The Labor Practices of Service Mediation: A Study of the Work Practices of Food Assistance Outreach

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ABSTRACT

In this paper, we present the results of a study of the work practices of food assistance outreach workers. We introduce the construct of service mediation, which includes the *technical*, *social*, and *knowledge labor* practices involved in enabling access to and use of an e-government service. We explore the service mediation activities of *outreach, technological assistance, providing knowledge*, and *ongoing engagement*. These activities bring to light how successful service relationships involve fostering a *process*, bridging *relationships*, and providing broader *scaffolding*. The results of our research highlight the role service mediation plays in the use of services and service technologies in information-rich organizations. This research extends previous conceptualizations of mediation by documenting how mediators support broader service processes for their clients, transform potential beneficiaries into clients, and engage in long term assistance. Therefore, this work moves beyond prior conceptualizations of mediation that concentrate solely on enabling the access and use of specific technologies.

Author Keywords

E-Government, Food Insecurity, Service Mediation, Service Systems.

ACM Classification Keywords

K.4.2 [Computers and Society]: Social Issues; H.5.3. [Information Interfaces and Presentation]: Group and Organization Interfaces

General Terms

Design, Human Factors

INTRODUCTION

As the United States economy becomes more service-oriented [2, 19], there is growing interest in understanding how information technology can play a role in successful service engagements (*e.g.,* [2, 3, 13]). Broadly, service systems involve assemblages of "people, information,

organizations, and technology" [12] synchronously performing a variety of tasks for the "benefit of another" [26], usually a client. For example, an insurance clerk helping a client navigate through available insurance plans, a nurse helping a patient enroll in a health program, and an attorney explaining trust and estate laws to their clients are all service encounters. Information technologies are often interwoven with these service processes and, more often than not, are a key aspect of successful service engagements. Exploring this relationship—how technologies can enable, constrain, provide support for, or disrupt the underlying goal of providing a service—is central to this research.

Existing research on service systems has centered on the work of professional staff members who are employed by a service provider and whose work is integrated into the service process (*e.g.*, [4, 9, 25]). In this research, we study a different class of service workers—individuals who work alongside service organizations but are not formally affiliated with the organizations. By studying this type of service work, we can better understand the additional, and often invisible, forms of work that go into enabling a successful service encounter. An examination of this type of work also allows for greater clarity about how information technologies designed to provide access to a service relate to and integrate with the service, itself.

In our research, we analyzed a specific type of service encounter in which an application process leads to an ongoing relationship with an information-rich organization. Our research focused on a group of people who perform "outreach work." They work alongside a government nutritional assistance program, employed not by the government service provider but by local non-profit organizations. The service provider is currently in the process of transitioning to a new "e-government" online system. Outreach work fulfills a crucial role in this new system by enabling access, providing information, and guiding clients who would not otherwise take advantage of the service. The research presented here examines these associated service components and characterizes the various activities, relationships, and knowledge sources that are called upon in the process of providing ongoing access to governmental food support through an online system.

In examining service work and the role of information technologies in providing access to governmental services, we contribute to multiple streams of research. Researchers in Information and Communication Technology for Development (ICT4D) have explored the concept of mediation in understanding how certain individuals provide others with information, access, and guidance in using technological tools [22, 26, 32]. This research on technological mediation has focused on how human mediators can play a pivotal role in making technology work for the benefit of others. Building on this concept, we have found that mediators not only enable technology use, but also enable the underlying service of which the technology is only a small part.

Previous research studying service systems has focused on clients (*e.g.*, [18, 32]) and employees (*e.g.*, [4, 9, 25]) of service providers. In our research, service mediation also involves individuals who assist clients outside of the service provider's formal organization and processes. Prior research on mediation has called for additional research that studies the "human side of service delivery" [23]. We extend the existing literature on mediation by addressing this need, examining the mediation activities that support service processes and the long-term relationships between mediators and clients that, in turn, support the ongoing, human-centered nature of service mediation.

In the context of this research, service mediation takes into account a broad array of the technical, social, and knowledge labor practices involved in facilitating access to and use of services for clients. Service mediators, with their specialized and expert knowledge, assist clients in navigating bureaucratic complexity—the numerous options, rules, and regulations built into the system. *Social labor* involved in these encounters includes, but is not limited to, finding and educating potential clients and assisting with all aspects of applying for and receiving service benefits. *Technical labor* involves acquiring and utilizing an operational understanding of technical systems. *Knowledge labor* involves the ability to apply the operational rules and regulations of the service system to clients' situations.

