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Broadband Adoption
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# Free Library Hot Spots: Supporting Broadband Adoption in Philadelphia's Low-Income Communities

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Earlier studies of broadband adoption have focused on Internet use in the home. This article suggests that Internet use outside the home can provide a context in which meaningful measures of broadband adoption can be developed. Findings are presented from a study of the Free Library of Philadelphia Hot Spots, which used an innovative community engagement strategy to bring broadband technology and library services to underserved neighborhoods. The study shows that the *sense of comfort* (i.e., support, trust, safety, and respect) at the Hot Spots was important to residents as a precursor to technology access and use, and it suggests that these factors be considered in broadband policies to support sustainable broadband adoption in low-income communities.

Keywords: broadband adoption, digital literacy, comfort, public libraries, community anchor institutions, public computing centers, third places

## Free Library Hot Spots:

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# Supporting Broadband Adoption in Philadelphia's Low-Income Communities

## Introduction

In this article, I argue that a *sense of comfort* is an important precursor to meaningful broadband adoption. I present preliminary findings from a formative evaluation of the Free Library of Philadelphia Hot Spots, [2] which used an innovative community engagement strategy to bring broadband technology and library services to convenient locations in underserved neighborhoods. In my analysis of focus groups with community members and interviews with computer assistants at each of the four Hot Spots, I found that a sense of comfort (i.e., support, trust, safety, and respect) was important to residents both before and after they began to access computers and the Internet. The purpose of this article is to explain how this finding was a key factor in creating the preconditions for residents' technology access and use at the Hot Spots.

The Free Library Hot Spots are public computing facilities embedded within four community-based organizations located in North, South, and West Philadelphia, where several hundred thousand people lack access to the Internet at home (The Pew Charitable Trusts' Philadelphia Research Initiative, 2012, p. 5). The Hot Spots are funded by a 2-year grant from the John S. and James L. Knight Foundation. The project has four objectives: (1) to increase access to computers and the Internet for individuals in underserved neighborhoods throughout Philadelphia; (2) to increase computer literacy and access to training; (3) to increase understanding of and comfort with computers and the Internet; and (4) to increase awareness of Free Library services and materials.

The Free Library provided each community organization with the computers, staffing, and support to assist residents at each Hot Spot location. These public computing centers were scheduled to be operational for approximately 15 months by the end of the 2-year grant period (which has allowed for time to purchase equipment, hire staff, and establish partnerships and schedules). The Free Library estimated that it would provide a total of approximately 720 structured trainings for roughly 3,024 people and that it will serve about 20,160 computer uses through open-use time, based on 30 hours of service per week at each location—20 hours for open use and 10 for structured trainings—by the end of the grant period.

Earlier studies have considered the digital divide, digital inclusion, and broadband adoption primarily from two perspectives: deficit-based and asset-based. Many deficit-based perspectives of broadband adoption (e.g., Brown & Venkatesh, 2008; Irani, Dwivedi, & Williams, 2009) have focused solely on whether individuals use the Internet at home. These studies draw largely from Rogers' (1962) work on technology diffusion and adoption.

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[2] http://www.freelibrary.org/libserv/hotspots.htm

More recent studies (Brock, Kvasny, & Hales, 2010; Dailey, Bryne, Powell, Karaganis, Chung, and Social Science Research Center, 2010; Eubanks, 2011) have reignited the asset-based approach to public access computing (Pinkett, 2003; Schuler, 1996). This literature has focused on how people in low-income communities experience technology in their everyday lives, often in trusted community institutions outside the home in "third places" (Oldenberg, 1989), such as public libraries and other community-based organizations.

I use this theoretical framework to consider how the preliminary findings from my formative evaluation of the Free Library Hot Spots suggest a new way to think about factors that can advance broadband adoption in low-income communities. The findings also support previous assertions that public computing centers should be viewed as ongoing programs rather than as temporary interventions (Viseu, Clement, Aspinall, & Kennedy, 2006). This line of inquiry has allowed me to be reflexive, both as a researcher and former community technology practitioner,[3] while leveraging my experiences and belief in the value of public computing centers.

This study is significant because academics and policy makers are currently engaged in an effort to determine how best to define and measure broadband adoption in the United States, particularly in unserved or underserved communities (National Telecommunications and Information Administration, 2009, p. 33104). The effort was spurred by the 2009 allocation of $7.2 billion in economic stimulus funds under the American Recovery and Reinvestment Act for two national broadband infrastructure projects: the Broadband Initiatives Program and the Broadband Technology Opportunities Program (BTOP). Research on broadband adoption has played a significant role in influencing recent studies and policy papers that have informed the National Broadband Plan (Federal Communications Commission, 2010), BTOP, and related public and private efforts[4] to promote universal access to broadband technology and to stimulate broadband demand.

Many projects that did not receive BTOP support have focused on developing effective interventions to support broadband adoption via public libraries and community-based organizations. This article provides a unique example of a non-BTOP funded project. The goal is to present preliminary findings to highlight conditions under which meaningful adoption might occur.

