CREATING COMMUNITY CONNECTIONS
SOCIOCULTURAL CONSTRUCTIONISM AND AN
ASSET-BASED APPROACH TO COMMUNITY TECHNOLOGY AND COMMUNITY BUILDING

by

Randal D. Pinkett

B.S. Electrical Engineering, Rutgers University, 1994
M.S. Computer Science, University of Oxford, 1996
M.S. Electrical Engineering, Massachusetts Institute of Technology, 1998
M.B.A, Massachusetts Institute of Technology, 1998

Submitted to the Program in Media Arts and Sciences
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ABSTRACT

The intersection between community technology programs seeking to close the "digital divide," and community building efforts aimed at alleviating poverty, holds tremendous possibilities, as both domains seek to empower individuals and families, and improve their overall community. Ironically, approaches that combine these areas have received very little attention in theory and practice. As community technology and community building initiatives move toward greater synergy, there is a great deal to be learned regarding how they can be mutually supportive, rather than mutually exclusive. This thesis sheds light on the possibilities inhered at this nexus.

The project that constitutes the basis for this thesis is the Camfield Estates-MIT Creating Community Connections Project, an ongoing effort at Camfield Estates, a predominantly African-American, low- to moderate-income housing development. As part of this project, we worked with residents to establish a technological infrastructure by offering every family a new computer, software, and high-speed Internet connection, along with comprehensive courses and a web-based, community building system, the Creating Community Connections (C3) System, that I have co-designed. The project combined these elements in an effort to achieve a social and cultural resonance that integrated both community technology and community building by leveraging indigenous assets instead of perceived needs.

In relation to this work, I have developed the theoretical framework of sociocultural constructionism and an asset-based approach to community technology and community building. Through this lens, I examine the early results of the project in the areas of community social capital and community cultural capital, based on quantitative and qualitative data resulting from direct observation, surveys, interviews, server logs, and case studies. These findings included expanded local ties, a heightened awareness of community resources, improved communication and information flow at the development, and a positive shift in participants' attitudes and perceptions of themselves as learners.

Finally, based on these and other findings, I discuss the challenges and opportunities of a sociocultural constructionist and asset-based approach, presents lessons learned, and offers recommendations for future community technology and community building initiatives.

Thesis Advisor: Mitchel Resnick
Associate Professor of Media Arts and Sciences
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- 3 -
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With strength from God...

I can do all things through Christ who strengthens me.

– Philippians 4:13

And in remembrance of my ancestors...

The ancestors teach—
not with textbooks but with truth—
and I respect them and love them
and praise them
and remember them as moral,
spiritual, intellectual,
creative giants...
and I pray that I can grow
to be that tall someday.

– Tara Jaye Centeio

This is dedicated to all of my family and friends
who have supported me
during the dissertation process, including...

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My late Father – Leslie S. Pinkett, in spirit,
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Creating Community Connections
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Chapter 1

Introduction

The Digital Divide and Community Technology

The "digital divide" is the phrase commonly used to describe the gap between those who benefit from new technologies and those who do not— or the digital "haves" and "have nots." Since 1994, the National Telecommunications and Information Administration (NTIA) in the U.S. Department of Commerce has released five reports examining this problem, all under the heading "Falling Through the Net" (U.S. Department of Commerce, 1995, 1998, 1999 & 2000). Each study has reached the same glaring conclusion: the digitally divided are becoming more divided. In their most recent report, Falling Through the Net: Toward Digital Inclusion, the U.S. Department of Commerce writes:

A digital divide remains or has expanded slightly in some cases, even while Internet access and computer ownership are rising rapidly for almost all groups. For example, the August 2000 data show that noticeable divides still exist between those with different levels of income and education, different racial and ethnic groups, old and young, single and dual-parent families, and those with and without disabilities... Until everyone has access to new technology tools, we must continue to take steps to expand access to these information resources. (U.S. Department of Commerce, 2000, p. xv)

In response to the digital divide, a number of community technology (Beamish, 1999; Morino, 1994) initiatives have emerged in rural and low-income communities across the country (Bowman et al., 1999; Bishop et al., 1999; Fowells & Lazarus, 2001; Schön et al., 1999). Community technology is defined as
"using the technology to support and meet the goals of a community" (Beamish, 1999, p. 366). The primary form for these efforts has been community technology centers (CTCs), or publicly accessible facilities that provide computer and Internet access, as well as technical instruction and support. However, in light of the U.S. Department of Commerce's and other organization's findings, it is clear that such strategies are a necessary, but not sufficient measure for bridging the digital divide (Benton Foundation, 1998). This is further contextualized by the propensity of most community technology initiatives to be narrowly focused on providing economical access and training, without a more pertinent emphasis on meaningful use and outcomes, such as how technology can serve the individual and collective interests of a community. In From Access to Outcomes: Raising the Aspirations for Technology Investments in Low-Income Communities, the Morino Institute writes:

To date, most initiatives aimed at closing the digital divide have focused on providing low-income communities with greater access to computers, Internet connections, and other technologies. Yet technology is not an end in itself. The real opportunity is to lift our sights beyond the goal of expanding access to technology and focus on applying technology to achieve the outcomes we seek — that is, tangible and meaningful improvements in the standards of living of families that are now struggling to rise from the bottom rungs of our economy. (Morino Institute, 2001, p. 4) (Emphasis Mine)

In other words, access to technology alone, without appropriate content and support, as well as a vision of its transformative power, can not only lead to limited uses, but shortsighted ones as well. Or, as Resnick and Rusk (1996) plainly, but eloquently sum up, “access is not enough.” Now, with a myriad of efforts underway to bring information and communications technology into underserved communities on a widespread basis, the key question to be answered is: what can be done to leverage a community technological infrastructure in a way that improves the lives of individuals and families within these communities? I believe “community building” is directly relevant and central to this discussion.
POVERTY ALLEVIATION AND COMMUNITY BUILDING

There have been a variety of efforts to revitalize America’s distressed communities and alleviate poverty, many dating back to the late nineteenth century. Presently, these initiatives take a variety of forms including Comprehensive Community Initiatives (CCIs) (Aspen Institute, 1997; Hess, 1999; Smock, 1997) and Empowerment Zones/Enterprises Communities (EZ/ECs) (HUD, 1999). Despite these efforts, our modern reality is that the gap between America’s rich and poor—the historical “haves” and “have nots”—still exists to this day, along various social, ethnic, and racial lines. In Common Purpose: Strengthening Families and Neighborhoods to Rebuild America, Schorr writes:

The polarizing effects of growing income inequality are intensified by racial, ethnic and class differences, and solidified by a dramatic upsurge in geographic separation. At one end of town are the fortunate fifth, "quietly seceding from the rest of the nation," in walled-off privacy. Across town, the losers live in ever greater isolation, in neighborhoods steeped in violence and despair, with a majority of adults not working, not married, and not succeeding in any activity society values, and with a life expectancy lower than that of their counterparts in Third World countries. (Schorr, 1997, p. xvii)

As strategies to alleviate poverty have emerged and evolved over time, a general convergence has gradually occurred among community theorists, researchers, and practitioners, concerning the success factors of comprehensive community building (Aspen Institute, 1997; Kingsley, McNeely & Gibson, 1999; Kretzmann & McKnight, 1993; Naparstek, Dooley & Smith, 1997; Schorr, 1997). Community building is an approach to community revitalization that is focused on "strengthening the capacity of residents, associations, and organizations to work, individually and collectively, to foster and sustain positive neighborhood change" (Aspen Institute, 1997, p. 2).
Led primarily by community-based organizations (CBOs), or private, non-profit organizations that are representative of segments of communities, a number of success stories have emerged of community building efforts in previously impoverished inner city neighborhoods and low-income communities around the country. Unfortunately, for many Americans low-income communities and the inner city conjure images of poverty, crime, violence, vacant and abandoned buildings, joblessness, gangs, drugs, homelessness, and welfare dependency. What stands out from these new approaches to community revitalization is the acknowledgement that underserved communities possess their own indigenous resources or assets that can, and must be leveraged in order to achieve success. In *Community Building Coming of Age*, Kingsley, McNeely and Gibson of the Urban Institute write:

"Probably the feature that most starkly contrasts community building with approaches to poverty alleviation that have been typical in America over the past half-century is that its primary aim is not simply giving more money, services, or other material benefits to the poor. While most of its advocates recognize a continuing need for considerable outside assistance (public and private), community building's central theme is to obliterate feelings of dependency and to replace them with attitudes of self-reliance, self-confidence, and responsibility." (Kingsley, McNeely & Gibson, 1999, p. 4)

As community building initiatives are undertaken in inner city and urban centers across the country, the key question to be answered is: what can be done to further advance these efforts in a new and innovative way? I believe "community technology" lies at the heart of the answer to this question.
RESEARCH PROBLEM – THE INTERSECTION BETWEEN COMMUNITY TECHNOLOGY AND COMMUNITY BUILDING

The digital divide is a modern day reflection of historical social and economic divides that have plagued our society for years. Over the past decade, the community technology movement has gathered momentum toward closing the gap with programs targeted at access, training, content, technological fluency, and more. Over the past century, the community building movement has wrestled with complementary issues in its' efforts to alleviate poverty by instituting programs aimed at education, health care, employment, economic development, and the like.

The intersection between these domains holds tremendous possibilities, as both efforts seek to empower individuals and families, and improve their overall community. Ironically, approaches that combine these areas have received very little attention in theory and practice. In fact, community technology efforts are often completely decoupled from community building initiatives for a variety of reasons including their disparate funding sources (significant private-sector support in the form of high-tech corporations for community technology, and significant public-sector support in the form of government programs for community building), disparate foci (access for community technology, outcomes for community building), and disparate constituencies (primarily CTCs for community technology and CBOs for community building). Fortunately, a few advocates have begun to highlight this disconnect and recommend strategies to address it (Kirschenbaum & Kunamneni, 2001; Turner & Pinkett, 2001). This dissertation is intended to contribute to this dialogue.

From among the three models of community engagement with technology – community technology centers (CTCs), community networks, and community content (Beamish, 1999) – there is a limited number of projects that have engaged community residents as active participants in using technology to define processes for neighborhood revitalization. Conversely, from among the multitude of models for
community engagement with revitalization – such as community organizing, community development, community building, and comprehensive community initiatives (CCIs) (Hess, 1999) – we are only beginning to witness the benefits that are afforded by incorporating new technologies into these approaches in a way that truly leverages their potential.

The best practices of community technology see community members as active producers of community information and content. Similarly, the best practices of community building see community members as active agents of change. As community technology and community building initiatives move toward greater synergy, there is a great deal to be learned regarding how community technology and community building can be mutually supportive, rather than mutually exclusive. My research problem is to shed light on the possibilities inhered at this nexus.

**RESEARCH PROJECT – THE CAMFIELD ESTATES-MIT CREATING COMMUNITY CONNECTIONS PROJECT**

The project that constitutes the basis for this thesis is the *Camfield Estates-MIT Creating Community Connections Project*, a partnership between the Camfield Tenants Association (CTA) and the Massachusetts Institute of Technology (MIT), started in January 2000. Camfield Estates is a 102-unit, predominantly African-American, low- to moderate-income housing development in the South End/Roxbury section of Boston, Massachusetts. The Camfield Estates-MIT project has as one of its goals to establish Camfield Estates as a model for other housing developments across the country as to how individuals, families, and a community can make use of information and communications technology to support their interests and needs.

To achieve this goal, we have established a community technological infrastructure at Camfield by offering every family a state-of-the-art computer, software, and a high-speed Internet connection, along
with comprehensive courses at the Neighborhood Technology Center (NTC), an approximately fifteen-computer community technology center (CTC) on the premises. We have also created a web-based, community building system, the Creating Community Connections (C3) System, that I have co-designed with Camfield residents, specifically to create connections between residents, local associations and institutions (e.g., libraries, schools, etc.), and neighborhood businesses. The project combined these elements in an effort to achieve a social and cultural resonance that integrated both community technology and community building by leveraging indigenous assets instead of perceived needs.

THEORETICAL FRAMEWORK:

SOCIOCULTURAL CONSTRUCTIONISM AND AN ASSET-BASED APPROACH TO COMMUNITY TECHNOLOGY AND COMMUNITY BUILDING

In relation to this work, I have developed the theoretical framework of sociocultural constructionism and an asset-based approach to community technology and community building, an integration of the theories of sociocultural constructionism (Hooper, 1998; Pinkett, 2000; Shaw, 1995) and asset-based community development (Kretzmann & McKnight, 1993).

Sociocultural Constructionism

Sociocultural constructionism argues that individual and community development are reciprocally enhanced by independent and shared constructive activity that is resonant with both the social environment of a community of learners, as well as the culture of the learners themselves (Pinkett, 2000). A sociocultural construction is a physical, virtual, or cognitive artifact that is resonant with the social and cultural milieu. This includes a community newsletter (paper-based and/or electronic) with valuable local content, a personal website that highlights information of interest to other members of the community, a posting to a discussion forum that shares useful knowledge or wisdom, a message to a
neighborhood e-mail list that engages in relevant issues, or even a paradigm shift that reflects a renewed confidence in oneself or greater appreciation of one's community. Sociocultural constructionism regards community members as active producers of community information and content, as opposed to passive consumers or recipients.

In the context of community technology, I present a sociocultural constructionist approach as being consistent with the following three guidelines:

- **Empower Individuals, Families, and Communities** – Sociocultural constructionism seeks to empower individuals, families, and communities to identify their interests and how technology can support those interests.

- **Engage People as Active Producers, Not Consumers** – Sociocultural constructionism encourages individual expression of one's knowledge, interests, and abilities, as well as communication and information exchange at the community level, as mediated by technological fluency.

- **Emphasize Outcomes, Instead of Access** – Sociocultural constructionism posits that one pathway to achieving individual and community development is to position technology as a tool for achieving outcomes in areas such as education, health care, and employment, as opposed to a tool for access.

These principles reflect my observations of the lessons learned from the community technology movement thus far.
Asset-based community development (ABCD) is a model for community building which assumes that social and economic revitalization begins with what is already present in the community – not only the capacities of residents as individuals, but also the existing associational, institutional, and commercial foundations (Kretzmann & McKnight, 1993). This is done by focusing on indigenous community assets (e.g., residents, local organizations and institutions, neighborhood businesses, etc.) instead of perceived needs. 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.

Kretzmann and McKnight (1993) identify three characteristics of asset-based community development:

- **Asset-Based** – Asset-based community development begins with what is present in the community, as opposed to what is absent or problematic in the community.

- **Internally Focused** – Asset-based community development calls upon community members to identify their interests and build upon their capacity to solve problems.

- **Relationship Driven** – Asset-based community development encourages the ongoing establishment of productive relationships among community members, as well as the associated trust and norms necessary to maintain and strengthen these relationships.

According to Kretzmann and McKnight (1993), these principles acknowledge and embrace the traditions of successful community revitalization efforts from the past.
Sociocultural constructionism and an asset-based approach to community technology and community building suggest that the way to build physical, geographic, collocated communities both online and offline is by creating community connections amongst community members and community resources as mediated by technological fluency, asset-mapping, sociocultural constructions, and asset-mobilization. It is an approach that strives to achieve a social and cultural resonance within a community, by focusing on indigenous assets instead of perceived needs.

