask, not just once, but throughout the life of a project as the answers are dynamic as relationships and purposes evolve. Long-term ethnographic research allowed us to witness shifts in the Impact directors' main interests and, as a result, how actively they engaged us as collaborators. For instance, when the organization was struggling financially to stay afloat, the directors were not able to attend as carefully to the concerns of the promotoras as they were once the organization became more stable. This affected how we, as researchers, were able to get and maintain the directors' focus on expanding the possibilities for the promotoras' learning within the organization. We needed to be both tenacious and creative in our continued partnership with the organization because we knew our research was not the top priority for the organization. The ebb and flow of our relationship shaped our research goals as well as our research process; this, we learned, was part and parcel of working with a nonprofit that relied on grants to fund their activities.

Lesson 2: Participation in participatory design research may take different forms

Participatory design research requires careful consideration and ongoing negotiation about what participation means and how it can be best enacted throughout the processes of design and research. Our work has foregrounded the perspectives of the participants, which was done both by having the participants involved in the design work as well as having the researchers engage in intensive and ongoing ethnographic data collection. Although this process was deeply collaborative, work processes were not evenly divided throughout the design process. The diversity of expertise allowed for design decisions to be made regarding who would lead certain activities. For example, the promotoras' expertise in developing community networks and cultivating gardens resulted in them leading the design of the content of the workshops. The researchers have led the work of writing and theorizing this collaboration because they have time and expectations to do so built into their academic workload; the practical needs of the nonprofit organization and the constraints on time made this work less valued and practical for Impact and the promotoras. The nature of our participatory design research was not a direct collaboration, but a process of listening carefully, revoicing what we had heard, listening again, and using what we learned as grist for developing more effective tools with the promotoras in order to facilitate their learning goals. The negotiations related to who does what and why are critical in collaborative design work. We have

learned that to be productive partners, we have to be transparent, realistic, and respectful about the constraints of time, financial compensation, language, and relevance, making sure that the process of collaboration is not burdensome.

Lesson 3: Generative and sustained participatory design research partnerships are grounded in understanding and vulnerability

Impact is doing important and needed work in South Elm. As they continuously strive to improve their work, the cofounders and staff (including the promotoras) are remarkable in their capacity to hear critiques and respond to them. Figuring out how to share critical perspectives regarding the organization with the Impact leadership has, at times, been fraught with tension and emotion because we, as researchers, know how much they are doing, what they are trying to accomplish, and how they need to manage multiple concerns (e.g., getting funding, managing public relations, and connecting with political actors across the region). At the same time, a responsibility that we have as researchers in this partnership is to share critical views on how learning can be organized more equitably. Likewise, we found that it was necessary to reflect routinely and honestly upon our own weaknesses as partners. To do this, we have learned the importance of inviting and listening to the criticisms regarding what we are not doing well. For instance, the Impact directors have shared their frustration with us when we have not produced deliverables that they can use (e.g., press releases rather than academic papers) or when we have not offered feedback on their practices in a timely fashion (because our research is time intensive). Opening ourselves up to this kind of feedback has helped us to negotiate the terms of our partnership and figure out how we can improve our actions as researchers, as advocates, and as critical friends.

Making visible the promotoras' practices that were once invisible brings forward the possibility for positive change, validation of important work, and not least importantly, risk. There is significant power involved in the representations that we make of our work and those of others (Clifford, 1983). We should not be naïve about the effects of highlighting practices that have not been a part of official discourses. How might the undocumented status of some South Elm residents affect what could be recorded about them in the Promotora App? Who might use or manipulate this information for some unforeseen end? These are questions with which we must grapple as we create design interventions. We end this article on making work more broadly visible, and potentially consequential, by raising a tension related to the fact that sometimes work accomplished "under the radar" or on the margins of official practice could be more powerful than it might otherwise be (see Hooks, 1994). We certainly do not assume there is a clear pathway mapped in regards to managing this dilemma, but we hold firmly onto the idea that talking, designing, and worrying with community partners about these kinds of questions is essential to organizing more just and equitable futures.

Summary of implications for theory and methods

What one believes learning to be—its *telos*, the mechanisms through which it functions, and its proposed relation between individuals and the social world (Lave, 1996)—shapes how one approaches research on and designs for learning. This is the case whether or not we name these aspects of our learning orientations as they direct our attention to what matters to us, why, and how.