## Theoretical Framework

This section presents the analytical framework for my study of the Free Library Hot Spots, which seeks to move academics, practitioners, and policy makers beyond the idea of home broadband adoption as a way for low-income communities to deal with their "needs, deficiencies, and problems," and to embrace a more positive vision that recognizes a community's unique "capacities and assets" (Kretzmann & McKnight, 1993, p. 1) as the starting point for evaluating meaningful broadband adoption. I begin with a

[3] From 2008 to 2010, I worked as community media and technology manager for Cambridge Community Television, where I managed computerCENTRAL, a public computing center. See http://cctvcambridge.org/computers

[4] See http://www.connect2compete.org

review of literature on the broadband adoption process, and I continue by describing how these studies have opened up the possibility of a more inclusive process with wider community participation.

### *Broadband Adoption: Deficit-Based Perspectives*

During the last half of the 1990s, as people increasingly gained access to computers and to the World Wide Web, scholars used the term *digital divide* to describe the gaps between the "information haves and information have-nots" (National Telecommunications and Information Administration [NTIA], 2000, p. xiii) in the United States. During this time, researchers conducted telephone surveys and used other methods to investigate where people from different socioeconomic backgrounds existed on the digital divide scale. However, many scholars responded that a more meaningful definition of information inequality was needed to reflect the realities and complexities of Internet use (Clement & Shade, 2000; DiMaggio & Hargittai, 2001; Mossberger, Tolbert, & Stansbury, 2003; Selwyn, 2004; van Dijk & Hacker, 2003; Warchauer, 2003).

By 2000, the U.S. government agreed that a new approach was needed for working with those who remained on the "wrong side" of the divide. "Digital inclusion" became the new way to address technology inequality. As it has been described,

> "Digital inclusion" is the positive response to closing the divide. Meaningful inclusion efforts require more than simply encouraging computer ownership or deploying Internet service nearby. Digital Inclusion encompasses three areas: **access**, **technology literacy**, and relevant **content** and services. Inclusion seeks equity for all residents, as well as for small businesses and community-based (non-profit) organizations. (Communities Connect Network, 2009)

This definition highlights a key aspect of what I refer to as a deficit-based perspective—a way of thinking that has centered, in part, on the access-versus-skills debate (i.e., those *without* access and those *without* skills) in academic, policy, and popular discourse. This conversation has raised important questions about how to and who should define and respond to the digital divide (Selwyn, 2004).

For example, Epstein, Nisbet, and Gillespie (2011) have drawn attention to how different actors have used these two frames to influence the public and policy makers. In their telephone survey of randomly selected U.S. households, the authors employed two sets of questions: one that "defined the digital divide in terms of *access to technology*" and one "that defined the digital divide in terms of *capacity to use technology*" (p. 98). The authors found that many who were asked the first set of questions largely placed the responsibility of addressing the problem on government and large corporations, whereas, when asked the latter set of questions, respondents placed more responsibility on individuals and educational institutions. As a result, the authors argued that "each interpretation implies different kinds of solutions and different actors who may have the ability and obligation to intervene" (p. 93).

As the supply side of broadband has increased in recent years, with advances in national broadband infrastructure investment, many academics and policy makers have been focused on trying to learn how to stimulate demand for household broadband *access* (e.g., Dwivedi & Irani, 2009; Flamm &

Chaudhuri, 2007; Irani et al., 2009). The design of the research has been based, in part, on studies of home computer use in the 1980s. The bulk of this literature can be traced to the work of Everett Rogers. In his classic book, *Diffusion of Innovations*, Rogers (1962) describes a five-stage adoption process (awareness, interest, evaluation, trial, and adoption) and uses this process to predict how a wide variety of individuals and organizations adopt and use innovations.

Rogers' (1962) work laid the foundation for future decades of behavioral studies that focused on determining the drivers of technology adoption. These studies have used deductive approaches to explain and predict factors leading to technology adoption at home (Brown & Venkatesh, 2005, 2008; Dwivedi & Irani, 2009; Flamm & Chaudhuri, 2007; Irani et al., 2009).

This broadband adoption literature, like the digital divide studies before it, has been largely defined and measured by Internet access and use at home. The approach is a practical one, based on data gathered through the U.S. census. However, recent federal initiatives have helped shift the policy focus. The NTIA, Rural Utilities Service, Institute for Museum and Library Services, and other U.S. government agencies and civil society groups have recognized that Internet access at home is only one way to measure broadband adoption. This article contributes to this conversation by providing an example of community Internet use outside the home and, by focusing on the factors that support this use, an example of how public computing interventions can support meaningful broadband adoption.

### *Broadband Adoption: Asset-Based Perspectives*

Another group of researchers has argued that it's important to move from a deficit-based to an asset-based model of technology adoption to better understand how people experience technology in their everyday lives, notably in public libraries and community technology centers (Brock et al., 2010; Dailey et al., 2010; Eubanks, 2011; Pinkett, 2003; Schuler, 1996). Their approach to technology adoption draws from Kretzmann and McKnight's (1993) work on asset-based community development. As Pinkett (2003) has explained:

> Asset-based community development seeks to leverage the resources within a community by "mapping" these assets and then "mobilizing" them to facilitate productive and meaningful connections, toward addressing community-defined issues and solving community-defined problems. Asset-based community development regards community members as active agents of change, rather than passive beneficiaries or clients. (p. 367)

I consider theoretical perspectives that move the focus away from individual use of technology at home to shared understandings of technology use in collaborative spaces outside the home. For example, in their report commissioned by the Federal Communications Commission to analyze barriers to broadband adoption in low-income communities, Dailey et al. (2010, p. 3) present findings from 170 interviews with "non-adopters, community access providers, and other intermediaries conducted across the U.S. in late 2009 and early 2010." They found that low-income people often negotiate daily Internet access via a series of access points, including local libraries and community organizations. As the authors explain,

> In low-income communities, the tension between low rates of home broadband adoption and growing demand for Internet use falls mostly on "third spaces" that provide Internet access away from home and work. Libraries almost always play a central role in these wider ecologies of broadband access, but community centers, employment offices, and other social services organizations also fill important niches (Dailey et al., 2010, p. 38).