There are a number of ways that a sociocultural constructionist and asset-based scenario can play itself out. Having completed a course on web design, a father could build a personal website that shares his observations from raising his daughter, thus providing the opportunity for other parents to learn from his experiences. A resident could send a message to an e-mail list seeking plumbing assistance only to find a neighbor whose skills in this area he was previously unaware of. A youth could create an online photo album that visually depicts a landmark of historical significance, and helps to educate other youth of its importance. A community leader could submit a posting to a discussion forum informing residents of the planned demolition of a longstanding park. After completing an introductory course at a nearby community technology center, a participant could be motivated to consider a more advanced course as a result of a renewed confidence in her abilities. Each of these scenarios is akin to “connecting the dots” and is mediated by the creation of sociocultural constructions and the mobilization of local assets. They represent people connecting to people, people connecting to assets, or people connecting via sociocultural constructions that help facilitate the aforementioned connections. This is the vision of sociocultural constructionism and an asset-based approach to community technology and community building.
In many ways, this theoretical framing of the community technology and community building movements here, and throughout this dissertation, falls short of their current empirical reality. Here, I am presenting a vision for what community technology and community building can be, not what they are.

Access, and to some extent training, has been the primary focus of the community technology movement thus far. This includes a series of policies, funding, and programs that bear no connection to the issues that fundamentally affect individuals, families, and communities, such as education, employment, health care, and economic development. At best, the organizations that support this movement are only beginning to situate their work within the realm of social and economic justice.

Similarly, the community building movement has yet to embrace technology as an integral component of their work in distressed neighborhoods. Technology-related issues such as access, content, training, and technological fluency, have not entered their discussions of how low-income and underserved communities can be best served. At best, the organizations that support this movement are only beginning to consider the role of technology in managing their internal operations, much less their outreach to the community.

Finally, the community technology and community building movements are not integrated movements at the present time. Granted, examples of successful projects have begun to emerge (Bowman et al., 1999; Fowells & Lazarus, 2001; Kirschenbaum & Kunamneni, 2001), but due to the differences in their objectives, structure of their funding streams, and lack of communication amongst their advocates, they have largely existed in parallel and separate spheres of existence. This has taken place despite the similarities in their target populations, geographic collocation in several neighborhoods, and apparent synergies that could result from their union. Sociocultural constructionism and an asset-based approach to community technology and community building endeavors to provide a vision for how these movements can converge. This dissertation attempts to provide some insight on how to get there.
RESEARCH QUESTION AND HYPOTHESIS

As theory, the sociocultural constructionist and asset-based perspective has served two purposes in the context of this dissertation. First, the Camfield Estates-MIT Creating Community Connections Project has drawn upon the ideas and principles underlying this theoretical framework. The manner and extent to which this perspective has influenced the project have been primarily determined by my integral involvement as a participatory action researcher (Brown, 1983; Cancian, 1993; Friedenberger, 1991; O'Brien, 1998; Peattie, 1994; Whyte, 1991). In this decidedly active role, along with Richard O'Bryant, Ph.D. candidate in the MIT Department of Urban Studies and Planning, I have worked very closely with Camfield residents to interject these concepts into certain aspects of the methodology, and to conceptualize and implement the project in ways that reflected our collective ways of thinking. Second, it has provided the frame through which I have analyzed and interpreted the ongoing activities at Camfield Estates. Like a lens, it has provided a basis for me to understand what has happened thus far, theorize as to why, and postulate as to what can happen moving forward. This includes an account of the challenges and opportunities of the Camfield Estates-MIT Creating Community Connections Project, as well as a discussion of the early results, lessons learned, and recommendations for similar initiatives.

As praxis, a sociocultural constructionist and asset-based approach to community technology and community building seeks to achieve positive changes in community social capital and community cultural capital, two constructs I have developed as variations of the concepts of social capital (Coleman, 1988; Mattesich & Monsey, 1997; Putnam, 1993 & 1995) and cultural capital (Bourdieu & Passeron, 1977; Lamont & Lareau, 1988; Zweigenhaft, 1993). I define community social capital as the extent to which members of a community can work and learn together effectively. I define community cultural capital as various forms of knowledge, skills, abilities, and interests, which have particular relevance or value within a community.
The research question for this study is: *In what ways can community social capital be increased and community cultural capital activated through an integrated community technology and community building initiative in a low- to moderate-income housing development and its surrounding environs.* This question is informed by what has happened at Camfield Estates and why it has happened, looking back. A closely related sub-question of my research is: *What are the challenges and opportunities of conceptualizing and implementing an initiative that is guided by the theoretical framework of sociocultural constructionism and an asset-based approach to community technology and community building.* This sub-question is informed by what can happen in other contexts (including Camfield Estates) and how it can happen, looking forward.

My hypothesis is that a sociocultural constructionist and asset-based approach to community technology and community building, can positively contribute to increasing community social capital and activating community cultural capital, as a result of residents' involvement as active, rather than passive, participants in the process.

An important distinction to note at the onset of this dissertation is that community social capital and community cultural capital are both "process" oriented outcomes, and refer to a community's capacity, or ability to improve the conditions of their neighborhood. This can also be understood as a focus on building relationships and creating community connections between various constituencies including residents, local associations and institutions, and neighborhood businesses. It is the essence of community building. Oftentimes, these connections can be leveraged to achieve "product" related outcomes, or concrete and tangible changes in the community such as a stronger educational system, better delivery of health care, reduced unemployment, or enhanced economic and business development. This can also be understood as a focus on rehabilitating physical infrastructures, improving neighborhood conditions, and enhancing the overall quality-of-life for individuals, families, and the community. It is the essence of community development.

Unlike process-oriented outcomes, which can be universally applied, generally speaking, product-related outcomes are often community-specific, and therefore, best defined by the members of the community.
What constitutes a desired outcome in one neighborhood may not apply in others and will therefore
differ from initiative to initiative. Regardless, increased community social capital and activated
community cultural capital are means to these ends. Also note that while community social capital and
community cultural capital are community outcomes, they also fully acknowledge individual outcomes
because they often fuel and directly contribute to community outcomes. Community social capital and
community cultural capital encapsulate the community’s capacity or ability to marshal its resources
toward achieving individually- and collectively-defined goals.

My investigation of the research question is primarily descriptive in nature. It sets out to better
understand the processes that can lead to increased community social capital and activated community
cultural capital in the context of a community technology and community building initiative, such that
said capital can be translated into so-called products, or community development. However, my
investigation does not set out to understand the processes that facilitate this translation. This is done
neither to elevate process nor to devalue product, but rather to focus this work on the first of two
equally important outcomes. My investigation also seeks to explore the challenges and opportunities
that were specific to the context within which it was situated. This is done in an attempt to tease apart
those factors that may have influenced the outcomes.

My investigation of the research sub-question is primarily proscriptive in nature. It sets out to identify
the challenges and opportunities of a sociocultural constructionist and asset-based approach to
community technology and community building. This is done in recognition of the fact that the initiative
that constitutes the basis for my inquiry has only drawn upon the ideas and principles underlying this
theoretical framework. However, such an investigation does provide me with a basis from which
lessons learned and recommendations for similar initiatives can be offered. My theoretical perspective
enables me to interpret what has happened (and what has not happened) as a means to discern what
can happen in the future.
PURPOSE OF THE STUDY

The study outlined herein is both timely and relevant for four reasons. First, it offers a theoretical framework, namely sociocultural constructionism and an asset-based approach to community technology and community building, that can inform broader initiatives to bridge the digital divide and alleviate poverty. Second, this study has produced a web-based, community building system, which I have co-designed with community members, the Creating Community Connections (C3) System, that demonstrates how high technology can be used to address the interests and needs of a low- to moderate-income community. Third, it has produced early qualitative and quantitative results to contribute to the growing body of data dealing with these issues. Fourth, and finally, this study offers a set of guidelines for implementing this approach in other underserved communities by presenting a detailed methodology, lessons learned, and recommendations. These elements can advance the work of community technology and community building practitioners, researchers, funders, government agencies, and public policy makers, about how to conduct an integrated community technology and community building initiative.

ORGANIZATION OF THESIS

This thesis is organized into ten chapters:

- **Chapter 2: Background** – presents background for the areas of community technology, including community networks, community technology centers (CTCs), and community content, and community revitalization, including community organizing, community development, and community building.
• **Chapter 3: Theoretical Framework** – presents a theoretical framework that integrates both community technology and community building, namely, sociocultural constructionism and an asset-based approach to community technology and community building, as well as its relationship to the concepts community social capital and community cultural capital.

• **Chapter 4: Research Design and Methodology** – presents the research design and methodology including a description of the research site, Camfield Estates, the research project, the Camfield Estates-MIT Creating Community Connections Project, research methods, including quantitative and qualitative techniques, data collection and analysis, and the project methodology and timeline.

• **Chapter 5: Technology and the Creating Community Connections (C3) System** – presents the technological infrastructure at Camfield Estates and the Creating Community Connections (C3) System, including an overview of the community network, community technology center (CTC), and community content, in place at Camfield, as well as background information, a description of the modules, and technical specifications for C3.

• **Chapter 6: Initial Assessment** – presents results from the preliminary assessment of the Camfield Estates-MIT Creating Community Connections Project, conducted in August 2000, as well as the subsequent recommendations that were generated as a result of the assessment.

• **Chapter 7: Strategies Undertaken** – presents the strategies undertaken to integrate community technology and community building as informed by the results of the preliminary assessment.

• **Chapter 8: Early Results** – presents early results from the post-assessment of the Camfield Estates-MIT Creating Community Connections Project, conducted in August 2001, and an overall evaluation of the project to-date.
• **Chapter 9: Case Studies** – presents case studies of the experiences of five people involved with the Camfield Estates-MIT Creating Community Connections Project, including four residents and one member of Camfield's staff.

• **Chapter 10: Challenges and Opportunities** – presents the challenges and opportunities of the Camfield Estates-MIT Creating Community Connections Project that were specific to Camfield Estates, as well as the challenges and opportunities that are more general to a sociocultural constructionist and asset-based approach to community technology and community building.

• **Chapter 11: Conclusion** – presents my final analysis of the Camfield Estates-MIT Creating Community Connections Project, including lessons learned, recommendations for similar initiatives, and my concluding remarks.
CHAPTER 2

BACKGROUND

This chapter presents background for the areas of community technology, including community networks, community technology centers (CTCs), and community content, and community revitalization, including community organizing, community development, and community building.

This background information is provided for two reasons. First, as a preface to the discussion in the following chapter concerning the theoretical framework of sociocultural constructionism and an asset-based approach to community technology and community building. Because the domains of community technology and community building are so foundational to this perspective, the chapter herein is meant to provide a grounding in their theoretical and practical underpinnings respectively, as a means to better understand my ensuing synthesis and elaboration of both areas combined. Second, to place this study in its' appropriate context. Because this thesis is exclusively focused on the intersection between community technology and community building, as opposed to community technology and community organizing or community technology and community development, the following sections are meant to describe the various models that constitute community technology and clearly delineate the difference between community organizing, community development, and community building.

COMMUNITY TECHNOLOGY

Community technology has been referred to as "a process to serve the local geographic community – to respond to the needs of that community and build solutions to its problems" (Morino, 1994, p. 1), and defined as "using the technology to support and meet the goals of a community" (Beamish, 1999, p. 366).
To date, three primary models have emerged for community technology: community networks, community technology centers (CTCs), and community content.

These approaches can be classified according to what they provide: hardware, software, training, infrastructure, online access, or content. They can also be classified according to the groups they target: individuals, schools, youth, community organizations, and the general public, or specific groups such as a neighborhood, racial or ethnic minorities, the homeless, and the elderly (Beamish, 1999). Each model is described in greater detail below.

**Community Networks**

Prior to the advent of the computer, community networking was a sociological construct that described the pattern of communications and relationships in a community (Schuler, 1996). Mario Morino of the Morino Institute, in commenting on contemporary community networking via technology, states, "In the social sense [it] is not a new concept, but using electronic communications to extend and amplify it certainly is" (Morino, 1994, p. 2).

Community networks are community-based electronic network services, provided at little or no cost to users. In essence, community networks establish a new technological infrastructure that augments and restructures the existing social infrastructure of the community.

Most community networks began as part of the Free-Net movement during the mid-1980s. Free-Nets are "loosely organized, community-based, volunteer-managed electronic network services. They provide local and global information sharing and discussion at no charge to the Free-Net user or patron" (Victoria Free-Net Association, 1994). This includes discussion forums or real-time chat dealing with various social, cultural and political topics such as upcoming activities and events, ethnic interests, or local elections, as well as informal bartering, classifieds, surveys and polls, and more. The Cleveland
Free-Net, founded in 1986 by Dr. Tom Grundner, was the first community network. It grew out of the "St. Silicon's Hospital and Information Dispensary," an electronic bulletin board system (BBS) for health care that evolved from an earlier bulletin board system, the Chicago BBS.

In 1989, Grundner founded The National Public Telecomputing Network (NPTN) which "evolved as the public lobbying group, national organizing committee, and public policy representative for U.S.-based Free-Nets and [contributed] to the planning of world-wide Free-Nets" (Victoria Free-Net Association, 1994). NPTN grew to support as many as 163 affiliates in 42 states and 10 countries. However, in the face of rapidly declining commercial prices for Internet connectivity, and a steady increase in the demands to maintain high-quality information services, NPTN (and many of its affiliates) filed for bankruptcy in 1996. While a number of Free-Nets still exist today, many of the community networking initiatives that are presently active have incorporated some aspects of the remaining models for community technology – community technology centers and community content (Miller, 1998).

Examples of community networks include the following: Seattle Community Network, Seattle, Washington; Big Sky Telegraph, Dillon, Montana; National Capital Free-Net, Ottawa, Ontario; Buffalo Free-Net, Buffalo, New York; and PrairieNet, Urbana-Champaign, Illinois.

Community Technology Centers

Generally speaking, equitable computer access has been the primary focus of community technology initiatives. Access precludes the ability to connect to a community network, as well as the affordances of community content. As a result, the primary strategy in many low-income and rural communities has been to establish community computing centers, partly because both the community network and the community content models are predicated on the establishment of some form of access.
Community technology centers (CTCs), or community computing centers, are publicly accessible facilities that provide computer and Internet access, as well as technical instruction and support. CTCs are an attractive model for a number of reasons (Bishop et al., 1999). First, they are cost-effective when compared to placing computers in the home. Second, responsibility for maintaining computer resources is assumed by an external agent. Third, knowledgeable staff members are present to offer technical support and training. Fourth and finally, peers and other community members are present, creating a pleasant social atmosphere. Consequently, CTCs are, by far, the most widely employed strategy to-date for community technology initiatives.

For more than two decades, significant public and private funds have been invested in the development of CTCs nationwide, including the Intel Computer Clubhouse Network (Resnick et al., 1998), the Community Technology Centers' Network (CTCNet) (Chow et al., 1998; Mark et al., 1997), PowerUp, the U.S. Department of Education CTC program, the U.S. Department of Housing and Urban Development Neighborhood Networks (NN) program, and more. CTCs have been the focus of numerous studies relating to computer and Internet access and use, and the drivers to their effectiveness have been well-researched and documented (Beamish, 1995; Beamish, 1999; Chow et al., 1998; Mark et al., 1997; Melchior et al., 1998; Sandor & Scheuerer, 2000), including the following: determining space, selecting hardware, software, and connectivity, scheduling and outreach, budgeting and funding, and more (CTCNet, 2001).

Bishop et al.'s (1999) study of a predominantly African-American, low-income community revealed some of the shortcomings of the CTC model, from the perspective of residents. Their findings included the following: the inconvenience of leaving home (especially for single parents), the inability to store files or maintain privacy, the strong desire to use the computer with family members in the comfort of home and without rules or time limitations, fear of criminal activity in the surrounding area, and the impracticality of using computers for everyday tasks such as home banking.
Examples of CTCs include the following: Plugged In, East Palo Alto, California; Computer Clubhouse, Boston, Massachusetts; Austin Learning Academy, Austin, Texas; PUENTE Learning Centers, Los Angeles, California; New Beginnings Learning Center, Pittsburgh, Pennsylvania; and West Side Community Computing Center, Cleveland, Ohio.