As our research has helped us understand more fully, learning takes place as part of dense and interconnected networks of practices, ideas, tools, and people (Nespor, 1994; Tsing, 2004). What Impact is doing in South Elm, for instance, needs to be understood in relation to entrenched and inequitable practices of food distribution in the United States, immigration trends shaping the racial and linguistic landscape of the city in which we live, and renewed relevance of cultural forms such as the promotora model and cooperative grocery stores in response to challenging economic and political circumstances. Learning can only become consequential, we argue, when changes in networks are taken up within and across temporal, social, and spatial scales of action.

Seeing the dynamic networks that make learning matter to individuals and communities is a complex process. Some of the reasons for this include the fact that one's positionality (e.g., racialized identity)

draws attention to some network aspects and not others; some practices, people, and ideas are more visible than others within the network because of politicized, racialized, gendered, and classed dynamics; and, in order to identify networks and their implications for learning and social change, researchers require a broad repertoire of theoretical, practical, technical, relational, and linguistic tools. We addressed these challenges with differing degrees of success and ease.

Participatory design research allowed us to consider with our community partners what practices are significant for them, how we might create pathways together on which these practices could travel, and the implications of these changes for their and our futures.

Acknowledgments

This article is the product of many collaborations. We are deeply grateful to the promotoras, directors, and staff at Impact; their desire to keep learning and improving forms the basis of our partnership with them. We could not have done this work without the expertise and generosity of our faculty and student partners in the ATLAS program at CU–Boulder. Our colleagues, Thomas Philip, Claire Slattery-Quintanilla, Miguel Zavala, and an anonymous reviewer of this article have provided generous feedback that made us think deeply about our partnership and its meaning. Rogers Hall, as always, offered sharp insights, careful editing, and excellent questions to push our thinking. Shirin Vossoughi and Megan Bang, thank you for proposing this special issue and allowing us to contribute to it.

Funding

We acknowledge the financial support and encouragement from our funders at the University of Colorado, Boulder (Office of Outreach and Community Engagement, Women Investing in the School of Education, and the Alliance for Teaching, Learning, and Society) who made this work possible.

References

Beach, K. (1999). Consequential transitions: A sociocultural expedition beyond transfer in education. *Review of Research in Education*, *24*, 101–139.

Clifford, J. (1983). On ethnographic authority, *Representations*, *2*, 118–146.

DeVault, M. (2014). Mapping invisible work: Conceptual tools for social justice projects, *Sociological Forum*, *29*(4), 775–790.

Erickson, F. (2004). *Talk and social theory: Ecologies of speaking and listening in everyday life*. Cambridge, UK: Polity Press.

Hall, R., & Jurow, A. S. (2015). Changing concepts in activity: Descriptive and design studies of consequential learning across time, space, and social organization, *Educational Psychologist*, *50*(3), 173–189.

Hochschild, A. R. (1983). *The managed heart: The commercialization of human feeling*, Berkeley, CA: University of California.

Hooks, B. (1994). *Teaching to transgress: Education as the practice of freedom*. London, UK: Routledge.

Kleine, D. (2011). The capability approach and the "medium of choice": Steps towards conceptualizing information and communication technologies for development. *Ethics and Information Technology*, 13, 119–130.

Lave, J. (1996). Teaching, as learning, in practice. *Mind, Culture, and Activity*, *3*(3), 149–164.

Lave, J. (2012). Changing practice. *Mind, Culture, and Activity*, *19*(2), 156–171.

Nespor, J. (1994). *Knowledge in motion:Space, time, and curriculum in undergraduate physics and management*, Philadelphia, PA: Falmer.

Siraj, S., Shabnam, F., Jalal, A., Zongrone. A., & Afsana, K. (2010). "Shasthya Shebika's" role in improving infant and young child feeding practices in rural Bangladesh: BRAC's experience. Poster presented at the biennial meeting of the Geneva Health Forum, Geneva, Switzerland.

Star, S. L. (1999). The ethnography of infrastructure. *American Behavioral Scientist*, *43*(3), 377–391.

Star, S. L., & Strauss, A. (1999). Layers of silence, arenas of voice: The ecology of visible and invisible work. *Computer Supported Cooperative Work (CSCW)*, *8*(1–2), 9–30.

Strauss, A. L. (1985) Work and the division of labor. *The Sociological Quarterly*, *26*, 1–19.

Suchman, L. (1995) Making work visible. *Communications of the ACM*, *38*, 56–68.

Tsing, A. L. (2004). *Friction: An ethnography of global connection*. Princeton, NJ: Princeton University.

Tuomi-Groöhn, T., & Engeström, Y. (2003). Conceptualizing transfer: From standard notions to developmental perspectives. In T. Tuomi-Groöhn & Y. Engestroöm (Eds.), *New perspectives on transfer and boundary crossing* (pp. 19–38). Amsterdam, the Netherlands: Pergamon.