The data from this study reveal why home Internet use as a key indicator does not tell the whole story. Third places outside of work and home, such as public libraries and community technology centers, help people gain access not only to computers and broadband service but also to opportunities for connecting with and receiving support from other community members.

The literature on third places is quite broad—much of it drawing from Oldenberg's work (1989). O'Neil (2002) has sought to understand how community informatics researchers have defined and measured third places, such as community technology centers, as meaningful interventions. She found that all studies fit one or more of the following five theoretical categories: (1) social democracy, (2) social capital, (3) individual empowerment, (4) sense of community, and (5) economic development opportunities.

My study builds on this asset-based framework by bridging the scholarship gap between studies of broadband adoption at home and more recent studies that have analyzed the opportunities of and challenges to broadband adoption in low-income communities.

### *The Importance of Comfort*

In this section I briefly review a third category of literature that is relevant to both asset- and deficit-based perspectives. These studies recognize that *comfort* plays an important role in digital and media literacy efforts. By "digital and media literacy," I refer to the following definition by Hobbs (2010) in her white paper for the Knight Commission.

> In this report, the term "digital and media literacy" is used to encompass the full range of cognitive, emotional and social competencies that includes the use of texts, tools and technologies; the skills of critical thinking and analysis; the practice of message composition and creativity; the ability to engage in reflection and ethical thinking; as well as active participation through teamwork and collaboration. (p. 17)

In a scan of the literature, I found that most researchers talk about comfort with technology as an outcome of increased digital and media literacy. For example, Cauley, Aiken, and Whitney (2010) developed a "computer comfort scale" to "determine computer proficiency." The authors argued that "increased comfort levels (i.e., decreases in apprehension as well as increases in enjoyment and confidence) relate positively to an objective skills-based computer-proficiency test as well as subjective self-reports of computer expertise" (p. 114). Similarly, in their study of mobile technology and civic engagement, Campbell and Kwak (2010) found that people who are more comfortable with mobile

technologies are more likely to engage with civic and political information than those who are less comfortable with mobile devices.

These two studies represent a common theme found in educational technology research that conceptualizes comfort as an outcome of technology engagement. However, these studies are quite different from my assertion of comfort as a precondition to technology access and use.

Gomez and Gould (2012a) have identified factors more closely related to this study. In their international comparison of public access centers (i.e., libraries, telecenters, and cybercafés), for example, the authors found that the perception of trust (i.e., safety, relevance, reputation, and "cool") is an important factor that influences how people view public computing facilities. Gomez and Gould (2012b) also found that "infomediaries," such as the Hot Spots' computer assistants, "are pertinent to the success of public access venues" (p. 25). These individuals "can act on multiple levels: at a community level, between communities, or between a community and a venue, as well as at an individual level: between a user and technology" (p. 26).

I emphasize these and other forms of social support as a starting point for understanding how Philadelphia's low-income residents gain access to technology at the Free Library Hot Spots. The goal is to provide context for my discussion of how and why comfort can be understood as a precursor to broadband adoption.

## Free Library of Philadelphia Hot Spots

In its Hot Spots grant proposal to the John S. and James L. Knight Foundation, the Free Library mentioned that residents face serious challenges to broadband adoption, including staggering rates of poverty, unemployment, and low adult literacy. The city routinely experiences a higher rate of unemployment than the U.S. average. A survey from the Pew Charitable Trusts' Philadelphia Research Initiative (2009) reported, "nearly one in five city families and one in four individuals live below the poverty line" (p. 6). The manufacturing sector "shrank 38 percent between 2000 and 2008" (p. 10), and the city lost more than 35,000 jobs between 2000 and 2008 (p. 10). Approximately 21% of the Philadelphia population over age 25 does not have a high- chool diploma or GED (p. 25). In addition, the National Assessment of Adult Literacy (United States Department of Education, 2003) data show that 22% of the population (i.e., ages 16 and older) in Philadelphia County lack basic prose literacy.

The lack of computer literacy and broadband access in Philadelphia's low-income communities creates a serious barrier for those who seek to take advantage of online resources for job searches and other educational, health, and welfare services that could help to combat unemployment, poverty, and illiteracy. As the library's grant proposal to the Knight Foundation explained, the Hot Spots would provide technology training to increase people's access to library and information services, promote job creation, and build community efficacy in underserved areas. The Free Library identified a target population in North, South, and West Philadelphia that featured 144 census tracts and approximately 442,672 residents. The Free Library added:

> The proposed project not only targets the most vulnerable households in Philadelphia in areas with the lowest broadband adoption rates, but will also target these four key populations: (a) new Americans, (b) job seekers, (c) small businesses, and (d) caregivers of young children. (The Free Library of Philadelphia, 2010)

Planners for the project used an asset-based approach by partnering with trusted community institutions in target areas to increase the likelihood that people would use the Hot Spots. In other words, the Free Library assumed both deficit- and asset-based perspectives in serving local information needs while recognizing the capacities and assets in each neighborhood.