**Community Content**

Community content refers to the generation and availability of local material that is relevant and interesting to a specific target audience (e.g., low-income residents) to encourage and motivate the use of technology. Community content can be broadly classified along two dimensions: *information* vs. *communications*, and *active* vs. *passive*.

The information vs. communication dimension highlights the Internet's ability to both deliver information and facilitate communication. Interestingly, studies have found that people use the Internet more for communication and social activities than they do for information purposes (Kraut et al., 1997). A simple example of the difference between these two forms of community content is the difference between reading and writing about community-related matters (information), and discussing and dialoging about community-related matters (communications).

Information-based community content takes the form of databases and documents that can be accessed online such as a directory of social service agencies, a listing of recommended websites, or a calendar of activities and events. Communications-centered community content takes the form of interactive, synchronous tools such as chat rooms and instant messaging, or asynchronous tools such as listservs (e-mail lists) and discussion forums. Here, the distinguishing factor when contrasted with other forms of content is that the nature of the information or communication exchange is solely focused on, or of use to, members of the community.
The active vs. passive dimension, at one extreme, positions community members as the active producers of community content, while at the other extreme, it positions community members as the passive recipients of community content, with varying degrees of each designation found at each point along the continuum. A simple example that highlights the distinction between these two orientations toward community content is the difference between browsing a community website (passive) and building a community website (active).

A passive disposition is static, unidirectional and sometimes described as "one-to-many" because content is generated by a third party ("one") and delivered to the community ("many"). It typically manifests itself in the form of centralized, one-way repositories of information that can be accessed by community members such as an information clearinghouse of city or municipal services, an online entertainment guide that lists movies, shows, live performances, and restaurants, or a web portal of local news, weather, sports, etc. Here, the distinguishing factor is that although very little, if any content is produced by the community, it is still intended for the community. An active disposition is dynamic, multi-directional and often described as "many-to-many" (Shaw & Shaw, 1998), because content is generated by the community ("many") for the community ("many"). It typically manifests itself in the form of multiple-way, interactive communication and information exchange between end-users such as an online, neighborhood-based, barter and exchange network, an e-mail listserv for the purpose of online organizing and advocacy, or a community-generated, web-based, geographic information system (GIS) that maps local resources and assets. Here, the distinguishing factor is that most, if not all content is produced by the community.

Community content was the focus of a report authored by Lazarus and Mora (2000) of the Children's Partnership, entitled, Online Content for Low-Income and Underserved Americans. In the report, community content is defined according to the following five categories (Lazarus & Mora, 2000): 1) Information that is more widely available, 2) Information that can be customized by the user, 3) Information that flows
from many to many, 4) Information that allows for interaction among users, and 5) Information that enables users to become producers of information.

Based on an evaluation that included discussion with user groups, interviews with center and community network directors, interviews with other experts, and analysis of the web, they concluded the following with respect to low-income and underserved populations and existing Internet content: 1) a lack of local information, 2) literacy barriers, 3) language barriers, and 4) a lack of cultural diversity. This suggests that while the web has emerged as a valuable resource for mainstream users, additional effort must be made to make the Internet more attractive to local community residents, ethnic and cultural groups, as well as more accessible to users with limited-literacy, users with disabilities, and non-native English speakers.

Community content is an emerging strategy for community technology initiatives, and additional work will be required to overcome these barriers. While they are limited in number, there are examples of "community networks and city-based sites [that] manage to provide relevant and up-to-date community information" (Beamish, 1999), despite the many challenges associated with maintaining quality content services.

Notable community content sites include the following: CTCNet (http://www.ctcnet.org), the Digital Divide Network (http://www.digitaldividenetwork.org), the America Connects Consortium (http://www.americaconnects.net), the Children's Partnership Content Bank (http://www.contentbank.org), and the Community Connector (http://databases.si.umich.edu/cfdocs/community/index.cfm).
COMMUNITY REVITALIZATION

Efforts to revitalize America's distressed communities date back to the late nineteenth century and early twentieth century with the introduction of settlement houses, welfare through patronage, and formalized social service agencies (Schorr, 1997). These attempts at strengthening communities were the precursors for more elaborate programs during 1960's and 1970's such as the Ford Foundation's Gray Areas program, the Office of Economic Opportunity's (OEO) Community Action program, the U.S. Department of Housing and Urban Development's (HUD) Model Cities program, and the Annie E. Casey Foundation's New Futures program. Recent years have witnessed the advent of community revitalization initiatives that have endeavored to leverage the strengths of past programs and learn from their failures, including Comprehensive Community Initiatives (CCIs) (Aspen Institute, 1997; Hess, 1999; Smock, 1997) and Empowerment Zones/Enterprises Communities (EZ/EC) (HUD, 1999).

As community revitalization has evolved and matured over time, all of the aforementioned efforts have incorporated varying elements of the three primary approaches to change: community organizing, community development, and community building. Each approach is described in greater detail below.

Community Organizing

Community organizing is an approach to community revitalization that enlists residents to take on powerful institutions in their community such as government agencies, corporations, school districts, etc., through direct, public confrontation and action (Alinsky, 1971; Delgado, 1986; Khan, 1991; Hess, 1999). The theoretical foundation for community organizing is political and argues that there are powerful institutions working against poor neighborhoods, and it is only by mobilizing residents as a unified political voice that these forces can be counterattacked (Hess, 1999). It has its roots in the American revolution of the eighteenth century, and later in the populist movements of the nineteenth
century led by farmers and workers to combat the advent of monopolies and political corruption in the face of expanding big-business.

Hess (1999) has identified five characteristic features of community organizing:

- **Control is Local and Democratic** – The involvement of local residents in determining goals and objectives (not necessarily the implementation thereof) in a participatory manner is a defining feature of community organizing.

- **Power is Based on Participation of Mass-Based Constituency** – Success is predicated on widespread participation as a means to establish power and exert influence. As a result, community organizing often relies on the media and public information channels to develop broad involvement.

- **Leadership Development is Central** – Ongoing development of skilled and effective leaders fosters widespread participation and serves as a mechanism for exercising democratic control.

- **Permanence and Growth of the Organization is Paramount** – Without a sustained base of participants, as well as ongoing efforts to develop and grow the organization, the long-term sustainability of community organizing is severely hampered.

- **Contestation at the Institutional Level** – Community organizing seeks to challenge, confront, and ultimately change the societal institutions, systems, and norms that are not responsive to the interests and needs of the community.
Community organizing seeks either greater control of institutions by placing people in decision-making roles or greater responsiveness of institutions to the needs of the community by restructuring decision-making processes. Community organizing often addresses multiple issues simultaneously that affect the community at-large.

Some examples of community organizing efforts include resistance to the planned demolition of buildings or parks, voter registration, bringing an end to "redlining" or loan/mortgage discrimination by banks, and improving the conditions at schools. However, the goal of community organizing is not just to win a certain issue or "just to win a change, but to win it as an organized group – in short, an organized community" (Hess, 1999, p. 13). Furthermore, once a community organizing effort has been won it can result in the creation of new institutions (e.g., a Community Development Corporation (CDC), a charter school, etc.) or new decision making mechanisms (e.g., reformed election laws, restructured election districts, etc.). While the implementation of these programs is usually best handled by others, these victories can be leveraged by community organizers for even greater success in the future (Hess, 1999).

**Community Development**

*Community development* is an approach to community revitalization whereby freestanding, community-focused, non-profit organizations engage in the production of housing, commercial real estate development, or business and entrepreneurial support (Vidal, 1992). The theoretical foundation for community development is economic and believes that urban renewal can only be advanced by improving the physical infrastructure of a community, including public and private housing, commercial and industrial real estate, as well as through small business development and entrepreneurship (Hess, 1999).

The most recognized model for community development is the Community Development Corporation (CDC) – a community-based development organization which "engage[s] in a wide variety of activities..."
designed to enhance the economic, social and political vitality of their communities" (Vidal, 1992, p. 63). The rapid growth of CDCs can be traced back to Robert F. Kennedy's Special Impact Amendment to the Economic Opportunity Act (Bratt, 1989; Schorr, 1997). In 1966, then Senator Kennedy was so moved by the devastation he saw in the Bedford-Stuyvesant section of New York, that he immediately marshaled federal support for this enactment. In 1970, there were approximately 100 CDCs, but by 1995, there were more than 2,000 CDCs nationwide (Schorr, 1997; Pierce & Steinbach, 1987).

Stoeker (1996) has identified three characteristics of community development:

- **Achieve Bottom-Up, Comprehensive Redevelopment** – Community development endeavors to help the community determine how to conduct redevelopment and to produce more homes and businesses owned by community members.

- **Empower Whole Communities through Comprehensive Treatment of Social and Physical Conditions** (Marquez, 1993) – Community developers measure success in terms of both physical redevelopment and community regeneration, participation, and empowerment (Rubin, 1994).

- **Acknowledge the Shortcomings of Supply-Side Economic Models and "Free"-Market Philosophy** – Community development attempts to address three market inefficiencies and, in doing so, supplement the supply-side of the market equation: 1) the inability of investors to see opportunities in neighborhoods, 2) the improbability of socially conscious investing due to the prevailing stance toward profit maximization, and 3) the barriers created by social and legal restrictions on investment such as zoning laws (Stoeker, 1996).

The tension that is often inherent to community development is the dilemma of "capital vs. community" or "exchange vs. use." Those that are charged with managing capital seek opportunities to convert
neighborhood space into "exchange values," (e.g., an office complex) or to maximize the profitability of that space for its owner(s). Those that are concerned with serving the community seek opportunities to preserve neighborhood space as a "use value," (e.g., a park) or to maximize the benefit of that space for residents. Tension arises due to the fact that in order to conduct large-scale community development someone must mediate the interests of capitalists, and their focus on profit, with the interests of community residents, and their focus on benefits.

Typical community development activities include the construction of affordable housing, the development of retail space, office and industrial buildings, small-business assistance, business incubation, and job training. It is an approach that often involves "projects intended to improve community well-being through some tangible accomplishment" (Mattesich & Monsey, 1997, p. 10) and often implies "an ultimate change in some quality of life indicator such as increased economic opportunities, more housing, or improved health" (Mattesich & Monsey, 1997, pp. 57-58).

Community Building

Community building is an approach to community revitalization that is focused on "strengthening the capacity of residents, associations, and organizations to work, individually and collectively, to foster and sustain positive neighborhood change" (Aspen Institute, 1997, p. 2). Led primary by community-based organizations (CBOs), or private, non-profit organizations that are representative of segments of communities, it has also been defined as "any identifiable set of activities pursued by a community in order to increase the social capacity of its members" (Mattesich & Monsey, 1997, pp. 8-9). The theoretical foundation for community building is social and cultural and asserts that community improvement is predicated on the capacity of local residents, associations, and organizations to work together effectively and solve their own problems by building relationships and brokering connections between these constituencies in ways that are consistent with their principles and values (Hess, 1999).
Kingsley, McNeely, and Gibson (1999) identify the following seven themes of community building:

- **Focused on Specific Improvement Initiatives in a Manner that Reinforces Values and Builds Social and Human Capital** – Community members work together to address the problems and issues they deem important while simultaneously developing skills (human capital) and fostering relationships (social capital) that is carried over to future projects.

- **Community-Driven with Broad Resident Involvement** – Planning and implementation is led by community members, while acknowledging the importance of outside entities will to advance the community-defined objectives.

- **Comprehensive, Strategic and Entrepreneurial** – Rather than being narrowly focused on a few isolated issues, community building initiatives seek to address a broad set of interrelated issues in a way that is strategic (perhaps beginning with a few issues, while recognizing where they are situated within the context of other issues) and entrepreneurial (examining how current knowledge can inform future work in related or new areas).

- **Asset-Based** – Initiatives are firmly based on what is present (strengths), as opposed to what is absent or problematic in the community (deficiencies), with the intent of devising creative ways to build on them.

- **Tailored to Neighborhood Scale and Conditions** – Community building recognizes that one-size does not fill all, and that lessons learned or best-practices must be applied flexibly and adaptively, rather than in a “cookie-cutter” fashion, and focused at the neighborhood level due it the appropriateness of this level in terms of scale.
- **Collaboratively Linked to the Broader Society to Strengthen Community Institutions and Enhance Outside Opportunities for Residents** – While a number of past efforts to revitalize communities have focused internally (i.e. community members) to the exclusion of outside entities (i.e. institutions from the public, private, and non-profit sectors) or vice-versa, community building recognizes the value derived from both approaches.

- **Consciously Changing Institutional Barriers and Racism** – Community building explicitly identifies and seeks to overcome institutional barriers to systemic change such as racism to foster respect amongst the parties involved and a productive working relationship.

While different themes are certain to dominate in different places and under different circumstances, these seven principles represent the essence of community building.

Hess (1997) believes that the genesis of community building can be found in three sources. First, the critiques of traditional advocacy and social service delivery by self-help reformists such as Thomas Dewar. These critics believed that true community improvement could never be achieved by systems based on dependence and a flawed model of professionals "serving" clients. Second, the writings of Kretzmann and McKnight at Northwestern University's Asset-Based Community Development (ABCD) Institute, popularized in their book *Building Communities from the Inside Out: A Path Toward Finding and Mobilizing a Community's Assets* (1993). ABCD is a process for "mapping" a community's assets to determine what resources presently exist, and "mobilizing" these assets to address community-defined issues and solve community-defined problems. Third, the emphasis by feminist organizers on the infinite power that can be achieved through building relationships within small informal groups, in contrast with past techniques that targeted widespread participation and were grounded in conflict and confrontation (Bradshaw, Soifer & Guiterrez, 1994; O'Donnell & Schumer, 1996; Stall & Stoeker, 1997). Feminist organizing advocates a voluntary, communal response to community problems and places professionals in the redefined role of coach or co-learner.
Again, community building has a social and cultural orientation as its foundation. Socially, community builders believe that relationships among community members represent the basic building blocks for strengthening distressed neighborhoods. Culturally, community builders seek to ensure that the values, beliefs, and practices of community members are consistent with the strategies that are undertaken. Successful community building cultivates leadership (Gilbert, Specht & Terrell, 1993). These initiatives are typically organized by a relatively small group of committed individuals that serve the larger community. Their focus is on increasing social capital by expanding connections within the community and improving the ability of community members to work together effectively. Community building conceives the public interest in a community as communal (Gilbert, Specht & Terrell, 1993). In other words, the community is seen as a set of individuals working together on common interests, with an emphasis on voluntary action that will naturally coalesce around important issues. It is an approach that adheres to an agenda planning form of power and encourages residents to develop their own vision for the community that can be translated into an agenda that reflects their interests (Gaventa, 1980; Lukes, 1974). Finally, the nature of civic involvement among residents in a community building initiative is that of engaged citizenry (Sviridoff & Ryan, 1996). As engaged citizens, residents are enlisted in wide numbers in a broad set of roles toward building “networks, contacts, trust, and standards – all essential to the community’s problem-solving capacity” (Sviridoff & Ryan, 1996). Residents are directly involved in establishing social ties to each other, as well as other community members, including associations, businesses, and institutions.
CHAPTER 3

THEORETICAL FRAMEWORK

This chapter presents a theoretical framework that integrates both community technology and community building, namely, *sociocultural constructionism and an asset-based approach to community technology and community building*, as well as its relationship to the concepts *community social capital* and *community cultural capital*.