In this paper, we provide empirical and theoretical insight into four specific mediation activities: *outreach*, *technological assistance*, *providing knowledge*, and *ongoing engagement*. Together, these activities do more than allow the online application system to "work." Rather, the participants in our research enable the service, itself, to work. They do so by mediating service processes, relationships, and knowledge. The contributions of this research include an articulation of the complex relationships between a technology designed to provide access to a service and the kinds of labor involved in actually enabling services to work. Understanding the human effort required to make electronically mediated service systems work is necessary to understand how technology is enacted and made useful across different actors (*e.g.*, clients, outreach workers, social service workers) within sociotechnical systems.

RELATED WORK

E-Services and Service Systems
Researchers have recently called for exploration of the social labor involved in service systems [20, 23, 24]. "[T]he human side of service delivery …has received less attention in the service science literature than the more technical side" [23]. However, even research focused on the "human side" typically only recognizes labor designed to accomplish a specific role such as a health care clerk assisting a client with an insurance form (*e.g.*, [8]). This perspective neglects emergent forms of mediation in successful service deployment including mediation work that was not initially and explicitly designed into the service process. Our research begins to address this gap.

ICT4D and Mediation
ICT4D research is concerned with how technology can be used in productive ways within the context of developing regions. ICT4D researchers have described technological mediation as assisting others in accessing and using technology—typically a specific tool [17, 22, 28, 29]. This body of research delineates how technological mediators enable access and use via the following: surrogate usage in which mediators use devices for their clients; proximate enabling in which mediators interpret the output of devices for their clients; and proximate translation in which mediators interpret the input of the devices for clients [22]. Prior research explores the social labor associated with relationship building (*e.g.,* that trust between the client and mediator is critical for mediators to be able to perform their role [17, 22, 28]). However, in this body of research, the construct of mediation is limited to encounters with specific tools—mediators provide technical support to beneficiaries who are actively seeking assistance with that tool. This literature leaves open questions around what happens when a mediator seeks out the beneficiary and mediation involves support of a complex process rather than a single tool.

E-Government
E-Government is understood as "the use of technology to enhance the access to and delivery of governmental services to benefit clients" [24]. Although e-Government initiatives require significant economic and organizational investments, e-Government services have grown steadily in recent years [10]. This commitment to increasing the online presence of governmental services is motivated in part by an expectation that e-Government systems will be more efficient for social service providers than current systems [5, 15]. Additionally, stakeholders assume and predict that these tools will lower access barriers for clients [14] and enable both client self-education and self-management of participation [15]. For example, in congressional testimony, the Director of the Department of Transitional Assistance for San Bernardino County Human Services emphasized how the California online system C4Yourself "increase[s]

public awareness and program access" [30]. Our research presents accounts of how this practical yet often invisible accomplishment of increased awareness and access comes into being. Our research suggests that success requires investments beyond basic technological infrastructure.

A widespread but implicit assumption prevails in existing e-Government literature that basic Internet access is the most pressing issue in promoting use of e-Government services [1, 6]. This emphasis on the digital divide ignores the challenges of engaging with an online tool after access is achieved. Online tools are often replicated in several languages and strive to be user friendly. However, open questions remain about what the experience of use is actually like and what difficulties applicants encounter. Understanding the factors that contribute to success or failure in the use of e-Government systems is therefore a necessary next step for research in this area.

Beyond the realm of e-Government, several streams of research—including human resources, health education, and poverty studies [12, 31]—emphasize that successful adoption of a new service or technology requires outreach to potential clients to provide information and increase visibility. Our research addresses questions about how outreach workers interact with e-Government initiatives, and what scope of outreach activities is necessary to promote successful use of an e-Government system.

RESEARCH SETTING AND CONTEXT
In our research, we conducted an in-depth examination of a governmental program to support individuals who are food insecure, defined as a lack of dependable access to nutritious food. In the United States, nutrition assistance and financial support for purchasing food is available to any household below a particular income level. In 2010, a household of four was eligible if their monthly gross income did not exceed $2,389[1,2]. This program is known nationally as the Supplementary Nutrition Assistance Program (SNAP), formerly known as food stamps, and in California, where this research was conducted, as CalFresh.

California has the lowest rate of participation of eligible individuals in the SNAP program within the US (44% compared to the national average of 66%) [16]. The county in which we conducted this research has one of the lowest participation rates within California. Higher participation rates not only alleviate hunger for those in need but also improve the local quality of food [11] and provide a boost for the local economy [32]. As part of efforts to increase participation in services and reduce food insecurity, California has recently supplemented its traditional paper application process with an online application process. The county in which we conducted this study uses Benefits

CalWin[3] as an online entry portal to multiple assistive governmental programs, including CalFresh.