### *Partnership Model: Benefits and Challenges*

The Free Library Hot Spots represent an innovative community engagement model. The partnership between the Free Library of Philadelphia and four community organizations has given Philadelphia residents a new way to engage meaningfully with information—and with their neighbors.

The four Hot Spots are hosted at Heavenly Hall Day Care Annex (opened in February 2011), the Institute for the Development of African-American Youth (IDAAY, opened in April 2011), the Village of the Arts and Humanities (opened in March 2011), and the Cambodian Association of Greater Philadelphia (CAGP, opened in March 2011). The facilities are staffed by computer assistants who are paid through Knight Foundation funding.

**Benefits.** Four computer assistants were hired to support community members at the Hot Spots; these assistants have strengthened the ties between residents, host organizations, and the Free Library of Philadelphia and have promoted the Hot Spots' primary objectives. In my interviews with the four executive directors, two mentioned that the partnership allowed them to reach new constituents and provide additional resources to the community.

Using embedded library staff is an innovative new model for personalizing library services in the target areas. And, as Dailey et al. (2010) mention, "third spaces" (p. 38), such as the organizations hosting the Hot Spots, provide their own essential services to residents that often complement the library and information resources made available through the partnership.

**Challenges.** The Free Library Hot Spots partnership model is not without its challenges. In one example, two of the four executive directors mentioned that residents were confused by signage promoting the Hot Spots outside the host organization's building. Many people thought of the Hot Spot as a library branch rather than as a part of the host organization.

Two of the four executive directors also expressed frustration with the fact that the library had received most of the attention for the project, although the community organizations had incurred significant additional costs in opening their doors to host the public computing centers. However, these same individuals also reported that the benefits outweighed the costs, and they recommended that the Free Library of Philadelphia consider more integrated branding and promotion as part of the solution

during the second year of the program.

## Methodology

This research was initially designed to evaluate the Free Library of Philadelphia Hot Spots project. The evaluation focused on quantitative and qualitative data to determine whether the project was achieving its objectives (see Appendix A) and to recommend areas of improvement. Once the formative evaluation was underway, several themes emerged around the idea that comfort was important to residents as a precursor to gaining access to computers and broadband technology.

This section describes the methods I used to discover these themes. My preliminary analysis shows how my findings are part of a much larger question that needs more study. This article is an invitation for researchers to use additional methods to investigate the issues raised here. In other words, my goal is to highlight key themes that I saw emerging during the formative evaluation as rich grounds for further analysis—factors that I also had observed earlier as a community media and technology practitioner.

### *Evaluation Design*

I began the evaluation design by developing a "logic model" (Frechtling, 2007). I used this approach to visualize the project outcomes and to articulate the project's strategy into inputs, activities, and outputs (see Appendix B). Once the formative evaluation was underway, I developed a logical framework (see Appendix A) to connect the program's overall theory of change (i.e., Appendix B) to the proposed targets and actual achievements. This approach provided a rigorous evaluation framework and enabled me to measure progress during the project's formative stage.

***Table 1. Formative Evaluation Methodology.***

| Method | Instrument | Data Collected |
|---|---|---|
| Library: Online survey | Microsoft Access | Quantitative: Number of computer users at each of the four Hot Spots (platform provides monthly reporting). |
| Library: Online survey | Custom Guide | Quantitative: Individual use of software training products, including pre- and posttest data, and information about when users increase their knowledge. |
| Library: Online survey | SurveyMonkey | Qualitative: Stories from computer assistants to help understand the experience of users at a deeper, more contextual level. |
| Evaluator: Focus groups with community members | Interview schedule | Qualitative: Feedback about how people use and benefit from the Hot Spots and what recommendations they would make to improve the program. |
| Evaluator: Interviews with computer assistants | Interview schedule | Qualitative: Feedback from computer assistants about how the program has been successful and what recommendations they would suggest to improve the program's effectiveness. |
| Evaluator: Interviews with executive directors | Interview schedule | Qualitative: Information from community host organizations about the successes and challenges of the Hot Spot program to inform sustainability of the project. |

This article focuses on the insights gained from the focus group and interview transcripts. This shift began during the formative evaluation, when I discovered that the project's third objective (i.e., to increase participants' understanding of and comfort with computers and the Internet) yielded key insights that led me to dig deeper into the concept of "social support" (DiMaggio & Hargittai, 2001) as a way to investigate what was going on at the Hot Spots.

**Focus groups.** I led four 90-minute focus group sessions, with a total of 25 participants, at the Parkway Central Library in November 2011. Six or seven adults attended each session, and one or two community members were present from each of the four Hot Spots. Demographic data were not collected during the focus group sessions. However, census data (United States Census Bureau, 2010) are included in Table 2 to provide an overview of the target populations in each of the four ZIP codes where the Hot Spots are located. And, as mentioned, the Hot Spots are located in areas of the city where significant numbers of people lack access to the Internet at home (The Pew Charitable Trusts' Philadelphia Research Initiative, 2012, p. 5).