Based on the theories of *sociocultural constructionism* (Pinkett, 2000) and *asset-based community development* (Kretzmann & McKnight, 1993), this approach to community technology and community building involves participants as active agents of change, rather than passive beneficiaries or clients, and as active producers of community information and content, rather than passive consumers or recipients. It is an approach that endeavors to achieve a social and cultural resonance within a community, while focusing on their indigenous assets instead of perceived needs. This is done as a means toward fostering positive changes in community social capital and community cultural capital.

SOCIAL AND CULTURAL RESONANCE

A social environment is defined as the social relationships, cultural milieus, and physical surroundings wherein a defined group of people interact and function (Barnett & Casper, 2001). Culture refers to the values, beliefs, and practices that influence the way an individual interprets the world (Gee & Green, 1998; Lee & Smagorinsky, 2000). Culture manifests itself in a variety of social environments (i.e. home, school, and community), while the social environment is influential in shaping someone's culture. Furthermore, research shows that culture plays a significant role in an individual's nature of engagement.
with technology (Hooper, 1998), and that the social environment plays a significant role in how a community makes use of technology (Shaw, 1995).

Sociocultural resonance refers to activities that expand or enhance social relations and elements of culture. A socioculturally resonant activity is one that enables people to connect with each other or their environment in ways that are meaningful to them and allows them to pursue goals and objectives they deem important. The form of these activities may include personal exploration of the social milieu, individual expression of one's cultural heritage, strengthening existing relationships with family and friends, and establishing new relationships with associates and acquaintances. The function of these activities may be to acquire or share knowledge, discuss topics of interest, exchange ideas, or barter services and resources. The degree of resonance is determined from the individual's perspective, but only within the context of the broader social and cultural environment. Stated differently, social resonance can only be actualized by activities that facilitate connections between people (or between people and their environment), and cultural resonance can only be manifested by activities that are consistent with existing values, beliefs, and practices.

Shaw refers to such activities as "appropriable activities" (Shaw, 1995, p. 47) and refers to this phenomenon as "cultural resonance" exclusively. He draws these phrases from Papert's "principle of cultural resonance" (Papert, 1980, p. 54), and writes:

*Positive or negative outcomes and instability in a setting are issues that are related to what Papert describes as criterion for appropriable activities... The principle of cultural resonance states that the activity must 'make sense in terms of a larger social context'... Since the principle of cultural resonance addresses connecting activities to the larger social context, this is a principle that involves social relations and cultural materials. The relationships that individuals have to one another as well as their relationship to materials that make up their environment are what constitute the social relations in a setting. Developing activities that connect to these...*
relations cannot be done by artifice or forced behaviors, instead such activities must be connected to deeply intrinsic social expressions of familiar process. (Shaw, 1995, p. 48)

Computers and the Internet represent tools, or "cultural materials," for engaging in potentially resonant, or "appropriable" activities. This is especially true when these activities are connected to meaningful themes at both the individual and community level. In the context of community technology and community building, achieving a certain degree of sociocultural consonance is critically important to any effort that seeks to engage populations with these technologies that have not traditionally enjoyed their benefits, and particularly if these tools are to become an integral part of achieving desired outcomes in areas such as education, health care, relationship and capacity-building, employment, and economic development.

According to DuPont (2000, p. 5), "Technology is often seen as a neutral, self-contained tool. Yet, research indicates that there is a culture of tool use that is a derivative of the culture of the community and the affordances of the tool" (Brown, Collins & Duguid, 1989; DuPont, 2001; DuPont, Hooper, Pinkett & Smith, 1999; Pacey, 1983). When a tool is brought into a community, it has meaning to the extent that activities are designed to define how it will be used. These activities have the potential to change the individual's view of the world and impact the belief system of the community (Brown, Collins & Duguid, 1989) but only if they resonate with existing social and cultural practices.

Interestingly, many are inclined to believe that the technology gap can be explained purely by economic factors, to the exclusion of social or cultural considerations. They would argue that disparities in the buying power of minorities and Whites or between low-income communities and middle-class communities, is at the root of the problem, and that providing access alone will ensure a level playing field. Studies have found that while the gender gap in computer and Internet use is closing over time, the socioeconomic and racial gap is growing (Abrahms, 1997; Novak & Hoffman, 1998; U.S. Department of Commerce, 1995, 1998, 1999 & 2000). While we can certainly expect the numbers of minorities and
residents of low-income communities who buy computers to rise as equipment prices drop, the idea that cost is the only prohibitive measure is a gross oversimplification. According to the U.S. Department of Commerce (1995, 1998, 1999 & 2000), minorities lag behind Whites, even at the same level of income, with respect to computer ownership. These statistics refute the argument that economics is the only hurdle to overcome.

Furthermore, communities or color certainly aren't suffering from "technophobia," as evidenced by the fact that minorities outspend their White counterparts in major product categories such as TVs, VCRs, mobile telephone service, and cable television service (U.S. Department of Commerce, 2001; Strategy Research Corporation, 2001). Notice, however, that these technologies immediately suggest specific benefits and uses. Many of them address certain social needs, such as the desire to communicate with others, and they adhere to certain cultural practices in that they are valued (and often perceived as symbols of status). On the other hand, Whites outspend minorities in the product categories of personal computers, laptop computers, Internet access, cable modems, and ISDN telephone lines (Strategy Research Corporation, 2001). Apparently, computer-related technologies, given their inherently flexible nature, do not immediately suggest a particular benefit or use, because they can support a variety of aims. Therefore, when searching for effective strategies to foster engagement with information and communications technology, it is incumbent upon designers and planners to ensure that the infrastructure is well suited to the interests of end-users.

I argue that computers and the Internet can achieve even greater levels of penetration, and associated patterns of use that are targeted at individual and community-defined outcomes, when sociocultural considerations are carefully taken into account. In other words, when people can readily see the benefits of these technologies toward improving their life, their family, and their community, they will be much more likely to embrace them in a way that addresses their needs, thus achieving some measure of resonance with their social and cultural milieu. The sociocultural constructionist framework aspires to achieve such resonance in a way that is consistent with these overarching principles.
SOCIOCULTURAL CONSTRUCTIONISM

Sociocultural constructionism (Pinkett, 2000) is a partial synthesis and extension of the theories of social constructionism (Shaw, 1995) and cultural constructionism (Hooper, 1998), both of which are rooted in the theory of constructionism (Papert, 1993).

Constructionism

Constructionism is a design-based approach to learning, drawing on research showing that people learn best when they are active participants in design activities (Papert, 1993), and that these activities give them a greater sense of control over (and personal involvement in) the learning process (Resnick, Bruckman & Martin, 1996).

There has long been a debate as to whether or not learning is best characterized as an individual cognitive process, or a process of acculturation into an existing community (Cobb, 1994). These seemingly contradictory perspectives have been argued by constructivists such as Piaget (1954) and von Glaserfeld (1994), and sociocultural theorists such as Vygotsky (1978) and Rogoff (1990), respectively. Constructivists believe that the individual learns by actively constructing and reconstructing her conceptual model of the world, given a social and cultural context. The explanatory construct of knowledge is the student’s cognitive self-organization. On the other hand, sociocultural theorists believe that the individual learns via participation in socially and culturally organized practices. Here, the explanatory construct of knowledge is the process of acculturation experienced by the learner.

In many ways, constructionism synthesizes both of these perspectives by asserting that individual development is enhanced by shared social activity. The vision of a constructionist learning environment is one that gives the individual the freedom to explore their natural interests, with the support of a community of learners, both expert and novice, that can facilitate deeper understanding.
constructionist learning environment is characterized by a rich exchange of ideas between individuals that is mediated by their interaction with each other as well as their shared physical and virtual constructions. A constructionist learning environment places emphasis on a learner's individual cognitive development, as well as the role that community and the surrounding human context play in enhancing this development. Both social constructionism and cultural constructionism represent extensions to the constructionist paradigm.

**Social Constructionism**

Social constructionism states that "individual developmental cycles are enhanced by shared constructive activity in the social setting, and the social setting is also enhanced by the developmental activity of the individual" (Shaw, 1995, p. 38). Shared constructive activity refers to the creation of "social constructions," of which there are five types: 1) social relationships, 2) social events, 3) shared physical artifacts, 4) shared social goals and projects, and 5) shared cultural norms and traditions. Social constructionism is a useful framework for advancing the interests of a community. It is also relevant to the role that technology can play in supporting these interests. A tool that is consistent with this paradigm is one that supports the creation of the aforementioned social constructions, thus enhancing the developmental cycle of the individual and the community.

In 1994, Shaw designed the Multi-User Sessions in Community (MUSIC) system to demonstrate how technology could be shaped around social constructionist principles. MUSIC is a computer networking system that includes the following features: send/receive e-mail messages, community bulletin board, community announcements, community calendar of events, community chat room, and more. MUSIC was deployed in Dorchester, Massachusetts, and Newark, New Jersey, and proved to be particularly effective in supporting social relationships, social events, and shared social goals and projects. Shaw describes the social constructionist paradigm as part of a three-part synergy.
The social setting presents a context of social relations and cultural materials which set the stage for sociocultural activities and processes through which developmental internalized and externalized constructs can be formed. These constructs can further influence the setting by adding new artifacts and processes to the setting, causing it to evolve by changing existing relationships, adding or altering cultural materials, activities and processes, and by fostering new cognitive and social developments. (Shaw, 1995, pp. 42-43)

While Shaw makes reference to the need for internalized and externalized constructs in relation to the social setting he makes no definitive claim as to the kind of constructs or materials that are most effective in engaging a community of learners, from a cultural perspective. Although Shaw clearly valued the importance of culture with his references to "cultural materials," "cultural activities," and "cultural processes," the aforementioned five social constructions are all shared endeavors and relationship-based. They make no explicit reference as to how individual expressions of culture can also contribute to developmental cycles. It is here that Hooper's theory of cultural constructionism becomes especially useful.

**Cultural Constructionism**

Cultural constructionism argues that "individuals learn particularly well through creating objects in the world that express their cultural identity and have shared meaning within their home cultures" (Hooper, 1998, p. 201). A cultural construction could be a drawing, collage, personal website, electronic community newsletter, or any other project that is an expression of cultural identity, and at the same time facilitates an engagement with new knowledge. Cultural constructionism is a useful framework for advancing the interests of an individual. In similar fashion to social constructionism, it is also relevant to the role that technology can play in supporting these interests. A tool that is consistent with this paradigm fosters the expression of one's culture, thus enhancing the developmental cycle of the individual and the community.
From 1992 to 1996, Hooper performed a longitudinal study of one student, Keanna, which involved her use of Microworld’s Logo. The study took place at Paige Academy, an alternative African-centered school in an urban community in Massachusetts. Hooper observed how Keanna’s programming projects, or constructions, mediated her understanding of computational ideas with her cultural identity. These projects proved to be effective in fostering Keanna’s technological fluency, and facilitated her understanding of various computational themes such as modularity, parallelism, and evaluation. Hooper recognizes three layers of the cultural constructionist perspective on learning.

*Constructivism captures the idea that children construct their own knowledge. Constructionism adds that they do this particularly well in the course of constructing things in the world. Finally, learning stories depicting Keanna’s work on programming projects reveal constructionist learning that occurred particularly well in the context of concurrent exploration of her cultural identity and context and this leads to the extension of constructionism to cultural constructionism. (Hooper, 1998, pp. 202-203)*

While Hooper argues for a particular cultural context, she makes no explicit claim as to the social context that is best suited for engaging an individual learner with respect to the construction of knowledge. While Hooper clearly valued the social environment, as evidenced during her discussion of Keanna’s collaborative projects, the support she received from teachers, and the social setting at Paige Academy, her theoretical framework is still specific to individual “cultural identity” and “shared meaning” within “home cultures” without situating these notions within a broader community beyond the home. It is here that Shaw’s theory of social constructionism becomes especially useful.

Collectively, social constructionism and cultural constructionism demonstrate how a learning environment can address the needs of individuals, both independently and as members of a larger community.
Sociocultural Constructionism

Sociocultural constructionism is a partial synthesis and extension of the theories of constructionism, social constructionism, and cultural constructionism. Sociocultural constructionism argues that individual and community developmental cycles are reciprocally enhanced by independent and shared constructive activity that is resonant with both the social environment of a community of learners, as well as the culture of the learners themselves (Pinkett, 2000). It is not merely a combination of constructionism, social constructionism and cultural constructionism, it is a new paradigm that borrows certain elements from each of these perspectives and introduces new ones.

From constructionism it borrows the emphasis on design and building as part of the learning process, while extending it to include information that lies across the spectrum of community content. This includes "tangible" constructions such as a flyer or photo album, as well as more "intangible" constructions such as postings to a calendar or messages to a discussion forum that are either relevant to the members the community, or bring the community closer toward individually- and collectively-defined outcomes. From social constructionism it borrows the emphasis on the social environment and the cyclical relationship between individual developmental cycles, shared constructive activity, and the social setting, while extending it to include the reciprocal relationship between the social environment of a community of learners and their culture. This includes the creation of artifacts that are resonant with both the social and cultural milieu. From cultural constructionism it borrows the emphasis on culture, or specifically home culture, while extending it to include the culture of the much broader local neighborhood and social environment. This includes the individuals and families that collectively constitute the locus of community life.

Sociocultural constructionism is a framework that addresses the interests of individuals, families, and a community. In the same fashion as social and cultural constructionism, it is also relevant to the role that technology can play in supporting these interests. A tool that is consistent with this paradigm enables
the members of a community to reshape their culture and contribute to their social environment through the production of information and content. It also facilitates broad community communication, information and resource exchange, thus enhancing the developmental cycle of the individual, family, and the community.

A sociocultural construction is a physical, virtual, or cognitive artifact that is resonant with the social and cultural milieu. This includes a community newsletter (paper-based and/or electronic) with valuable local content, a personal website that highlights information of interest to other members of the community, a posting to a discussion forum that shares useful knowledge or wisdom, a message to a neighborhood e-mail list that engages in relevant issues, or even a paradigm shift that reflects a renewed confidence in oneself or greater appreciation of one's community.

The Computer Clubhouse, organized by the Computer Museum (now part of the Museum of Science) in collaboration with the MIT Media Laboratory, is an example of a successful effort to foster an environment that is socially and culturally resonant with a youth population (Resnick, Rusk & Cooke, 1998). Founded in 1993, the Clubhouse is a community technology center (CTC) that serves inner-city youth and represents a particular approach to learning within a CTC that is rooted in the constructionist tradition. Approximately forty stand-alone Clubhouses have been established to-date, including five overseas. With support from the Intel Corporation, plans are underway to expand the network to approximately 100 clubhouses worldwide within the next five years.

At the Clubhouse, young people are able to pursue their interests by creating physical and virtual artifacts that reflect their culture, within the social context of a community of peers and mentors. At many CTCs, the goal is to teach youth basic computer skills and applications. At the Clubhouse, the goal is for youth to learn how to express themselves fluently with technology (Papert & Resnick, 1995). This is demonstrated by their ability to transform ideas into technological projects, as described by Resnick, Rusk and Cooke:
At the Clubhouse, young people become designers and creators — not just consumers — of computer-based products. Participants use leading-edge software to create their own artwork, animations, simulations, multimedia presentations, virtual worlds, music creations, Web sites, and robotic constructions. (Resnick, Rusk & Cooke, 1998, p. 267)

This represents the essence of technological fluency (Papert & Resnick, 1995), or knowing how to “construct things of significance” with technological tools (Resnick, Rusk & Cooke, 1998, p. 266), as opposed to the more common concept of technological literacy, or "computer skills and the ability to use computers to improve learning, productivity, and performance" (U.S. Department of Education, 1996). Much like being fluent with a language, a person who is fluent with technology possesses the ability to express himself or herself in this medium. Resnick, Rusk and Cooke expand on this concept:

> Technological fluency means much more than the ability to use technological tools; that would be equivalent to a few common phrases in a language. To become truly fluent in a language (like English or French), one must be able to articulate a complex idea or tell an engaging story—that is, be able to “make things” with language. Analogously, our concept of technological fluency involves not only knowing how to use technological tools, but also knowing how to construct things of significance with those tools. A technologically fluent person should be able to go from the germ of an intuitive idea to the implementation of a technological project. (Resnick, Rusk & Cooke, 1998, p. 266)

In many respects, sociocultural constructionism applies this same paradigm beyond the walls of the Clubhouse, and into an entire community.