The low rate of participation can be perplexing, given the benefit of food assistance programs to recipients. However, researchers who study the non-use of social service programs cite the impact on moral and social capital [21], self-judgment [7], judgment of others who receive services [7, 21], and knowledge regarding access and availability [33] as reasons for non-participation. Although an online application may mitigate some of these concerns, the technology itself cannot fully address each of the issues understood to be a challenge to participation.

As part of a community-wide effort to increase participation rates in social services, non-profit organizations in California that are dedicated to fighting food insecurity often employ outreach workers. Outreach workers encourage potentially eligible individuals to apply for governmental nutrition assistance programs and support them during the application process. The outreach workers in our research were subsidized by US Department of Agriculture grants that support community organizations with a vested interest in food security.

Outreach workers are tasked with finding and assisting potential beneficiaries in applying for governmental food assistance. The work of identifying eligible participants and encouraging them to apply for CalFresh is particularly time intensive. Thus, this work cannot be handled by the administrators of CalFresh, the California Department of Social Services (CDSS), who are under pressure to be more efficient in response to state budget cuts. Outreach workers are notably not governmental workers and do not hold official positions within the government.

METHODS
In this research, we used multiple methods—including direct observation, participant observation, shadowing, and formal and informal interviewing—to understand the work practices and technology use of outreach workers in one county in California. Over four months, we conducted observations with all three of the outreach organizations within that county, including two food banks and one religiously affiliated organization. We observed seven outreach workers at 15 field sites, taking detailed field notes during approximately 32 hours of observations of how outreach workers interacted with their clients and with social services, focusing on how technology was implicated in work and relationships. We conducted six post-observation interviews to ask questions clarifying our observations. Outreach work in our sample included application workshops, client appointments, community outreach efforts, organizational meetings, and inter-organizational meetings.

In addition to observations and post-observation interviews, we conducted 14 formal interviews with individuals working in outreach organizations, including all six outreach workers, three outreach work supervisors, and five other workers within the outreach organizations (*e.g.*, volunteer coordinators and program managers). Our interviews focused on current work practices, collaborations, technology use, interactions with clients, and experiences with the online application tool. All interviews were audio recorded and transcribed.

The research team met regularly to discuss trends in the observation and interview data. Dominant topics discussed included the work practices of the outreach workers and their role in facilitating the online application process for their clients. We conducted inductive analysis of our field notes and interview transcripts using memoing, coding, and affinity diagramming. Our initial codes typically related to the role of the outreach worker supporting client access to the service and technology and the ways in which the online application was implicated in the outreach workers' ability to serve their clients. Subsequent iterations of the coding scheme helped to differentiate among the types of assistance the outreach workers provided their clients while they engaged with the service.

MEDIATION ACTIVITIES
The results of our analysis suggest that four practices are central to the success of outreach workers: *outreach, technological assistance*, *providing knowledge*, and *ongoing engagement*. The interplay between these various activities implies that outreach workers are more than advocates and different from technological mediators. They are integral in creating potential clients, informed applicants, self-advocates, and lasting beneficiaries. As such, outreach workers transcend prior definitions of either outreach or technological mediation.

Outreach Activities: Creating Potential Clients through Education and Changes in Self-Identification
Outreach workers conduct their work in a variety of places, focusing on locations frequented by food insecure individuals (*e.g.*, community centers, religious institutions, free health clinics, and other governmental nutrition assistance programs). When asked to describe how they find potential beneficiaries and convince them to apply for CalFresh, outreach workers described both face-to-face advocacy and the dissemination of printed information about CalFresh to potential clients. While advocating and distributing information, they also attempted to combat common misconceptions about the "kind" of person who participates in CalFresh. This involved explaining what is required to participate in the program and dispelling fears that participation might incur other negative ramifications. These activities worked to convince potentially eligible individuals that CalFresh was a viable and worthwhile option for them.

According to the outreach workers, individuals are often initially unaware of their potential eligibility and require some convincing that they are appropriate recipients of the service: "… people [we assist] had never thought about … food stamps as an option" (John, Outreach Manager).[4] Educating people that they are potentially eligible is a necessary initial step in promoting a service to clients.