***Table 2. General Characteristics of Target Populations in Philadelphia.***

| Hot Spot and ZIP Code | Total Population | Median Age | Male | Female | Hispanic or Latino | Race |
|---|---|---|---|---|---|---|
| Heavenly Hall Annex (19104) | 51,808 | 22.8 | 25,385 | 26,423 | 2,044 | White: 19,475<br>Black or African American: 21,487<br>American Indian & Alaska Native: 162<br>Asian: 8,479<br>Native Hawaiian & Other Pacific Islander: 30<br>Some other race: 549 |
| IDAAY (19132) | 36,268 | 36.5 | 16,522 | 19,746 | 935 | White: 899<br>Black or African American: 34,223<br>American Indian & Alaska Native: 125<br>Asian: 152<br>Native Hawaiian & other Pacific Islander: 4<br>Some other race: 303 |
| The Village of Arts & Humanities (19133) | 26,063 | 29.2 | 12,317 | 13,746 | 15,553 | White: 6,043<br>Black or African American: 10,703<br>American Indian & Alaska Native: 473<br>Asian: 191<br>Native Hawaiian & other Pacific Islander: 8<br>Some other race: 7,438 |
| CAGP (19148) | 49,732 | 36.2 | 24,281 | 25,451 | 5,595 | White: 32,630<br>Black or African American: 3,961<br>American Indian & Alaska Native: 138<br>Asian: 8,675<br>Native Hawaiian & other Pacific Islander: 31<br>Some other race: 2,941 |

Source: American FactFinder: http://factfinder2.census.gov

Focus group participants were asked a series of semistructured interview questions on the following topics: (a) when and why they started using the Hot Spots; (b) whether they had access to the Internet at home; (c) what challenges they faced while using the Hot Spots; (d) whether the Hot Spots helped them to achieve their goals; (e) and what recommendations (if any) they might have to improve the Hot Spots.

**Computer assistants.** I arranged 45-minute interviews with each of the four computer assistants at the Hot Spots. I conducted one of the interviews over the phone. As mentioned, the Free Library hired the assistants with funding from the Knight Foundation grant. The computer assistants were assigned—one at each Hot Spot—to staff the labs for 30 hours per week—20 hours for open use and 10 hours for structured trainings.

My interviews with the computer assistants were based on semistructured questions on the following topics: (a) how they have characterized the successes of the program; (b) what information community members sought most often; (c) how families and the community at large have benefited from the Hot Spots; (d) how they personally and professionally have benefited from the project; (e) what their experiences have been with the host organization; (f) what challenges they've faced; and (g) what recommendations they would suggest to improve the Hot Spots.

In the first stage of analysis, I prepared the interview transcripts and wrote memos that kept track of significant concepts and themes. It was at this point that I discovered that many residents stressed the importance of comfort as a precursor to their engagement with technology at the Hot Spots. As *comfort* developed as an important concept, I examined the literature that identified comfort as a measure in digital literacy and public access computing projects to gain greater insight for my study.

## Findings

Focus group participants described four conditions that were important to them as they began to engage with technology at the Hot Spots. The computer assistants provided social support—technical and emotional (DiMaggio & Hargittai, 2001, pp. 13–14)—to community members. Trust, safety, and respect emerged as three additional factors that were important to residents as they developed a sense of comfort at the Hot Spots. I conclude by sharing some of the key challenges that community members experienced while using the Hot Spots and their recommendations for remedying these situations.

### *Support*

In conversations with community members during the focus group sessions, participants explained that they felt comfortable at the Hot Spots largely because of the technical assistance they received from computer assistants, friends, and families during their time spent at the Hot Spots. Community members told me that the Hot Spots provided families with opportunities to learn new skills and then share them with others. As one computer assistant explained,

> One girl comes in and works on her typing skills. Her mom learned about it from her daughter and she [the girl] is helping her [mom] now. I think it's good, having this little area [pointing to the children's area]; there are people who bring in their grandkids, and they can be here on the computer or reading.

Community members also told me that computer assistants provided them with a sort of "emotional reinforcement . . . in the forms of both commiseration when things go wrong and positive interest in sharing discoveries when things go right" often afforded by friends and family (DiMaggio & Hargittai, 2001, p. 12). As one community member explained:

> I don't have a computer at home. So, it's like every time I went job seeking, everyone would say, "You have to do it online, you have to do it online!" So I went there for the first time and did what I had to do. So [computer assistant's name]—you might hear her

> name a lot, God sent an angel when he sent her to the Hot Spot! She gave me this portfolio and she helped me with my résumé. I've had two job interviews since then. It was nice. She made it look better than what I had, and then she used herself as a reference.

During the focus groups, community members talked about their interest in using the library's electronic resources and other online tools at the Hot Spots to access employment and educational opportunities. One woman described how the computer assistant inspired her to learn these tools on her own; she said that by doing this she gained digital literacy skills and confidence at the same time.

> I know she [the computer assistant] taught me some things, and she kept telling me, and I was trying, and she had told me many times, and I didn't want to ask her. So I sat there and I told myself, "You better figure this out." It took me about ten minutes but I did everything that I was supposed to do, and once you get it, it's like, "Oh my God!" and I just looked at her like, "I did it by myself!"

The findings suggest that the computer assistants provide community members with the technical assistance and emotional support to engage meaningfully with technology.