In the context of community technology, I present a sociocultural constructionist approach as being consistent with the following three guidelines:
Empower Individuals, Families, and Communities – Community technology has been referred to as "a process to serve the local geographic community – to respond to the needs of that community and build solutions to its problems" (Morino, 1994, p. 1). Sociocultural constructionism, as it endeavors to achieve social and cultural resonance, simultaneously seeks to empower individuals, families, and communities to identify their interests and how technology can support those interests.

Engage People as Active Producers, Not Consumers – Based on its constructionist underpinnings and emphasis on independent and shared constructive activity, sociocultural constructionism promotes community members as active producers of their own information and content, rather than passive consumers or recipients. This includes individual expression of ones knowledge, interests, and abilities, as well as communication and information exchange at the community level, as mediated by technological fluency.

Emphasize Outcomes, Instead of Access – Access does not imply use and use does not imply meaningful use. Sociocultural constructionism posits that one pathway to achieving individual and community development is to position technology as a tool for achieving outcomes in areas such as education, health care, and employment, instead of a tool for access, merely for the sake of access.

These principles reflect my observations of the lessons learned from the community technology movement thus far. In commenting on some of the failures of community technology initiatives in the past, Beamish asks:

Could the community computing movement be in trouble? It is possible, because despite the laudable goal of bringing information and communications technology to a broader audience, there are serious problems. Project goals are often too vague, simplistic, and unrealistically utopian. Participants are frequently seen as passive consumers of information rather than active producers. Information is emphasized rather than the communication side of the
technology. And perhaps worst of all, projects too often view the technology as an end in itself rather than a means to an end. (Beamish, 1999, p. 351)

And later continues:

Far too many projects, in spite of the rhetoric, have been unable to go beyond the broadcast model and still see their target group as consumers rather than as producers of information...

A greater problem, however, is the vagueness of community computing's goals and the underlying assumption that technology itself will automatically improve the lives of low-income residents and their neighborhoods. (Ibid., pp. 363-364)

The principles of sociocultural constructionism speak directly to these concerns and can help clarify the role of community technology. Community technology has been referred to as "a process to serve the local geographic community - to respond to the needs of that community and build solutions to its problems" (Morino, 1994). Based on this conceptualization, any effort that seeks to operationalize the sociocultural constructionist approach to individual and community engagement with technology, must address various community constituencies, such as residents, local associations and institutions (e.g., schools, libraries, etc.), and neighborhood businesses via socioculturally constructive tools that are supported by socioculturally constructive activities toward achieving individual and community-defined outcomes. Not surprisingly, such an approach also has direct applications to community revitalization. To further explicate this matter, I draw from the literature surrounding resident and community involvement in efforts to revitalize neighborhoods and build communities. More specifically, I draw upon the writings of Kretzmann and McKnight (1993) who fundamentally believe that the way to do this is by focusing on a community's indigenous assets instead of perceived needs.
ASSET-BASED AND NEEDS-BASED APPROACHES

According to Kretzmann and McKnight (1993), two paths have emerged to revitalize distressed communities in America. The first and more common path is a “needs-based” approach whereby the deficiencies and weaknesses of the community are identified, and then narrowly defined and isolated programs are implemented to “fix” these needs. This approach ends with a “needs-map” that depicts perceived problems such as alcoholism, crime, unemployment, drugs, broken families, and child neglect as shown below.

Such an approach reinforces the flawed notion that in order for community members to solve their problems they must rely on services that are delivered to them as passive beneficiaries or clients. This often leads to a negative cycle of dependency such that residents become “consumers of services, with no incentive to be producers” (Kretzmann & McKnight, 1993). The other consequences of the “needs-based” approach or “deficiency-model” include the resulting fragmented efforts of service providers, the over-reliance on resident-to-non-resident relationships (and conversely, the under-reliance on resident-to-resident relationships), the misdirection of certain resources to service providers instead of residents, and the negative effect of forcing local leadership to continually highlight (and often sustain) problems in order to renew funding (Kretzmann & McKnight, 1993).

The second and less common approach is an “asset-based” approach whereby the strengths and resources of the community are identified along with comprehensive, community-defined strategies that can draw upon these assets. This approach begins with an “asset-map” that depicts the capacities, skills, and abilities of the community residents, local associations and institutions (e.g., schools, libraries, etc.), and neighborhood businesses that can be leveraged, as shown below.
Such an approach reinforces the empowering notion that in order for community members to solve their problems they must leverage local resources. This is often misinterpreted to suggest that an asset-based approach is tantamount to expecting under-resourced neighborhoods to pull themselves up by their own bootstraps. Quite to the contrary, an asset-based approach encourages communities to identify and make productive use of existing resources first, and then enlist the assistance of outside entities from the public, private, non-profit, foundation, and academic sectors second, all of whom clearly have valuable, mutually-beneficial contributions to make in partnership with the community (Pinkett, 2002). Kretzmann and McKnight add:

*Focusing on the assets of lower income communities does not imply that these communities do not need additional resources from the outside. Rather, this guide suggests that outside resources will be much more effectively used if the local community is itself fully mobilized and invested, and if it can define the agendas for which additional resources must be obtained.*

(Kretzmann & McKnight, 1993, p. 8)
This approach often leads to a positive cycle of empowerment that finds residents taking ownership for their community and regarding themselves as active agents of change. In this spirit, the “asset-based” approach or “capacity-model” can result in comprehensive and integrated solutions to what are often comprehensive and multi-faceted problems by heightening awareness and utilization of community resources. It also provides the foundation for a specific approach to community building known as asset-based community development.

**ASSET-BASED COMMUNITY DEVELOPMENT**

*Asset-based community development (ABCD)* is a model for community building which assumes that social and economic revitalization begins with what is already present in the community – not only the capacities of residents as individuals, but also the existing associational, institutional, and commercial foundations (Kretzmann & McKnight, 1993). This is done by focusing on indigenous community assets (e.g., residents, local organizations and institutions, neighborhood businesses, etc.) instead of perceived needs. 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.

Kretzmann and McKnight (1993) identify three characteristics of asset-based community development:

- **Asset-Based** – Asset-based community development begins with what is present in the community, as opposed to what is absent or problematic in the community. It is focused on indigenous assets as opposed to perceived needs. These assets represent resources that can, and must be utilized in order to achieve positive and sustainable change.

- **Internally Focused** – Asset-based community development calls upon community members to identify their interests and build upon their capacity to solve problems. One of the distinguishing...
characteristics of community building in general, is its heavy reliance on internal, rather than external actors.

- **Relationship Driven** – Community building has been defined as "any identifiable set of activities pursued by a community in order to increase the social capacity of its members" (Mattesich & Monsey, 1997). Toward this end, asset-based community development encourages the ongoing establishment of productive relationships among community members, as well as the associated trust and norms necessary to maintain and strengthen these relationships.

Conceptually, asset-based community development sees the glass as “half-full” instead of “half-empty.”

In the context of historical approaches to community revitalization, Kretzmann and McKnight comment:

> Asset-based community development is intended to affirm, and to build upon the remarkable work already going on in neighborhoods across the country. Asset-based community development acknowledges and embraces particularly the strong neighborhood-rooted traditions of community organizing, community economic development and neighborhood planning. In fact, experienced leaders in these areas have been our most valuable sources of inspiration and guidance. (Kretzmann & McKnight, 1993, p. 9)

For these reasons, asset-based community development can be an appropriate methodology for harnessing the individual and collective talents of community members. Not only does this have direct applications to community engagement with neighborhood revitalization, but also community engagement with technology. The asset-based nature can ensure broad participation including residents, associations, businesses, and institutions (e.g., libraries, schools, etc.) when designing strategies to deploy a community technology initiative. The internal focus can ensure that their voices are heard and act as a guiding force in the conceptualization and implementation of an initiative. The emphasis on relationships
can increase the capacity of community members to communicate more frequently, exchange information and resources more efficiently, and work together more effectively.

Kretzmann and McKnight (1993) identify five steps toward “whole community mobilization”:

- **Asset-Mapping** – Mapping completely the capacities and assets of individuals, citizens’ associations and local institutions.

- **Building Internal Relationships** – Building relationships among local assets for mutually beneficial problem solving within the community.

- **Asset-Mobilization** – Mobilizing the community’s assets fully for economic development and information sharing purposes.

- **Building a Vision** – Convening as broadly representative a group as possible for the purposes of building a community vision and plan.

- **Establishing External Connections** – Leveraging activities, investments and resources from outside the community to support asset-based, locally defined development.

These steps can also be applied to community engagement with technology. Asset-mapping can identify the community resources that are relevant to the community technology initiative. This includes assets that could benefit from or contribute to the initiative such as the skills and abilities of residents, the products and services of neighborhood businesses, the social services and programs offered by local associations, and the resources found in local institutions such as schools and libraries. As mentioned earlier, building internal relationships can increase the community’s capacity to work together effectively to coordinate the initiative. Asset-mobilization can be partially mediated online, particularly given how
well the Internet and the World Wide Web are suited to information sharing and communication purposes (Kraut et al., 1997). While e-mail and listservs could easily perform this function, more sophisticated tools could be developed to facilitate this exchange in new and innovative ways including a geographic information systems (GIS) mapping interface that visualizes community resources, an interactive, searchable database of resident’s skills and interests, or personal digital assistant (PDA) software that allows users to collect, update, and distribute data regarding neighborhood assets. Building a vision can help leaders to understand how the various community constituencies can benefit from the initiative – as seen from their point of view. Finally, establishing external connections can involve institutions in the initiative that lie outside the community, such as universities (i.e. research and evaluation) and philanthropic groups (i.e. funding). Links to these and other entities can greatly contribute to the initiative’s long-term sustainability.

These steps have proven effective in a variety of community revitalization efforts, including: mapping and mobilizing local business assets to create a job-matching network (Kretzmann, McKnight & Puntenney, 1996a), mapping and mobilizing the economic capacities of local residents to create a cooperative buying arrangement (Kretzmann, McKnight & Puntenney, 1996b), mapping and mobilizing consumer expenditures to identify opportunities for local entrepreneurship (Kretzmann, McKnight & Puntenney, 1996c), mapping and mobilizing the associations in a local neighborhood to establish a "council of associations" (Kretzmann, McKnight & Turner, 1999), and creating a neighborhood information exchange that connects local skills and knowledge (Kretzmann, McKnight & Puntenney, 1998).

This research endeavors to demonstrate that an asset-based approach to community building and community technology can further expand the range of possibilities for revitalization efforts such as these.
A recurring theme in this thesis is that the best practices of community technology and community building engage residents as active, rather than passive participants (Bishop et al., 1999; Chapman & Rhodes, 1997; Kavanaugh & Cohill, 1997; Kingsley, McNeely & Gibson, 1999; Aspen Roundtable, 1999; Naparstek, Dooley & Smith, 1997). Sociocultural constructionism and an asset-based approach to community technology and community building are firmly grounded in this notion as a means toward achieving social and cultural resonance, and focusing on indigenous assets instead of perceived needs.

A sociocultural constructionist and asset-based approach encourages: 1) “bottom-up” rather than “top-down” processes to emerge that give voice to the members of a community, 2) seeks to resolve the “inside-outside” tension (Aspen Institute, 1997) that can potentially arise during community technology and community building initiatives, and 3) endeavors to achieve balance along the “product-and-process” continuum (Aspen Institute, 1997) with respect to community-defined outcomes. In the following sections, I describe each of these three dimensions of community technology and community building in relation to sociocultural constructionism and asset-based community development.

**Bottom-Up vs. Top-Down**

The first dimension of community technology and community building initiatives is the “bottom-up” versus “top-down” dimension. While top-down approaches determine their goals and objectives with little to no input from the constituencies they endeavor to serve, bottom-up approaches enlist a wide range of community constituencies to determine their own outcomes. For a community technology and community building initiative this includes residents, associations, institutions, and businesses. It also includes the existing community technology infrastructure such as community technology centers (CTCs) and the existing community building infrastructure such as community-based organizations (CBOs).
On the subject of bottom-up versus top-down processes, Kretzmann and McKnight (1993, p. 5) write, "all evidence indicates that significant community development takes place only when local community people are committed to investing themselves and their resources in the effort. This observation explains why communities are never built from the top down." Similarly, Resnick and King add:

There is no such thing as a poor community. Even neighborhoods without much money have substantial human resources. Often, however, the human resources are not appreciated or utilized, partly because people do not have information about each other and about what their neighborhood has to offer. For example, a family whose heater is broken may go cold for lack of knowledge that someone just down the block knows how to fix it. [Technologies] of all kinds have great potential for building and maintaining communities. (Resnick & King, 1997, pp. 229-230)

The comment above portrays one of the benefits of bottom-up strategies – that resources are often utilized that would otherwise remain untapped. It also demonstrates one aspect of what technology brings to a bottom-up orientation – a more efficient exchange of these resources. In practice, a sociocultural constructionist and asset-based approach to community technology and community building seeks to identify and connect these resources not only online but also offline.

**Inside–Outside**

The second dimension of community technology and community building initiatives is the "inside-outside" dimension. This tension often results from the delineation between internal and external actors, which is perhaps best characterized as the distinction between "us" and "them" (Aspen Institute, 1999). This tension manifests itself in a variety of ways. From the "inside" perspective, neighborhood residents and governing boards seeking to leverage the resources and expertise of researchers, funders, and technical assistance providers, must do so in a way that advances, and does not compromise their own goals and
objectives. From the "outside" perspective, non-residents seeking to support and learn from community members and organizations must do so in a way that fosters ownership and empowerment, as opposed to reliance and dependence (Pinkett, 2002).