Eligibility is only the first hurdle in persuading a potential beneficiary to apply for the service. According to outreach workers, even those who know they might be eligible often do not apply. This resistance is in large part due to myths and fears surrounding CalFresh. "[I hear] all these stories.... There are a lot barriers, and they are real in the minds of these people, but they are myths" (Paul, Outreach Manager). These concerns include the mistaken belief that there are requirements to repay services, risks of deportation, requirements to serve in the military, removal of the children from the home, and so on.

Outreach workers make use of external evidence, such as documents from the Departments of Social Services (CDSS) and Immigration, to persuade individuals that CalFresh is a legitimate, non-harmful, assistive program. Some fears are so pervasive, even with official documents from the CDSS and the Immigration office, that it can take months before a client will apply. Outreach workers are aware of these barriers and take pains to honor concerns and educate potential clients.

> Part of [our] job is to make [clients] understand that the government is not going to charge for [participation] and it does not affect their immigration status. I show them different letters, and I convince them and then [they will] apply. Those 30 people I bring, they never wanted to apply before, and I really have to introduce them and [say] this is not going to affect [immigration status]. (Raphael, Outreach Worker)

A key aspect of combating these misconceptions and fears is the ability to establish rapport and trust.

> We have to build that trust. That relationship is very crucial. It takes about a month or two to get that one person to apply with you, but it does happen … I've seen it. I've been going to one place for seven months. [The client] finally made [an] appointment with us this month. That client has seen me every Tuesday. It's really important to stay consistent when you are doing outreach. (Maria, Outreach Worker)

Outreach workers travel to places where food insecure populations get assistance, such as food banks or free health clinics. This willingness to engage with people in their own territory can be a key aspect of fostering trust. "The whole method is you have to go to them ... Don't expect them to go to you." (Maria, Outreach Worker).

A non-trivial amount of work goes into "creating" a potential CalFresh client. Through regular visits to outreach locations, repeat exposure to the same people, and one-on-one engagement with potential clients regarding the

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[4] All names of participants are pseudonyms.

program, outreach workers build relationships and establish themselves as knowledgeable and reliable sources of information. This trust enables outreach workers to educate clients about the pervasive negative myths surrounding governmental assistance programs.

Our results illuminate the importance of self-identification in the "creation" of potential clients. Clients must see themselves as potentially benefitting from participation in CalFresh or, alternatively, that the economic benefits of participating in the program supersede any previously held negative conceptions. In contrast to research on technological mediation that assumes potential beneficiaries are immediately discernable and willing to engage with a new technology, we find that a significant amount of social labor is involved in helping individuals see themselves as potentially eligible governmental program beneficiaries.

Technological Assistance: Creating Capable Applicants
Once a potential client has decided to apply for the program, outreach workers offer technological and informational assistance in navigating CalFresh's online application. Outreach workers cite a lack of access to technology in the home and illiteracy as reasons why technological assistance is necessary. According to outreach workers even potential clients with access may not be familiar enough with the Internet to complete the online application successfully on their own.

> The Spanish speaking population I'm dealing with usually won't have a computer in the household. They are not comfortable with the technology. I want them to get these benefits. I don't want them to sit there confused not knowing how to do it. It's not that I feel that they are incompetent like 'you would never fill this out correctly' its just you are not used to … having a computer in the household. I don't want to make them confused or make them not apply at all. I'd rather be there to help them, and figure out their case. (Isabel, Outreach Worker)

Beyond practical questions of technical competency and access, outreach workers mitigate issues associated with illiteracy, lack of competency with government jargon, and lack of familiarity with back-end functionality of the online system. Literacy is a multi-faceted issue. Some clients are illiterate in a traditional sense (unable to read or write well enough, even in their native language, to complete the program application). However, illiteracy is also context-specific; the online application uses bureaucratic vernacular that may be unfamiliar to clients even when translated into their native language. As such, it is similar to numerous online services designed for multiple populations, from websites outlining insurance coverage to tools designed to promote successful service engagements with banks, health care providers, or organizations tasked with addressing consumer complaints.

Outreach workers also provide technical assistance through their knowledge of the CDSS's operational processes and their growing expertise with the online application.

Understanding the logic of the application is valuable in successfully interacting with the tool. For example, many online applications are denied because applicants click on the option for "expedited service" even though they do not qualify for that service:

> The first question [the online application] asks 'Do you want to apply for expedited services?' But unless you click on expedited services, it doesn't tell you what it is. People just assume 'well, obviously I want my food stamps faster than usual,' not realizing there's qualifications. (Isabel, Outreach Worker)

Outreach workers' online application expertise partially stems from existing relationships with the CDSS. Outreach workers understand, for example, what information the CDSS typically relies on (and not) to process a case. As a result, outreach workers can help clients provide information that is precise enough for the CDSS but not so overwhelming as to be a substantial barrier to applying.