### *Trust*

One of the computer assistants pointed out during our interview that many residents in the neighborhood expected the Hot Spot where he worked to be "here today, gone tomorrow." He told me this was a real problem in the beginning, when few people came to the Hot Spot. As he described:

> When it [the Hot Spot] first started, people were very timid because they weren't sure if it would be gone tomorrow. They would come in and look around and leave. Now we can't get them to leave. It's a second home. I've seen people come and bring back three people with them the next day. That, to me, is a huge success, from people who were afraid to come through the door because they had no technological experience and they were afraid of being embarrassed or that it wouldn't still be here.

In one focus group session, a participant said the Hot Spots seemed more "official" than other public computing centers, such as the local job training facility, because the Hot Spots were affiliated with the library. One computer assistant said that he thought his Hot Spot had already been successful in reaching the community, even in the first few months of the project. As he explained:

> I've seen individuals come in and just feel better because now they have a place to come in and communicate with others about positive things instead of staying at home. It's a place where they can come sit down read, research, and then talk about things that might be on their mind—the state of Philadelphia, economy, their neighborhoods, children, themselves. How they've gone from being young to elders. In this neighborhood people are busy trying to survive. This Hot Spot has become like a

> heartbeat for them. They come in, they can talk, they can laugh. It's very supportive for them.

The same computer assistant shared the following statement: "People feel that they have access to the world here. You can tell that the community feels that this space is theirs. They know this is a place that can help them."

### *Safety*

The Free Library Hot Spots have become trusted community hubs—safe havens, places to relax and unwind. Access to the Hot Spots has not only meant access to computers and the Internet, music and videos, but also to places where people perceive they will not be harmed. As one community member told me, in reference to the neighborhood Hot Spot, "It's safe there, and sometimes I've stayed until six [o'clock p.m.] and I have my two grandkids with me." Another community member with advanced digital and media literacy skills explained:

> I love that I can get to all areas of the computer. My social life is also on the computer because it's dangerous and violent out there. I get to do a lot of things on the computer that I need—more than just working on my résumé. I can download gospel music, find a preacher, I've found businesses and gyms and things that open my mind up, health information. It's important to be able to explore anything we want.

Her comment seems to support the findings in Gomez and Gould's (2012a) international comparison of public computing centers in that trust is closely connected to safety. They write, "Successful use of ICT in public access venues requires that they are perceived as safe in three ways: physically, socially, and technologically." The authors also noted, "Personal safety frequently has to do with the location of the venue (physical safety)" (p. 34).

In each focus group session, community members mentioned how important it was for them to have easy access to computers and the Internet in a safe location. Other people said they felt proud that the Hot Spot existed in their neighborhood. As one resident told me, "I'm very dedicated to going. . . . It's a perfect location. I can just walk around the corner and I'm right there." Another community member said, "I am thankful for the Hot Spot because it is right in my neighborhood . . . location, location, location!"

### *Respect*

Community members talked about how they liked the "vibe" at the Hot Spots, and they expressed their appreciation and respect for the staff there. During one interview, I asked the computer assistant if he had an opportunity to witness anyone's personal growth or development while using the Hot Spot. He responded:

> For some of the youth, the easiest way to judge how they are growing is by paying attention to how they respond to you. It could be the first time you meet them, and you say, "Hi, how are you?" Hrmph [in response]. You know you get that grunt [laughs]? And then later, "I'm fine" or "What's up?" or "Hey, how are you?" You know, once that starts to begin, that's where you start to see *big* growth. What I realized with the young adults is that it takes time. . . . For the ones who I have met here [at the Hot Spot], the growth is consistent. But it can be as much as a "Hi" or as much as them remembering my name.

During a focus group session, one woman described how impressed she was when she saw the computer assistant treating community members with respect. As she explained:

> When I came in and I saw certain brothers who wanted to come in and just be who they were outside, well when someone comes and meets them and greets them at the door and says, "Hello, *Sir*," they are like, "Whoa!" They are taken aback because you are giving them respect, you know what I mean? I like this. I'm glad to see a lot of young males that are coming in and they are handling their business.

The same computer assistant mentioned above described how giving people respect has contributed to their sense of comfort at the Hot Spot. He added:

> Once people come here and they see it is comfortable, and when nobody is judging them, we're here to help them. That's when the success really starts to begin. We are always trying to keep it [the Hot Spot] comfortable, trying to keep it open, trying to make it respectful, trying to make it a village—because it does take a village to raise *everyone*, a community. We try to make it comfortable for everyone, and you start by making it respectful.

### ***Challenges***

Two key issues emerged during my conversations with community members: not enough computers and not enough hours at the Hot Spots to accommodate the demand. Each location opened with 7 computers for adults (IDAAY opened with 12) and 2 computers for children. However, when I asked community members to describe some of their challenges in using the Hot Spots, one man responded:

> My question to you is do you supply the computers? The Germantown [Hot Spot], I think there are three laptops for the kids and five or six for the adults, and it's open from one to five. Maybe the younger adults are on Twitter or Facebook and they get up when we are there to work on the job search. There should be more computers. There are lines, and you get thirty minutes or an hour, and that's it for the day. You can't get no more [computers]?