The ideal scenario for residents and non-residents to truly work together as partners is one where the needs of both parties are met and the community’s capacity is strengthened as a result of the partnership. These goals are most likely to be met (and the inside-outside tension is most likely to be resolved) in projects that engage community residents as active participants in the process, ensuring that they have a strong voice in determining outcomes for their community, while still leveraging the contributions from the partner (Pinkett, 2002). As Kingsley, McNeely, and Gibson, explain:

"Community participation" is not enough. The community must play the central role in devising and implementing strategies for its own improvement. This does not mean that outside facilitators cannot help show them the way, or that they cannot accept outside help or accomplish goals by partnering with outside agencies, but neighborhood residents must feel that they "own" the improvement process. (Kingsley, McNeely & Gibson, 1999, p. 7)

Along the inside-outside dimension, a process of improvement based on “community participation” is a necessary but not sufficient condition for a more desirable process of improvement that is “community-driven” (Ibid., p. 7). By engaging residents as active, rather than passive participants, the practice of sociocultural constructionism and an asset-based approach to community technology and community building seeks to resolve this tension.
Product and Process

The third and final dimension of community technology and community building is the “product” and “process” dimension. The tension between product and process refers to “the difficulty in maintaining a commitment to community building, capacity building, empowerment, participation and similar process priorities in the face of internal drives and external pressures toward products such as better housing, more services, and new business development” (Aspen Institute, 1999, p. 14). The distinction between product and process has also been characterized as the difference between "intermediate outcomes," such as collective goal setting and relationship building, that are building blocks for more "final outcomes," such as an increase in the number of people engaged in community projects, or markers of neighborhood improvement (Dewar, 1997). On this subject, the Aspen Institute writes:

> Attempting to balance the two to achieve initiative goals, however, is no easy task and creates a fundamental tension. If an initiative’s only goals were to produce houses, deliver services, or create jobs, this tension would hardly exist. Likewise, it would also be less prominent if, conversely, the initiative aimed only to strengthen social networks or enhance a participatory development process. (Aspen Institute, 1999, p. 15)

While the above remarks were made in relation to comprehensive community initiatives (CCIs), they are equally applicable to community technology and community building initiatives. Practically speaking, sociocultural constructionism and an asset-based approach to community technology and community building recognize that although process-related activities are often time and resource consuming, they should be valued as being supportive of, rather than subordinated to, product-related outcomes.
RELATED THEORY AND PRACTICE

Sociocultural constructionism and an asset-based approach to community technology and community building draw heavily from the work of educators Ivan Illich and Paulo Freire.

Two of the notions espoused by Illich underlie the sociocultural constructionist and asset-based community development frameworks in relation to community technology and community building. The first idea is Illich's concept of "learning webs." In *Deschooling Society*, Illich (1970) takes the position that education and society have become "schooled," or so rigid, institutionalized, and professionalized that treatment, service and procedure are often mistaken for true development. For example, he asserts that oftentimes teaching is mistaken for learning, "medical treatment for health care, social work for the improvement of community life, police protection for safety, military poise for national security, [and] the rat race for productive work" (Ibid., p. 1). He believes that these facades and their associated formality inhibit a learner's open pursuit of personal development, or more specifically, meaningful things and people whom the learner could connect with. He suggests that rather than "funneling" knowledge through teachers we should facilitate learning via educational "learning webs," or peer exchange networks. According to Illich, a good educational system serves three purposes:

*It should provide all who want to learn with access to available resources at any time in their lives; empower all who want to share what they know to find those who want to learn it from them; and, finally, furnish all who want to present an issue to the public with the opportunity to make their challenge known.* (Ibid., p. 75)

To serve these purposes Illich presents a model for self-motivated learning that provides the student with new connections to their community and the world via peer-matching and a knowledge exchange medicated by a communications network. He suggests that learners, given the proper scaffolding such as a reference service to educational materials and other educators-at-large, would naturally seek to
establish relationships with others for developmental purposes. Illich remarks, “The inverse of school would be an institution which increased the chances that persons who at a given moment shared the same specific interest could meet—no matter what else they had in common” (Ibid., p. 92). This epistemological perspective is also closely related to the second idea from Illich that is relevant here, the concept of “convivial tools.”

In *Tools for Conviviality*, Illich (1973) uses the term “tools” quite broadly. For him, tools refer not only to industrial tools that increase productivity such as drills and motors (i.e. machines), but also institutions that produce tangible goods such as paper or books (i.e. factories), and institutions that produce intangible goods such as “knowledge” and “learning” (i.e. schools). Illich believes that just as people can operate machines, institutions can operate people. In this regard, he writes, “Highways pretend to be public utilities while in fact they are discriminatory devices. Cars operate on highways as teachers operate in schools” (Ibid., p. 32).

Illich distinguishes between three uses of tools: work (a term he reappropriates from its modern conceptualization), “fully satisfying, imaginative, and independent” use, labor, purposeful yet often compulsory use (which more closely resembles modern conceptualizations of work), and operation, narrow, mechanistic, and structured use. Illich defines a “convivial tool” as one that supports work, promotes expression, and enables the pursuit of ones personal goals and objectives. This is in opposition to “manipulative tools” that consciously or unconsciously constrain ones freedom of choice, and are typically relegated to either labor-saving devices or mechanically operated devices that often require training, testing, or certification. For Illich, a convivial society is one where citizens can exert autonomous action, and tools serve to augment their range of choices rather than restricting them. A convivial society is one where community members are free to pursue their passions, and tools function to expand this freedom. A convivial society is one where relationships are formed around shared interests, and tools exist to support their formation. Illich adds:
Tools are intrinsic to social relationships. An individual relates himself in action to his society through the use of tools that he actively masters, or by which is passively acted upon. To the degree that he masters his tools, he can invest in the world with his meaning; to the degree that he is mastered by his tools, the shape of the tool determines his own self-image. Convivial tools are those which give each person who uses them the greatest opportunity to enrich the environment with the fruits of his or her vision. Industrial tools deny this possibility to those who use them and they allow their designers to determine the meaning and expectations of others. Most tools today cannot be used in a convivial fashion. (Ibid., p. 21)

Illich's ideas also highlight the role of community technology for the purpose of community building. By increasing the user's range of choices, computers and the Internet fulfill his criteria of tools for conviviality. These modern tools can be instrumental not only by connecting people and things around shared interests, but also by connecting the members of a community around shared concerns for their neighborhood. In this spirit, digital technologies can also support asset-mapping (i.e. a reference to community resources), asset-sharing (i.e. barter and exchange networks of community resources), and asset-mobilization (i.e. productive connections among community resources). Illich's concepts situate the learner as the agent of her or his development and in doing so, underscore the importance of appropriate tools for expression, creativity, and the active production of information and content.

Similarly, there are four distinguishing characteristics of the Freirean approach to education that are foundational to sociocultural constructionism and an asset-based approach to community technology and community building. First, Freire believed education should be learner-centered — it should involve students and teachers working together, yet centered on the learner's social and cultural environment. In Pedagogy of the Oppressed, Freire (1970) argued that traditional education is akin to a top-down system of "banking" where teachers possess knowledge and information, which is transmitted to students by making "deposits." Here, the teacher knows everything, the student knows nothing, and only the student can learn from the teacher. He advocated a bottom-up approach to adult literacy
education that is rooted in the learners' lived social and cultural experiences and people working collectively. This involved learning to read and write in groups while discussing topics of importance to the learners, or "meaningful thematics" (Freire, 1970, p. 96), drawn from their real-life experiences. Here, the teacher's knowledge is valued, the student's knowledge is valued, and both can learn from each other. His explicit emphasis on the lived personal experiences of the "oppressed" in relation to political activism and empowerment expanded the educational discourse to include arenas that had been previously diminished or ignored. Freire spoke directly to the importance of achieving social and cultural resonance and the inherent value of focusing on assets, or what is present, as opposed to needs, or what is absent. He drew attention to these matters not only within the context of education and learning but also the broader areas of individual and community development.

Second, Freire believed education should be **empowering** – it should position those who seek to work in underserved communities to understand their environment, work alongside them, and strengthen their capacity to do for themselves. Freire endorsed an inside-out approach of people working with the oppressed such that their issues, "generative themes or meaningful thematics constitutes the starting point," (ibid., p.180) in contrast to an outside-in approach of people working for the oppressed. He referred to the former as "cultural synthesis" and the latter as "cultural invasion" (ibid., p. 180). Freire writes (also referenced in Shaw, 1995):

> In cultural invasion, the actors draw thematic content of their action from their own values and ideology; their starting point is their own world, from which they enter the world of those they invade. In cultural synthesis, the actors who come from 'another world' to the world of the people do so not as invaders. They do not come to teach or transmit or to give anything, but rather to learn with the people, about the people's world.

> In cultural invasion (who need not even go personally to the invaded culture; increasingly, their action is carried out by technological instruments) superimpose themselves on the people, who
are assigned the role of spectators, of objects. In cultural synthesis, the actors become integrated with the people, who are co-authors of the action that both perform upon the world.

In cultural invasion, both the spectators and the reality to be preserved are objects of the actors’ action. In cultural synthesis, there are no spectators; the object of the actors’ action is the reality to be transformed for the liberation of men. (Ibid., p. 180)

Freire’s comments above accent the need to enlist the participation of internal actors to achieve community-driven, community-defined outcomes.

Third, Freire believed education should be liberating – it should free the “oppressed” from the conditions that cause their oppression and empower citizens not only to learn but also to take collective action. Although Freire’s methods made extensive use of dialogue as a means to deeper understanding, understanding alone was not enough. Freire theorized that discussion, or “dialogical relations,” would lead to critical thought, critical thought would lead to action, and then citizens would begin to see themselves as agents of change with the ability to make a difference in the world. In fact, he referred to such action as “cultural action” which he described as “a systematic and deliberate form of action which operates on the social structure, either with the objective of preserving that structure or of transforming it… Cultural action either serves domination (consciously or unconsciously) or it serves the liberation of men and women.” (Ibid., p. 179). Freire believed that the process of dialogue was inextricably linked and inseparable from its resulting product: education for cultural action. On this matter he remarked, “Without dialogue there is no communication, and without communication there can be no true education” (Ibid., pp. 92-93) and later, “In this theory of action one cannot speak of an actor nor simply of actors, but rather of actors in intercommunication” (Ibid., p. 129). Freire’s position on dialogue and action strongly suggests the need for relationship building, capacity building and empathic communication amongst individuals in a community to promote critical analysis and spawn action.
Fourth and finally, Freire was devoted to education as praxis – the practical application of theory or “reflection and action upon the world in order to transform it” (ibid., p. 33). He writes:

The insistence that the oppressed engage in reflection on their concrete situation is not a call to armchair revolution. On the contrary, reflection – true reflection – leads to action. On the other hand, when the situation calls for action, that action will constitute an authentic praxis only if its consequences become the object of critical reflection. In this sense, the praxis is the new raison d’être of the oppressed; and the revolution, which inaugurates the historical moment of this raison d’être, is not viable apart from their concomitant conscious improvement. Otherwise, action is pure activism. (Ibid., p. 66)

Freire was a proponent of action as informed action or action enlightened by theory. Similarly, sociocultural constructionism and an asset-based approach to community technology and community building is not just a theoretical framework, it is a theoretical framework that informs action.

It has been written that “intellectually, perhaps the two most significant figures in the latter part of the twentieth century have been Paulo Freire with his emphasis on dialogue and on seeking to change consciousness; and Ivan Illich with his concern for conviviality, deschooling and the problems of professionalization” (Smith, 2001, p. 1). Correspondingly, sociocultural constructionism and asset-based community development draw upon their contributions to the areas of formal and informal education and extend them to the domains of community technology and community building. In summary, the practical application of this theory is informed by their underlying philosophies as well as those of Papert, Resnick, Shaw, Hooper, Kretzmann, McKnight, and others.
THE PRAXIS OF SOCIOCULTURAL CONSTRUCTIONISM AND AN ASSET-BASED APPROACH TO COMMUNITY TECHNOLOGY AND COMMUNITY BUILDING

The practical application of sociocultural constructionism and an asset-based approach to community technology and community building endeavors to achieve positive changes in community social capital and community cultural capital, two constructs I have developed as variations of the concepts of social capital (Coleman, 1988; Mattesich & Monsey, 1997; Putnam, 1993 & 1995) and cultural capital (Bourdieu & Passeron, 1977; Lamont & Lareau, 1988; Zweigenhaft, 1993).

**Community Social Capital**

Social capital is defined as the "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1995). Coleman (1988) developed the social capital theoretical framework, and distinguished between three different forms:

- **Obligations and Expectations** resulting from trustworthiness in the social environment, as well as the extent to which obligations are repaid.

- **Information Channels,** or the potential for access to others with knowledge and expertise inhered in social relations.

- **Social Norms and Effective Sanctions** that often inhibit negative behavior, and promote positive behavior.

In his classic analysis of Italian civic life, Making Democracy Work, Robert Putnam (1993) extended Coleman's work by identifying social capital as the antecedent for social outcomes such as better
education, economic development, and lower crime, when explaining vast differences between the northern and southern regions of Italy. Like other forms of capital, such as physical and human capital, "social capital is productive, making possible the achievement of certain ends that in its absence would not be possible" (Coleman, 1988).

I define *community social capital* as the extent to which members of a community can work and learn together effectively. This definition of community social capital is similar to Mattesich and Monsey's (1997, p. 8) definition of community social capacity, “a community’s ability to work together in concert.”

**Community Cultural Capital**

*Cultural capital* was first introduced by Bourdieu (1977) who distinguished between three different types (Lamont & Lareau, 1988):

- *Embodied or Incorporated* represented by practices that are internalized during the socialization process.

- *Objectified*, or transmittable goods such as books, computers, paintings, etc., that require embodied cultural capital to be appropriated.

- *Institutional*, which is evidenced by degrees, diplomas, certificates, or other markers that certify the value of embodied cultural capital.

Lamont and Lareau (1988) later expanded Bourdieu’s concepts, by proposing a new definition of cultural capital, “widely shared, legitimate culture made up of high status cultural signals (attitudes, preferences, behaviors, and goods) used in direct or indirect social and cultural exclusion.” This definition aimed to “decouple cultural capital from the French context in which it was originally conceived to take into
consideration the distinctive features of American culture” (Lamont & Lareau, 1988, p. 1), by placing particular emphasis on the cultural elements valued by the elite.

In similar fashion to Zweigenhaft’s later definition of cultural capital, “various forms of knowledge, dispositions, and skills” (Zweigenhaft, 1993, p. 211), I define community cultural capital as various forms of knowledge, skills, abilities, and interests, which have particular relevance or value within a community. This is done to draw attention away from those cultural elements valued by the elite and instead place specific emphasis on those cultural elements that are valued in a community, by the community. This concept of community cultural capital is similar to the concept of “community funds of knowledge” popularized by Moll et al. (1995) and Vélez-Ibáñez, (1993).

**Community Technology and Community Building Outcomes**

As mentioned earlier, process is just as important as product for a sociocultural constructionist and asset-based approach to community technology and community building initiatives. Community social capital and community cultural capital are both process-oriented outcomes, whereas product-related outcomes such as a stronger educational system, better delivery of health care, reduced unemployment, or improved economic and business development are, of course, defined by the community. What constitutes a desired outcome in one neighborhood may not apply to others and will therefore differ from initiative to initiative. Regardless, increased community social capital and activated community cultural capital are means to these ends. For example:

- *Increased community social capital* includes: 1) reconfigured (Contractor & Bishop, 1999) social networks (e.g., broader extent, proximity and valued inhered in strong and weak social ties) as opposed to reinforcing existing ties, 2) increased obligations and expectations of trustworthiness (e.g., increased reliance on neighbors for advice or help and other social support measures), 3) expanded access to information channels (e.g., heightened awareness of community resources), and
4) strengthened norms and effective sanctions (e.g., increased interaction among residents that inhibits negative behaviors).

- *Activated community cultural capital constitutes:* 1) exchanging knowledge and resources (e.g., formal or informal sharing of information, products, services, etc.), 2) improving technological fluency (Papert & Resnick, 1995; Resnick, Rusk & Cooke, 1998) and the ability of community members to express themselves via technology (e.g., the ability to create a personal website that portraits a particular interest such as books), 3) coalescing around shared interests (e.g., a group of mothers discussing effective child rearing practices), and 4) shifting individuals' attitudes and perceptions of themselves and the world (e.g., renewed confidence in their abilities, their capacity to learn, and their appreciation of assets in their community).

Also note that while community social capital and community cultural capital are community outcomes, they also fully acknowledge individual outcomes because they often fuel and directly contribute to community outcomes. Community social capital and community cultural capital encapsulate the community's capacity or ability to marshal its resources toward achieving individual and collective goals.