Ideally, online tools expand the avenues by which potential clients can engage with and access services. However, our results reveal that, for a variety of reasons, many individuals cannot independently engage with the information technologies designed to provide access. Outreach workers attempt to overcome practical issues of literacy, access, and technical competency in providing the expertise (and patience) necessary to "create" competent clients who can successfully engage with the online system. This subset of mediation activities is similar to the technological mediation discussed in previous research, enabling the access and use of a technology or technological system. While such activities are crucial in supporting the use of an online application that was created with the aim of increasing access, efficiency, and effectiveness in service distribution our findings suggest that that this form of mediation is augmented by other activities necessary to transform a potential beneficiary into a successful client.

Providing Knowledge: Creating Self-Advocates
In addition to understanding jargon associated with the application and the internal logic of the tool, itself, outreach workers have a deep understanding of how CalFresh is administered. As such, they can provide clients with tailored information and insight about the underlying bureaucratic process. This knowledge enables outreach workers to move beyond traditional outreach (finding beneficiaries) and technological mediation (helping people engage with a technological system) to help clients become self-advocates in the overall program.

In providing insight into how the CalFresh program works, and informing clients of their rights and responsibilities, outreach workers describe their job as transforming clients into self-advocates—people who know what is expected of them; what is expected of the CDSS; what the CDSS is legally bound to do and; if necessary, how to find actionable recourses. Outreach workers repeatedly told us

that self-advocating clients are better prepared for interacting with the CDSS because they understand these expectations and commitments on both sides of the service relationship. Becoming a self-advocate requires both operational and accountability knowledge.

Operational Knowledge

According to outreach workers, explaining client rights and responsibilities—including what a client is eligible for, expectations of clients, and protections available to clients—is a key aspect of creating self-advocates. In particular, outreach workers provide insight into the interview process required for confirming eligibility. After submitting an application, the CDSS workers meet briefly with each applicant to determine his or her eligibility. Prior to the CDSS interview, outreach workers ask questions in a manner that draws out important supplementary information needed by a CDSS worker during the interview. Extenuating circumstances or an upcoming major change in the household can impact eligibility, but this information may not arise naturally during a typical CDSS interview. By carrying out this additional step with clients, outreach workers find that applicants are more prepared and thus more likely to receive case approval.

Accountability Knowledge

While outreach workers are not government employees and therefore have no formal influence over the CDSS, their work does provide them a great deal of working knowledge about how the CDSS operates in terms of administering CalFresh. In sharing this knowledge, outreach workers help clients become self-advocates in dealing with the CDSS.

> I let them know, they need to upload as many documents as they can, because that will make their application be considered "complete". ... From the day they submit it [a completed application], the CDSS has 30 days, if they qualify, to give them their EBT card. (Isabel, Outreach Worker)

In this example, the advice to complete the application is driven by the legal requirement for clients to receive notification regarding their CalFresh eligibility and enrollment within 30 days of receipt of submitted complete applications. However, the CDSS workers will not begin evaluating a case until it is considered "complete."

Our data indicate that outreach workers facilitate conversations that set client expectations and provide information about CalFresh that they would not normally receive. By setting client expectations about CalFresh and sharing knowledge about the CDSS's accountability, outreach workers can transform their clients into self-advocates, ideally enabling better service outcomes for the client. In "creating" self-advocating clients, outreach workers provide the infrastructure for individuals to handle unexpected or problematic situations independently. Outreach workers feel the practice of transforming clients into self-advocates saves time for outreach workers, as current clients advocate for the program to other potentially eligible clients and guide them through the process.

The role of outreach workers in encouraging self-advocacy is a striking addition to current understandings of mediation and outreach. This process of empowerment has wide reaching implications for the success of e-Government tools and service applications more broadly. In making clients more independent, outreach workers are contributing to the development of a sustainable system that, ideally, will simultaneously increase participation in the service and limit the need for additional outreach work.

Ongoing Engagement: Maintaining Eligibilible Clients

Finally, outreach workers work with clients to ensure they maintain service eligibility as long as their need for food assistance remains. Our data suggest that outreach workers engage in two forms of post-application assistance. First, they assist clients in submitting quarterly reports necessary to maintain CalFresh eligibility. Second, per the request of clients, outreach workers occasionally intervene directly with the CDSS to address issues of continuing eligibility.