Other residents told me they wished the Hot Spots stayed open later during the day and on Saturdays, particularly to accommodate working people. As one woman described,

> I can't go back to school to learn this when I can learn it here [at the Hot Spot] for free. I go from one to five p.m.—just like if I had a job to go to. Maybe open at ten a.m.—that would be helpful for people with jobs. That's the only change, maybe extended hours for people who have jobs. Possibly on the weekends, too. I don't think they have enough computers to add more people.

Another woman agreed, "I don't think they have enough computers to have more people come in there. Even if they did come, they would probably have to time everybody on the machines to see how long they've been on there so other people could get on [the computers] themselves."

Other focus group participants urged the Free Library to hire additional workers to support the computer assistants. As one woman explained, "I think [the computer assistant] has a job, school, and she comes there. You don't want to burn her out. Move the times around with the locations so you don't burn the good people out." The shortage of computers and hours were the two most significant sources of frustration with the Hot Spots—often more out of concern for the computer assistants.

## Supporting Meaningful Broadband Adoption

In discussing both the implications and limitations of my study, I elaborate on what the preliminary findings from my Hot Spots formative evaluation might reveal about the importance of comfort as a precursor to meaningful broadband adoption. This section builds upon earlier studies (Clement & Shade, 2000; DiMaggio & Harggattai, 2001; Gomez & Gould, 2012a) that have found that social support is a key factor in understanding digital inequality. I argue that trust, safety, and respect should be included, along with support, in my theorization of a *sense of comfort*. I conclude with recommendations for future studies to further investigate the role of comfort in promoting sustainable broadband adoption.

### *Sense of Comfort*

Table 3 summarizes findings from my conversations with community members and computer assistants at each of the four Hot Spots. The findings describe the unique assets and capabilities that each community member and computer assistant has brought to the project.

To create Table 3, I borrowed from Gomez and Gould's (2012b) article, which provides an "overview of perceptions of trust in libraries, telecentres, and cybercafés." I list the four factors that contributed to a sense of comfort at the Hot Spots and summarize my findings related to how I understood community members and computer assistants to perceive each factor in this process.

***Table 3. Sense of Comfort: A Summary of Findings.***

| **Sense of Comfort** | **Community Members' Perceptions** | **Computer Assistants' Perceptions** |
|---|---|---|
| Support | • The ability to receive technical and emotional support from friends, family, and computer assistants | Enables family members to come together in the community to engage with technology and help others in meaningful ways |
| Trust | • Builds people's confidence in shared community resources<br>• Supports physical spaces that enable meaningful community communication | Provides a foundation for individuals to develop their technology skills, access employment and educational opportunities, and build confidence in community institutions |
| Safety | • Important personally, physically, and technologically<br>• Opens up possibilities for gaining access to meaningful information<br>Location plays a critical role | Makes it possible for people to relax and unwind in ways they can't at home or outdoors in their neighborhoods |
| Respect | • Recognizing individuals as honorable members of the community<br>• Noticeable to other community members when it happens | Key to establishing trust and credibilty among community members<br>Fosters confidence in individuals |

This summary, makes clear the notion that while comfort is important in helping computer users to enjoy a "full range of available software packages" (Murdock & Golding, 2004, p. 252), it can also be viewed as critical step toward helping people to gain technology access and training at the Free Library Hot Spots.

***Table 4. Projected Versus Actual Use of the Hot Spots.***

| Hot Spot | Projected Total Number of Individuals Using the Hot Spot, March 2011 to September 2012 | Actual Number of Individuals Using the Hot Spot, March 2011 to November 2011 | Number of Individuals Using the Hot Spot, November 2011 (Target = 280) |
|---|---|---|---|
| Heavenly Hall Annex | 5,040 | 4,240 | 800 |
| IDAAY | 5,040 | 3,568 | 1,472 |
| The Village of Arts and Humanities | 5,040 | 2,306 | 2,734 |
| CAGP | 5,040 | 3,482 | 1,558 |

Source: The Free Library of Philadelphia

Table 4 provides data on Hot Spot use by individuals (i.e., not unique users) between March and November 2011 compared with the projected grant total of 5,040—based on the Free Library's 280-person monthly target. Each Hot Spot has already exceeded the target expectations over the recorded period. Most sites did not meet the initial target values in the first few months, but then went on to exceed them.

I am not suggesting that comfort should be considered as a defining feature of broadband adoption, but rather *I seek to highlight conditions under which meaningful adoption might occur*. These findings indicate that community partnerships can play an important role in supporting broadband adoption.

There are several limitations of this study. These include the small number of community members and computer assistants who participated. In addition, I was not able to return to the sites to conduct additional focus groups and interviews, participant observation, and member checking. This would have allowed me to further examine how community members developed a sense of comfort at the Hot Spot.

My study supports the findings of Dailey et al. (2010) showing that "third spaces" (p. 38), such as the Free Library Hot Spots, play a critical role in helping to "fill the gap between low home adoption and high community demand" (p. 3). This is not to say that home Internet use is an unworthy goal for broadband policy making. Rather, the data indicate that community anchor institutions and community partnerships can play a special role by offering residents ways to gain access to technology and training and to develop community-defined goals that recognize their area's unique capacities and assets.

## Conclusion

A sense of comfort matters as a precursor to meaningful broadband adoption at the Free Library Hot Spots. The Free Library's innovative partnership and implementation model, as well as its asset-based approach to project planning, may have contributed to creating a sense of comfort at the Hot Spots. And support, trust, safety, and respect are four important nontechnology indicators that may be useful for academics, practitioners, and policy makers to consider in developing sustainable broadband adoption interventions.