In theory, a sociocultural constructionist and asset-based approach to community technology and community building seeks to achieve positive changes in community social capital and community cultural capital, as a result of promoting residents as active, rather passive participants in the process. In practice, the sociocultural constructionist and asset-based community development frameworks can help operationalize a methodology for conducting an integrated community technology and community building initiative.
This chapter presents the research design and methodology including the research problem, research site, Camfield Estates, research project, the Camfield Estates-MIT Creating Community Connections Project, research question and hypothesis, research methods, including quantitative and qualitative techniques, data collection and analysis, project methodology, and timeline.

RESEARCH PROBLEM

The digital divide, the gap between those who benefit from new technologies and those who do not, is a modern day reflection of historical social divides that have plagued our society for years. Over the past decade, the community technology movement has gathered momentum toward closing the gap with programs targeted at access, training, content, technological fluency, and more. Over the past century, the community building movement has wrestled with complimentary issues in its' efforts to alleviate poverty by instituting programs aimed at education, health care, employment, economic development, and the like.

The intersection between these domains holds tremendous possibilities, as both efforts seek to empower individuals and families, and improve their overall community. Ironically, approaches that combine these areas have received very little attention in theory and practice. In fact, community technology efforts are often completely decoupled from community building initiatives for a variety of reasons including their disparate funding sources (significant private-sector support in the form of high-tech corporations for community technology, and significant public-sector support in the form of...
government programs for community building), disparate foci (access for community technology, outcomes for community building), and disparate constituencies (primarily CTCs for community technology and CBOs for community building). Fortunately, a few advocates have begun to highlight this disconnect and recommend strategies to address it (Kirschenbaum & Kunamneni, 2001; Turner & Pinkett, 2001). This dissertation is intended to contribute to this dialogue.

From among the three models of community engagement with technology – community technology centers (CTCs), community networks, and community content (Beamish, 1999) – there is a limited number of projects that have engaged community residents as active participants in using technology to define processes for neighborhood revitalization. Conversely, from among the multitude of models for community engagement with revitalization – such as community organizing, community development, community building, and comprehensive community initiatives (CCIs) (Hess, 1999) – we are only beginning to witness the benefits that are afforded by incorporating new technologies into these approaches in a way that truly leverages their potential.

The best practices of community technology see community members as active producers of community information and content. Similarly, the best practices of community building see community members as active agents of change. As community technology and community building initiatives move toward greater synergy, there is a great deal to be learned regarding how community technology and community building can be mutually supportive, rather than mutually exclusive. My research problem is to shed light on the possibilities inhered at this nexus.

**RESEARCH SITE – CAMFIELD ESTATES**

The project that constitutes the basis for this thesis is the Camfield Estates-MIT Creating Community Connections Project, a partnership between the Camfield Tenants Association (CTA) and the Massachusetts Institute of Technology (MIT). Camfield Estates, formerly Camfield Gardens, is a
predominantly African-American, low- to moderate-income housing development in the South End/Lower Roxbury section of Boston, Massachusetts. Figure 1 shows a picture of Camfield Estates.

![Picture of Camfield Estates](image)

**Figure 1: Picture of Camfield Estates**

### History

Camfield Estates, under the leadership of the non-profit, Camfield Tenants Association (CTA), Inc., is one of the leading housing developments in the greater Boston area. Camfield Estates was originally constructed as Camfield Gardens in 1971 as an affordable housing initiative of the neighboring People's Baptist Church. The original owners defaulted on their mortgage payments in early 1980 making the U.S. Department of Housing and Urban Development (HUD) Mortgage-in-Possession in 1983. In 1991, HUD foreclosed on the property due to problems with sewage, leaks, rats, and significant structural decay that made the condition of the development uninhabitable (MHFA, 2001).

At this time, Camfield residents organized to convince HUD not to sell the property and through the efforts of the newly formed CTA, identified needs of not only affordable housing, but also closely related areas such as building the community to address existing social, economic, and technological disparities. Under the volunteer efforts of Paulette Ford, CTA President, Thaddeus Miles, Director of Public Safety...
for MHFA, and many others, Camfield residents elected to tear down Camfield Gardens via participation in HUD's demonstration-disposition or "demo-dispo" program.

Demo-dispo was implemented by HUD in 1993, as a strategy to deal with its growing inventory of foreclosed multifamily housing, much of which was in poor physical and financial condition (MHFA, 2001). Through this national demonstration program, approved only in the City of Boston, the Massachusetts Housing Finance Agency (MHFA) was designated to oversee the renovation and sale of HUD properties to resident-owned organizations including Camfield Estates and Roxse Homes, a neighboring housing development, as well as nine others.

The 136 apartments of Camfield Gardens were demolished in 1997 and residents were relocated throughout the greater Boston area. Reconstruction of the property was completed in 1999 as residents returned to Camfield Estates – 102-units of newly built town houses (92 subsidized with Section 8 assistance and reserved for very-low and low-income households). The renovated property also includes the Camfield community center which houses meeting space, management offices, and the Neighborhood Technology Center (NTC) – a CTC and HUD Neighborhood Networks site, managed by Williams Consulting Services (WCS – Wayne Williams, President and CEO) and supported by MHFA. In the fall 2001, it is expected that HUD will dispose (transfer ownership) of the property to CTA, making Camfield the first of several participants in the demo-dispo program to successfully complete the process.

**Demographics**

The majority of Camfield residents are Black and Non-Hispanic. Figure 2 shows the race of residents at Camfield Estates and Figure 3 shows the ethnicity of residents at Camfield.
The average age at Camfield is 27 as a result of a large youth population under 18 (45%), and an appreciable adult population 30 and above (39%). Table 1 shows the age of residents at Camfield.

<table>
<thead>
<tr>
<th>Age</th>
<th>%</th>
<th>Age</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 5</td>
<td>15.1%</td>
<td>40 - 49</td>
<td>9.0%</td>
</tr>
<tr>
<td>6 - 12</td>
<td>14.5%</td>
<td>50 - 59</td>
<td>5.4%</td>
</tr>
<tr>
<td>13 - 17</td>
<td>15.1%</td>
<td>60 - 69</td>
<td>6.6%</td>
</tr>
<tr>
<td>18 - 22</td>
<td>6.6%</td>
<td>70 - 79</td>
<td>0.6%</td>
</tr>
<tr>
<td>23 - 29</td>
<td>9.6%</td>
<td>80 - 89</td>
<td>0.6%</td>
</tr>
<tr>
<td>30 - 39</td>
<td>9.6%</td>
<td>Other</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

Table 1: Camfield Age

The majority of the residents at Camfield are female, including the CTA board of directors, which consists of seven women and a one man. Figure 4 shows the age and gender of residents at Camfield.
The family size distribution at Camfield is spread fairly evenly between one and five-person households, while almost 80% of residents are either the head of household or a child. Figure 5 shows the family size of residents at Camfield and Figure 6 shows the relationship of residents at Camfield.

Camfield residents' annual income is distributed fairly evenly across incomes between $2,000 and $30,000. Table 2 shows the annual income of residents at Camfield.
Table 2: Camfield Estates Annual Income

<table>
<thead>
<tr>
<th>Income</th>
<th>%</th>
<th>Income</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $ 2,000</td>
<td>6.5%</td>
<td>$16,000 - $17,999</td>
<td>8.1%</td>
</tr>
<tr>
<td>$ 2,000 - $ 3,999</td>
<td>1.6%</td>
<td>$18,000 - $19,999</td>
<td>4.8%</td>
</tr>
<tr>
<td>$ 4,000 - $ 5,999</td>
<td>6.5%</td>
<td>$20,000 - $21,999</td>
<td>4.8%</td>
</tr>
<tr>
<td>$ 6,000 - $ 7,999</td>
<td>9.7%</td>
<td>$22,000 - $23,999</td>
<td>9.7%</td>
</tr>
<tr>
<td>$ 8,000 - $ 9,999</td>
<td>4.8%</td>
<td>$24,000 - $25,999</td>
<td>8.1%</td>
</tr>
<tr>
<td>$10,000 - $11,999</td>
<td>1.6%</td>
<td>$26,000 - $27,999</td>
<td>12.9%</td>
</tr>
<tr>
<td>$12,000 - $13,999</td>
<td>8.1%</td>
<td>$28,000 - $29,999</td>
<td>3.2%</td>
</tr>
<tr>
<td>$14,000 - $15,999</td>
<td>3.2%</td>
<td>$30,000 and up</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

RESEARCH PROJECT – CAMFIELD ESTATES-MIT

CREATING COMMUNITY CONNECTIONS PROJECT

The Camfield Estates-MIT Creating Community Connections Project was initiated in January 2000, by the author, a Ph.D. candidate in the Epistemology and Learning Group of the MIT Media Laboratory, and Richard O’Bryant, a Ph.D. candidate in the Planning Support Systems (PSS) Group of the MIT Department of Urban Studies and Planning (DUSP), in conjunction with our advisors, Professor Mitchel Resnick, MIT Media Laboratory, Professor Joseph Ferreira, DUSP, Professor Ceasar McDowell, DUSP and Director of the Center for Reflective Community Practice (CRCP), and Professor David Gifford, MIT Laboratory for Computer Science (LCS).

Collectively, we shared an interest in the role of technology for the purpose of building community, empowerment, and self-sufficiency. Camfield was identified as an excellent site to examine these issues and conduct a longitudinal study for numerous reasons, including the strong leadership exemplified by CTA, the cable-modem Internet capabilities in each unit, and the presence of the Camfield Estates Neighborhood Technology Center (NTC), along with its associated course offering and ongoing technical support. However, what made Camfield particularly attractive was their expressed interest in collaborating with us to improve the lives of their residents, and the prospects to sustain the initiative as a result of CTA’s leading role in the demo-dispo program, and impending ownership of the property.
The W.K. Kellogg Foundation provided primary support for the project in the form of a monetary grant, followed by in-kind donations from Hewlett-Packard Company (computers), RCN Telecom Services (cable-modem Internet service), Microsoft Corporation (software), ArsDigita Corporation (software and technical support), and MHFA (financial provision for NTC), with additional support from WCS who manages NTC, Lucent Technologies through their Cooperative Research Fellowship Program (CRFP), the U.S. Department of Housing and Urban Development (HUD) through their Doctoral Dissertation Research Grant Program, the U.S. Department of Commerce through the ArsPortalis Project, the Institute for African-American eCulture (iAAEC) through the National Science Foundation's (NSF) Information Technology Research (ITR) Award, YouthBuild of Boston as fiscal agent for project-related grant monies, and the William Monroe Trotter Institute at the University of Massachusetts at Boston, particularly in their role as the evaluation team for demo-dispo.

A number of entities at MIT have been integrally involved with the project including the Epistemology and Learning Group at the MIT Media Laboratory, and the Planning Support Systems (PSS) Group and the Center for Reflective Community Practice (CRCP) in the Department of Urban Studies and Planning (DUSP), with additional support from the MIT Laboratory for Computer Science (LCS) and the MIT Information Services (IS) Department.

My role and Richard O'Bryant's role are accurately described as “participatory researchers,” (Brown, 1983; Friedenberger, 1991) “action researchers,” (O'Brien, 1998) or “participatory action researchers” (Cancian, 1993; Peattie, 1994; Whyte, 1991). Friedenberger defines participatory research as an “ethnographic method for the collection of data in the field... that contributes to planned social change” (1991, p. 1). O'Brien further explains:

There is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing this twin goal requires the active collaboration of researcher...
and [partner], and thus it stresses the importance of co-learning as a primary aspect of the research process... the initiating researcher, unlike other disciplines, makes no attempt to remain objective, but openly acknowledges their bias to other participants. What separates this type of research from general professional practices, consulting, or daily problem-solving is the emphasis on scientific study, which is to say the researcher studies the problem systematically and ensures the intervention is informed by theoretical considerations. (O'Brien, 1998, p. 1)

In this decidedly active role, Richard and I have worked very closely with Camfield residents, CTA, WCS, MHFA and Cornu Management Company (the property management company) as integral participants in the conceptualization and implementation of the project since its inception. Between the summer 2000 and the summer 2001, the project received our full-time energies as we sought to understand the relevant issues at Camfield and work with residents as co-learners toward addressing them, as opposed to approaching the situation as if we had all of the answers. Were it not for our involvement, participants would have likely been involved in markedly different activities and the project would have experienced markedly different outcomes. However, I do not make this observation to suggest that Camfield residents were not competent or capable of leading and managing the project without us. As mentioned earlier, CTA demonstrated a strong organizational capacity prior to establishing a partnership with us. Instead, I present this observation to make explicit the fact that our participation had a definite impact on the way the project was conducted as we sought to bring our own ideas and thinking to bear on its execution. Furthermore, in the spirit of participatory action research, the manner and extent to which the sociocultural constructionist and asset-based theoretical framework influenced the project was a direct result of my input to the methodology and timeline. This was done in a way that drew upon the intellectual traditions of sociocultural constructionism and asset-based community development by interjecting my own thoughts during meetings, discussions, one-on-one conversations, and site visits, and involving residents in various activities such as survey design, data acquisition, data analysis, literature reviews of related books and articles, and more. It also allowed
Camfield residents to be centrally involved in the processes associated with the overall research effort, once again situating us as co-learners in this investigation.

Exploratory meetings between myself, Richard, CTA, and WCS took place during the winter 2000, culminating in final approval of the project by CTA.

**RESEARCH QUESTION AND HYPOTHESIS**

The research question for this study was: In what ways can community social capital be increased and community cultural capital activated through an integrated community technology and community building initiative in a low- to moderate-income housing development and its surrounding environs. It is informed by what happened at Camfield Estates and why it happened, looking back. A closely related sub-question of my research was: What are the challenges and opportunities of conceptualizing and implementing an initiative that is guided by the theoretical framework of sociocultural constructionism and an asset-based approach to community technology and community building. It is informed by what can happen in other contexts (including Camfield Estates) and how it can happen, looking forward.

My hypothesis was that a sociocultural constructionist and asset-based approach to community technology and community building, can positively contribute to increasing community social capital and activating community cultural capital, as a result of residents' involvement as active, rather than passive, participants in the process.

**RESEARCH METHODS**

In order to obtain a holistic picture of the changing environment at Camfield Estates, I employed a mixed-methods approach that combined quantitative with qualitative research methods. A mixed-
methods approach allows various competing methods to be triangulated, thus increasing the validity and credibility of results (Gaber & Gaber, 1997). It is a research strategy that captured the nuances of the aforementioned phenomenon I sought to understand (community social capital and community cultural capital), in a way that would not have been possible using any single method.

Quantitative Methods

The quantitative methods included the following: 1) a survey instrument administered via face-to-face interviews in a pre/post manner spanning from August 2000 to August 2001 (i.e. multiple-choice), 2) web server logs from a Camfield Estates proxy server beginning in October 2000, and 3) web server logs from the Camfield Estates website and C3 beginning in October 2000.

Survey Instruments

The preliminary and post-assessment survey instruments were administered via face-to-face interviews with the head-of-household from each of the families participating in Round I of the Camfield Estates-MIT project. The preliminary assessment was conducted in August 2000 with 32 heads-of-household, just prior to the beginning of the courses. The post-assessment was conducted in August 2001 with 26 heads-of-household, all of whom completed the courses. Note that preliminary interviews with the 27 families participating in Round II of the project were conducted in January 2001, with post-interviews scheduled for January 2002, and preliminary interviews for Round III are tentatively scheduled for the fall 2001, with post-interviews tentatively scheduled for the fall 2002.