Outreach workers report challenges for clients in maintaining program eligibility due to the complexity of the reporting forms. To remain eligible for CalFresh, clients must complete and submit a paper report every three months. The CDSS uses the report to re-verify client eligibility and monitor changes to income or household composition. Outreach workers explain to clients how the quarterly reports function, emphasize the report's importance for maintaining eligibility, and review required information:

> We go over the forms to give them an idea about what they are going to be asked to do later when they fill out their quarterly reports. Just to give them an advanced notice every three months .... So make sure you don't lose all your check stubs, keep track of them, because they'll ask you for them. (Marisol, Outreach Worker)

According to outreach workers, most of their engagement with clients after integration into the program is initiated by the clients, themselves. Clients seek out outreach workers when they have a problem communicating with the CDSS or if they require additional clarification.

> I had one client call me to see what was wrong, because the social services sent her a weird letter. She didn't know what to do. I had to go over to her apartment and kind of read it over and tell her what it was [about]. (Isabel, Outreach Worker)

By explaining the processes necessary for continued eligibility and offering assistance and advice when necessary, outreach workers help clients remain eligible.

In a variety of contexts, engagement with a service is not a one-time interaction with a technological tool, direct service provider, or mediator. Whether insurance, legal, or health care services, the time scale involved in establishing and maintaining a productive relationship with a service provider adds a layer of nuance to the interplay between technological tools and successful dissemination of the service itself. While online tools might be designed to

enable access to a service, these tools generally do not capture the complexity experienced when a client interacts with the service over a long period. Embracing a holistic perspective on the relationship between the use of a service technology and long-term engagement with a service program further emphasizes the need to conceptualize mediators as doing more than finding users and helping them engage with a technology but, in fact, "mediating the service" in a broader sense.

SERVICE MEDIATIONS

In this paper, we draw attention to particular types of service encounters in which application processes lead to deep and continual relationships with the organizations responsible for service provision. In such encounters, mediators' specialized knowledge and understanding of bureaucratic complexity assists in navigating options, rules, and regulations. Our research extends existing conceptualizations of mediation by demonstrating how mediators do more than walk clients through the use of a technology. In actuality, they support the entire service process by actively generating potential clients, engaging in long-term assistance, and providing "third party" knowledge as expert outsiders. Our examination of the activities of outreach workers draws attention to the technical, social, and knowledge labor of mediation and suggests the need for a deeper exploration into the complex and constitutive relationship between supporting a service and mediating a technology.

In conducting this research, we were initially surprised to discover the numerous activities in which outreach workers engage and the various roles they play in the course of their work (*e.g.*, confidant, cheerleader, technical advisor, procedural expert). Through our analysis, we are able to illuminate the often-invisible work that goes into the enrollment of food service beneficiaries via an online tool. E-Government services are premised on an assumption that providing online components to existing services will enhance efficiency, access, and effectiveness. We have found that these enhancements are often only accomplished through a litany of additional labor.

Further, our investigation of what outreach workers actually do suggests that the concept of mediation already present in the literature is a valuable theoretical construct that warrants expansion into the realm of services. The mediation work of outreach workers includes not just technological mediation but service mediation[5], as well. Three characteristics of service mediation became apparent in the context of service mediators who hold expert knowledge of the underlying bureaucratic processes of service-providing organizations. Our data suggest that

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[5] To be clear, service mediations in this context neither refers to "service-oriented architectures" nor "web services." Rather, we are here focused on how service is mediated in sociotechnical service systems.

service mediation in such contexts can be understood as facilitating a *process*, fostering *relationships*, and providing *scaffolding*. In unpacking these various facets of service mediation, we engage in a broader discussion of what a "service" is in the context of technologically mediated service environments.

Service as Process

Interacting with a service (via an online tool or otherwise) is often a continual engagement between service provider and client. Service engagements begin with the discovery that one is eligible for, and desiring of, a service and ends when he or she is no longer in need of the service. It is important to emphasize that information technologies are not, in actuality, the service. Rather, technological tools are designed to enable aspects of the service and therefore become implicated in how the service is described and understood.