Broadband policies should be responsive to the needs of community-based organizations in developing innovative models of broadband adoption, such as the one described in this article. Particular attention should be paid to interventions that value the role of infomediaries (Gomez & Gould, 2012b) in providing not only technology training but also community-focused workshops where residents in low-income communities can gain access to critical resources and use their knowledge as powerful steps toward developing healthier communities (Ninan-Moses, 2011).

Recent studies that focus on community assets and partnerships with anchor institutions as a starting point open the door to researchers and policy makers interested in developing broadband policies that are more appealing to people in low-income communities. These studies offer additional frameworks for investigating the role of third places and community partnerships in fostering broadband adoption both inside and outside the home.

I have presented an evaluation framework to study how public libraries can work with community organizations to enhance broadband adoption in underserved areas. The research design described here is grounded in the literature on technology adoption and digital literacy. Its significance lies in its potential usefulness to libraries, community organizations, residents, academics, and policy makers interested in meaningful broadband adoption initiatives in low-income communities.

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***Appendix A. Logical Framework for Hot Spots Formative Evaluation Report.***

| Activity | Indicator | Data Source | Target | Achieved |
|---|---|---|---|---|
| ***Objective 1: To promote increased access to computers and the Internet for individuals in underserved neighborhoods throughout Philadelphia*** | | | | |
| **1.1 Track number of computer users at each Hot Spot** | | | | |
| Administer computer-based surveys | Number of daily users by type: | Microsoft Access | ~20,160 users through open-use time (during 15 months of 2-year grant period) | Actual numbers have exceeded projected numbers at each Hot Spot. |
| **1.2 Track computer users that result from promotional and outreach efforts** | | | | |
| Review focus group and interview data | Number of materials distributed by computer assistants<br><br>Organizations visited and communities contacted about the Hot Spot program. | Interview data | Raise awareness about the Free Library Hot Spots throughout each of the four neighborhoods | The library did a significant amount of outreach to promote the Hot Spots project. Hot Spot users, computer assistants, and executive directors of each host organization all reported that the promotional materials—and particularly word of mouth—played a significant role in raising awareness about the program in the early stages and helped to increase attendance. |

| Activity | Indicator | Data Source | Target | Achieved |
|---|---|---|---|---|
| ***Objective 2: To increase participants' computer literacy and access to training*** | | | | |
| **2.1 Track attendance at trainings** | | | | |
| Review pre- and posttests that indicate when users increase their knowledge of Microsoft products | Number of trainings completed | Custom Guide | ~720 structured trainings for about 3,024 people (during 15 months of 2-year grant period) | 79 participants have used the Custom Guide software. 42 people received 100% correct answers on their post-assessments, and 62 people received 63% or higher correct answers on their post-assessments. |
| **2.2 Track use of library's electronic resources** | | | | |
| Review focus group and interview data | Number of electronic resources used | SurveyMonkey<br><br>Interview data | | Hot Spot users and computer assistants have described the library's electronic resources as important neighborhood assets, which makes the Hot Spots unique from other public computing centers in the areas. |

| Activity | Indicator | Data Source | Target | Achieved |
|---|---|---|---|---|
| ***Objective 3: To increase participants' understanding of and comfort with computers and the Internet*** | | | | |
| **3.1 Track use of computers by individuals over time** | | | | |
| Review feedback about individual accomplish-ments and challenges as well as benefits for families | Number of people who acquired jobs<br><br>Type of skill acquired | SurveyMonkey<br><br>Interview data | | The Hot Spots provide a comfortable, safe, and supportive environment for local residents to learn new skills, find employment opportunities, and engage with members of their community. |

| Activity | Indicator | Data Source | Target | Achieved |
|---|---|---|---|---|
| ***Objective 4: To increase awareness of Free Library services and materials*** | | | | |
| **4.1 Track library card applications** | | | | |
| Review focus group and interview data | Number of library cards distributed | SurveyMonkey<br><br>Interview data | | The focus group and interview data indicate that more people have signed up for library cards as a direct result of coming to the Hot Spots. The library currently does not have a system in place to track the number of library cards distributed at each of the four Hot Spots. However, the computer assistants can include this information in their daily reporting diary along with information about library books and electronic resources used at the Hot Spot. |
| **4.2 Track usage of books purchased by the library** | | | | |
| Review focus group and interview data | Number of books used | SurveyMonkey<br><br>Interview data | | The availability of books and other paper materials has been a tremendous asset at each of the Hot Spots. The users, computer assistants, and executive directors all described the benefits of having these resources available for residents. The GED and college prep books are helping youth and adults move to the next stage in their educational attainment. And the books for young children provide an opportunity for parents to come read with their children. |
| **4.3 Track use of library's electronic resources** | | | | |
| Review focus group and interview data | Number of electronic resources used | SurveyMonkey<br><br>Interview data | | Residents who use the Hot Spot are also taking advantage of many of the library's electronic resources. Some of the more popular uses of the resources includes: GED practice on Learning Express, Microsoft Office tutorials on Custom Guide, math tutoring on Homework Help. These software packages provide additional resources not available to residents who use other public computer centers. |

***Appendix B. Free Library Hot Spot Program Logic Model.***