By more fully understanding the relationship between an online tool and an overarching service it becomes apparent that it would be impractical and shortsighted to employ mediators for the limited purpose of facilitating access or helping with a single-episode use of a particular technological tool. By embracing the productive role of service mediators, we are able to move beyond a limited (and temporally fragmented) view of outreach and mediation. From this perspective, hiring people solely to advertise services (as in the traditional view of outreach) or to sit with potential clients and provide instruction about how to use a bounded tool (as suggested by much of the work on technological mediation) limits the ability to engender a sustainable and successful service process. Our research reveals that service mediation is better conceptualized as an ongoing process among clients, outreach workers, and service providers that benefits from multiple interactions over time.

Service as Relationship

Just as service provision is not only about a single encounter with a service system, services are rarely limited to a single relationship between a mediator and a client. Service mediators build relationships with a variety of people in their particular service ecology (*e.g.,* potential clients, friends and family of current clients, non-governmental organizations). In fostering these different connections, mediators are not only able to become information brokers better able to address client needs, they can foster productive relationships at a more abstract level—helping to forge relationships between various organizations and stakeholders.

Service mediation, then, requires the maintenance of multiple relationships. Outreach workers foster relationships with gatekeepers in the spaces where prospective clients might be found (community centers, health clinics, religious institutions). They nurture ongoing relationships with prospective clients and maintain these relationships as prospective clients transition from interested party to applicant and eventually to beneficiary.

In addition, the successful mediation of a service engagement requires mediators to foster relationships with key people outside their immediate purview, particularly in the CDSS. These relationships enable outreach workers to acquire pragmatic working knowledge about the administration of the governmental program. Further, these relationships provide social capital that allows outreach workers to intervene productively on behalf of their clients. Not only do outreach workers see themselves as a bridge between clients and the service program (rather than simply the service technology), both the CDSS clients and employees also treat them this way.

Finally, viewing services as relationships also highlights the difficult, and often fraught, position of being perceived as a bridge. The risk here is that some clients mistake outreach workers for representatives of a service program for which they do not directly work. For example, outreach workers in this study showed great insight into how the CDSS works organizationally. However beneficial this insight could be in addressing questions and smoothing tensions, outreach workers expressed a concern that clients saw them as the face of the government or with powers similar to those held by CDSS case workers. These impressions negatively affected the outreach workers when clients were unable to understand why outreach workers did not have access to information regarding their cases. Such misattribution also increased work for the outreach workers as they filtered and vetted calls that should have been directed to the CDSS.

Service as Scaffolding
Conceptualizing how mediation is productively applied to the realm of services requires attention to the constitutive role mediators play in service provision. Not only do mediators support service provision and play an active role in recruiting potential clients, they scaffold the entire service endeavor. By helping transform potentially qualifying but non-participating individuals into independent clients able to engage productively with the service, service mediators help to provide scaffolding that furthers long-term goals of flexibility and sustainability.

This research presents striking examples of how mediators fill knowledge gaps in the communities they serve. Outreach workers engage in education—teaching individuals not just about isolated issues but also giving people the tools, confidence, and information necessary to develop productive long-term relationships with service providers. In essence, by providing regular assistance along a number of dimensions, mediators are able to embolden clients to be better able to assist themselves.

CONCLUSIONS
Our research expands the conceptualization of mediation work within HCI and explores the technological, social, and knowledge labors associated with outreach work. By seeing outreach through the lens of mediation, we extend the concept of mediation in a manner that has implications for the design of online service applications and the

relationship between service technologies and service programs more generally. In what follows, we articulate some implications for design relevant to the types of service mediation we observed in our research and put forth an exploratory framework for a larger research agenda based on the concept of service mediation.

Designing for Service Mediators
Different and complex elements work together to create the provisioning of a service system. In our research, we have shown how mediators are a part of the complexity of service provisioning in extending the reach of service technology and promoting the service, itself. The implication, then, is that designing technologies and systems targeted towards improving the capacity of mediators will improve the reach of these technologies and services. To achieve this end, design should consider the needs, goals, and challenges mediators face within their service ecosystems. Therefore, we ask how design might serve mediators as well as clients and service providers, with the assumption that such design would improve the vitality of the entire system.

Integrating mediators into the process and technology:
Service technologies are often designed assuming that the service client will be the primary user. However, our research indicates that users are much more varied, suggesting that such service systems (both technical components and the work processes within a system) should be redesigned to take into account the complex sociotechnical relationships that support effective outcomes for clients though mediated interactions with services and service technologies. For example, current online application tools could be redesigned to support a "community-based manager" user who can access and personally manage multiple cases, while still granting individual access to clients. With such a redesign, mediators could better manage their clients' cases, and officially communicate with the CDSS on behalf of their clients. Additionally, this redesign has the potential to legitimize mediators' position with both the CDSS and their clients, create more accountability for clients, and make transparent who is receiving external assistance.

Design for preexisting complex relationships:
In this research, we have demonstrated that the social labor of fostering relationships among multiple parties is critical to the work of mediation. Design that leverages mediators' robust and complex relationships with both clients and service-providing organizations could improve the social capital and capacity of the mediators, enabling them to reach and assist a more distributed set of clients. For example, an application that allows clients to recommend mediators to others through a social networking site could engender a "warm introduction" and assist with outreach activities. Beyond building relationships with clients, a key skill of a mediator lies in the knowledge labor of obtaining a nuanced understanding of the service, information often distributed across different individuals in the service

ecology. Therefore, design should also foster information exchange among key parties to keep mediators informed and up to date. For example, an online community that allows different individuals in the service ecology (including other mediators) to post and answer queries would increase access to pertinent information.

Design for low-resource and inconsistent infrastructures:
The mediators in this research often worked in locations where they had less than ideal access (or no access) to technical infrastructures necessary to submit online applications (*e.g.,* WiFi, cellular). Thus, systems must be designed to consider the unreliable and inconsistent infrastructures in which mediators work. For example, a simple redesign allowing for the local input and storage of information, able to be uploaded and submitted once connectivity has been re-established, would greatly improve the usability of the CalFresh online application.

Research Agenda for Service Mediation
Moving forward, a research agenda for service mediation agenda should focus attention on the importance of service mediators in building and maintaining relationships within the ecology of stakeholders in their domains including inter-mediator relationships, mediator-client relationships, service-provider and mediator relationships, and relationships between the mediator and outreach organizations. Orienting questions for such a research agenda might include:

1. What are implications for the dissemination of expertise? How is expertise transferred, shared, and learned? What kinds of expertise are needed for successful mediation?

2. How can novel technologies support mediators' diverse relationships among clients, service providers and other mediators, including sharing and distributing resources that enable service mediators to communicate, support, educate, and meet with each other and clients?

3. How can underlying service infrastructures be redesigned to accommodate mediators' activities, including assisting with applications and communicating with CDSS, in ways that both legitimize a mediator's position while granting clients control over their case?

4. How can design enrich mediators' capacity to conduct service mediation activities, such as incorporating community-based organizations and clients into outreach activities or training new service mediators?

5. How do clients experience the larger ecology of stakeholders implicated in service mediation?

This research agenda should be explored in different domains, beyond that of food insecurity, using empirical and critical perspectives as well as design research methods, including participatory design and action research.

Conclusion
Mediators enable access to and use of technologies and service programs. The participants in this research engaged in outreach activities, technological assistance, knowledge provision, and ongoing engagement. Through these activities, they mediated productive relationships with multiple aspects of service provision, not just the use of service-related technologies. Understanding that the service, itself, is being mediated allows for more nuanced insight into the multiple dimensions of service mediation.

Service mediation involves fostering a process, mediating relationships, and providing broader scaffolding for the service. In this research we discuss how multiple labors involved with service provision (technical, social and knowledge) are key to the successful deployment of online service tools. That potential beneficiaries do not necessarily see themselves as such speaks to a need to expand our understanding of mediation beyond the realm of tool or technology and into the realm of outreach. By acting as educators, advertisers, and advisors, mediators take an active role in service engagement long before and after they assist users with online tools. By attending to this and other complexities of mediation apparent in this research, we highlight the numerous tasks, relationships, and forms of knowledge that enable successful service provision.

Our research teases apart and highlights the distinction between the service and the technology designed to further its goals. As such, we direct attention to the key role mediation plays in bringing potential clients to the online tool, providing assistance to make the tool work, and helping to maintain ongoing relationships with the service that the tool is meant to support.

The design of service technologies tends to focus on the dyadic relationship between the client and the technological artifact. Our research, however, suggests a broader ecology that needs to be considered in the design of service systems, including the important role of mediators in service engagement. Likewise, the broader social context of potential clients must be addressed, such as finding ways to counter myths about services that are sometimes propagated within local communities and that impede use of a service.

Our construct of service mediation extends existing concepts of mediation work, providing a more holistic understanding of the different kinds of labor involved. Our research contributes a detailed and empirically grounded description of the work practices that enable mediators to support entire service processes for their clients, including the "creation" of clients and their support throughout an ongoing engagement with a service. These insights provide a rich, situated context for understanding the role of technology in service provision and begin to suggest ways in which the field of HCI can support the sociotechnical ecology of service mediation.

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