The respective areas covered by the preliminary and post-assessment are shown in Table 3 (note that the areas of empowerment and self-sufficiency are not listed, but were also covered as part of a related study pertaining to these issues being conducted by Richard).
<table>
<thead>
<tr>
<th>Survey Area</th>
<th>Description</th>
<th>Pre?</th>
<th>Post?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>Gathered information related to gender, ethnicity, martial status, age, education, employment status, income, etc.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Community Interests and Satisfaction</td>
<td>Measured community interests, identification, and overall satisfaction.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Social Networks</td>
<td>Gathered detailed information of strong ties (e.g., degree of face-to-face, phone, postal mail, e-mail, and other Internet communication, including demographic measures for each tie), as well as general information of weak ties at Camfield Estates (e.g., name recognition, and frequency and extent of socialization/communication with each tie).</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Neighboring</td>
<td>Measured obligations and expectations of trustworthiness, as well as frequency and extent of socialization, communication, and reliance on neighbors.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Community Impressions</td>
<td>General impressions of the property, the buildings, the people and the community at Camfield.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Awareness of Community Resources</td>
<td>Measured awareness of skills and abilities of other residents, local organizations, neighborhood businesses, and more.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Community Involvement and Attachment</td>
<td>Measured community involvement (cognitive ties), community attachment (affective ties), political involvement, and volunteerism; also assessed membership, level of involvement and leadership role (if any) in various civic, religious, and professional groups.</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Computer Experience and Training Interests</td>
<td>Assessed prior computer experience, training availability and interests, and intended uses.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Hobbies, Interests and Information Needs</td>
<td>Identified hobbies, interests, and information needs (online and offline).</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Camfield Estates-MIT Project</td>
<td>Obtained general information about the impact of the Camfield Estates-MIT Creating Community Connections Project.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Training Experience</td>
<td>Assessed participants' experience in the introductory courses.</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Computer and Internet Use</td>
<td>Assessed general patterns of use including locally-focused and creative uses of technology.</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

**Table 3: Preliminary Assessment and Post-Assessment Survey Areas**

The preliminary and post-assessment surveys were based on the following instruments: Community Networking Initiative (CNI) Survey (Bishop et al., 1999), Netville Wired Suburb Survey (Hampton & Wellman, 1998 & 1999), Building Social Capital in Public Housing Survey (Saegart & Thompson, 1994), Social Capital Community Benchmark Survey (Minicucci, 2000), Who's That? Survey of Neighbors in Southeastern Michigan (Resnick, 2000), Rothenbuhler (1991) and Stamm's (1985) measures of community involvement, **Creating Community Connections**
Blacksburg Electronic Village (BEV) Community Survey (Kavanaugh & Patterson, 1999) and the Neighborhood Study Questionnaire (Mueller, Briggs & Sullivan, 1997).

The preliminary assessment survey instrument was designed by Richard, myself, Nakia Keizer, Camfield resident and project leader, and the three remaining Camfield residents who constituted the project team (described in greater detail below). The preliminary assessment survey instrument was piloted with eight members of the tenants association at Roxse Homes, a neighboring housing development to Camfield Estates. The final preliminary survey instrument was administered by Richard, myself, and Nakia. The post-assessment survey instrument was designed by Richard, myself, Nakia, and staff at NTC. The final post-assessment survey instrument was administered by Richard, myself, Nakia, two members of the staff at NTC, one member of the staff at Camfield, and one volunteer. Each interview (preliminary and post-assessment) took place either in the respondent’s residence or in the meeting room at the Camfield community center, and lasted between approximately one and five hours.

Proxy Server and Web Server Logs

To participate in the study, residents signed an informed consent form granting permission to track their web-traffic through a proxy server. The proxy server only gathered aggregate patterns of use, such as the top-ranked websites at the development, but could not attribute any of the log entries to a particular individual user. The proxy server was housed at RCN’s head-end office.

Qualitative Methods

The qualitative methods included the following: 1) the aforementioned survey instrument administered via face-to-face interviews in August 2000 to August 2001 (i.e. open-ended questions), 2) in-depth, case studies of five residents (four of whom are profiled in this dissertation) and one staff member, and 3) regular, ongoing, direct observation at the research site.
Survey Instrument

The survey instrument is described in detail above. The open-ended questions for the preliminary assessment were primarily formative in nature, while the open-ended questions for the post-assessment were primarily summative in nature, with a few select questions administered in a pre/post manner.

Case Studies

Four residents and one member of the staff at Camfield were selected for in-depth case studies, including the following people: Paulette Ford, CTA president and local teacher, Diane Atkins, longstanding resident and cancer survivor, Constance Terrell, CTA board member and entrepreneur, Nakia Keizer, Camfield Estates-MIT project leader and graduate student, and one member of Camfield’s staff, Donna Fisher, Director of Community Relations at Camfield Estates. In order to highlight different perspectives, these individuals were purposely chosen to be demographically diverse (primarily with respect to age and family composition) as well as in terms of their experience with the project, and not necessarily to be statistically representative of the demographics at the development or representative of the typical experience of a resident involved with the project. Initial visits took place in the participants’ residence and lasted between 20 minutes and two hours. Thereafter, each of the five individuals participated in relatively brief, periodic follow-up interviews administered via telephone or face-to-face visits, between January and July 2001. A final, summative interview took place with each participant in August 2001 using a semi-structured protocol. These interviews lasted between two and three hours.

Direct Observation

Direct observation of the environment at Camfield Estates was conducted on an ongoing basis. I attended various meetings, activities, and events taking place on the property, including: CTA board
meetings, CTA general meetings, CTA committee meetings, NTC structured time (when courses were offered), NTC unstructured time (open hours), social events and activities for youth, adults, and seniors, and more. Again, in my role as a participatory action researcher I made a definite effort to interject my own perspective as well as the ideas and principles underlying sociocultural constructionism and an asset-based approach to community technology and community building.

These visits were augmented by information obtained directly from CTA, the staff at NTC, and the property management company, such as attendance records at CTA meetings, CTA calendar of activities and events, NTC course schedules, NTC attendance records, NTC course progress reports, Roxbury-area safety and crime reports, and more. Lastly, NTC staff and employees of the property management company were also interviewed on an ongoing, informal basis to obtain their perspective on the project and its impact.

**DATA COLLECTION AND ANALYSIS**

Quantitative data from the interviews were entered during the interviews into a pre-formatted Excel spreadsheet, while qualitative responses were entered during the interviews into a pre-formatted Word document. A suite of Visual Basic scripts were then developed by undergraduate researchers and myself to electronically process, tabulate and summarize the quantitative data, as well as collate the qualitative responses into a single Word document for subsequent coding. The quantitative data was analyzed in SPSS including descriptive statistics and paired-sample T tests. The quantitative results were captured in a final series of Excel spreadsheets and a Word document. The coded qualitative results were captured in a final series of Excel spreadsheets and a Word document. Final case study interviews were recorded on mini-cassette, semi-transcribed in real-time, then completely transcribed with seven days of each interview. Qualitative data resulting from face-to-face visits, telephone follow-up with families, or general visits to the property were recorded via field notes. Reports generated by CTA or NTC were obtained directly from these organizations.
Proxy server logs were obtained using Squid, a free, open-source, UNIX-based, web proxy cache, in the Squid log file format. These files were uploaded to the Camfield Estates web server on a monthly basis by a representative of RCN. The logs for the Camfield Estates website and C3 were generated automatically by the web server software, AOL Server, in common log file (CLF) format. To analyze the proxy server and Camfield website/C3 log files, the Webalizer, a free web server log file analysis program was employed. The Webalizer is capable of analyzing CLF, WU-FTP xferlog, and Squid log file formats, and produces highly detailed, easily configurable usage reports in HTML format. Using this tool, proxy server logs were processed approximately once every three months, while web server logs were processed nightly. Once compiled, both reports were automatically published directly to the Camfield Estates website. Based on the results from these various sources, an overall analysis was conducted to synthesize the findings.

**PROJECT METHODOLOGY AND TIMELINE**

The Camfield Estates-MIT project has benefited tremendously from the pre-established human and organizational infrastructure at Camfield, which is a direct result of the strength and leadership of CTA. Consequently, our project methodology and timeline for an integrated community technology and community building initiative could assume that many important elements were already in-place such as the need for a representative lead organization(s) with a clear mission and vision, established decision-making processes, etc. Under circumstances not like Camfield, it is strongly recommended that ample attention be paid to these items as they represent the foundation of any revitalization effort.

An excellent resource for planning these earlier phases is *Community Building in Public Housing*, where Naparstek, Dooley, and Smith (1997), identify five community-building steps for public housing authorities, which can be easily applied to other settings: 1) **Preparing a mission statement**, 2) **Naming a community-building facilitator**, 3) **Creating a representative community organization**, 4) **Assuring that management is connected and responsive to residents**, and 4) **Modifying the physical setting**. They write,
"these steps are best taken in a collaborative manner, working with residents and community partners. Some of the steps, such as preparing a mission statement or creating a resident organization, may be accomplished relatively quickly. Others, such as making management reforms and changes to the physical setting, may require a long-term effort" (Naparstek, Dooley & Smith, 1997).

Under CTA's leadership, in spring 2000 a committee was established to oversee the project, which consisted of four Camfield residents, Paulette Ford, Malilssia Evans, Susan Terrell, and Nakia Keizer, representing CTA, and Richard O'Bryant and me, representing MIT. The project also involved the integral participation of Thaddeus Miles, Director of Public Safety for MHFA, four members of WCS' staff, Wayne Williams, Jackie Williams, Garfield Williams, and Luis Hernandez, and Donna Fisher, Resident Social Services Coordinator at the time from Cornu Management Company, now Director of Community Relations at Camfield Estates.

The project's implementation team consisted of Nakia, Arthur Jones (Nakia's cousin), and two other Camfield residents, Alex Rosa and Karie Rosa (a brother-sister duo), with direct support from Richard and me. Throughout the summer 2000 we met on a bi-weekly basis to evaluate and identify strategies for conducting the initiative. At my suggestion, these meetings included weekly readings and discussion of books and articles related to constructionism, community technology, asset-based community development, and community building. The project team met on a monthly basis with the entire CTA board and CTA project committee. We officially started in June 2000, by outlining the following goals and objectives:

- To promote a stronger, healthier community at Camfield Estates.
- To establish greater levels of empowerment and self-sufficiency among residents at Camfield Estates.
- To create connections between residents at Camfield Estates, local organizations, neighborhood businesses, and other community members.
• To enable residents at Camfield Estates to be the creators and producers of their own information and content on the Internet.

• To establish Camfield Estates as a model for other housing developments across the country as to how individuals, families, and a community can make productive use of information and communications technology.

Based on these goals and objectives, we subsequently outlined a methodology and timeline to integrate community technology and community building, consisting of five interrelated, cyclical, and at times parallel phases (see Figure 7 and Figure 8).

With respect to the project methodology, note that each of the Phases, II through V, bears a direct relationship to one of the remaining chapters in this dissertation. An overview of the community technological infrastructure at Camfield, the Creating Community Connections (C3) System (Phase II), and its application to community building (Phase III) can be found in Chapter 5. A discussion of the results from the preliminary assessment and application of findings (Phase I) can be found in Chapter 6. A discussion of the strategies undertaken to foster the creation of sociocultural constructions and mobilize assets both online and offline (Phase IV) can be found in Chapter 7, as well as the early results of the post-assessment (Phase V), can be found in Chapter 8, along with case studies in Chapter 9. Also note the cyclical nature of the methodology. The results of the post-assessment are essentially construed as a follow-up evaluation or “snap-shot” of the current state of affairs, such that they are fed back into the next iteration of the process. An overview of each phase is presented below.
**Phase I:** Pre-Assessment and Awareness

During summer 2000, the project team developed a preliminary assessment survey instrument for two related, yet distinctly different purposes. First, to obtain formative data that would guide the project's implementation. With community building identified as an agreed-upon goal at the project's inception,
both Camfield residents and MIT researchers were able to provide specific input to the survey's design in this regard. This ensured the results not only benchmarked certain outcomes, but also advanced the initiative toward achieving these outcomes. Second, to obtain baseline data for the research study.

During that same period, an awareness campaign was conducted to inform residents about the initiative. A series of mailings were distributed describing the project's goals and objectives, and offering a new computer, software, high-speed Internet connection (pre-paid for two years) and comprehensive courses at NTC for adults 18-years and older who completed the courses, completed the preliminary and post-interviews, and signed the informed consent form granting permission to track their web-traffic through the proxy server (aggregate patterns of use only, and not individually attributable). An open forum was also held in the community center for questions and answers. While families were encouraged to attend the training, at least one adult from each household had to fulfill these requirements in order to receive the computer, software, and Internet access. Given the fact that NTC was primarily used by youth at this time (O'Bryant, 2001), the committee decided to restrict participation to adults only, as we believed it would motivate parents to attend the training for the benefit of their children.

August 2000 marked the deadline to sign-up for the project, and 32 of the 66 families at Camfield elected to participate in Round I. Subsequently, and just prior to the introductory courses, Nakia, Richard, and I, administered the preliminary survey via one-on-one interviews with each of these families. Again, the results of the preliminary assessment can also be found in Chapter 6.
Phase II: Community Technology – Introductory/Specialized Courses and the Creating Community Connections (C3) System

The Creating Community Connections (C3) System is a web-based, community building system designed to establish and strengthen relationships between community residents, local businesses, and neighborhood institutions (e.g., libraries, schools, etc.) and organizations.

From June to August 2000, the project team held weekly meetings to discuss design considerations for the Camfield website including the site-map, graphics, layout, and user interface. An important component of these discussions was also determining which of the C3 modules would be incorporated into the first release of the Camfield site, given the community building objectives for the project. Eventually, the following modules were selected: resident profiles, business and organization database, geographic information system (GIS) maps, calendar of events, discussion forums, news and announcements, e-mail lists, chat rooms, file storage, and site-wide search. Scheduled for possible later introduction were the job and volunteer opportunity postings, and possibly the personalized web portals and web-based e-mail, pending use of the system. Again, C3 is described in greater detail in Chapter 5.

From September to October 2000, introductory courses were offered at NTC to Round I participants. For the introductory courses, we employed an activity-based curriculum as a way to combine a variety of learning objectives, rather than focusing on narrow skill development such as how to use a mouse or a keyboard. For example, to teach participants how to use a browser and the printer, they were instructed to use a search engine to locate information on a topic of interest to them, print out each of their results, and summarize which search terms and associated results they found to be useful.

Designed by Williams Consulting Services (2000), the curriculum lasted ten weeks (two sessions per week, two hours per session), and covered a variety of areas related to computer and Internet use. In November 2000, two additional specialized courses were offered on how to use the Creating Community Connections Page
Community Connections (C3) System, made available through the Camfield Estates website (http://www.camfieldestates.net). The C3 curriculum was co-designed by Williams Consulting Services and me. C3 is described in greater detail in Chapter 5.

In November 2000, 26 families completed the introductory and specialized courses and received a computer, software, and subsequent high-speed Internet access, having fulfilled the aforementioned requirements (6 heads-of-household were unable to complete the courses due to health-related concerns or scheduling conflicts and were deferred to the next cohort of participants). In January 2001, a second awareness campaign was aimed at the 48 families still eligible for the project (the number of occupied units had increased from 66 to 80), including another round of mailings and meetings. In preparation for this campaign, residents from Round I were asked to speak with neighbors about their experience during the courses. During the holiday season, there were a number of events such as a seniors holiday dinner where elderly participants were asked to give testimonials as a way of encouraging their peers to sign up for Round II. Furthermore, with close to one-third of the development up-and-running with a new computer, software, and high-speed Internet access in their homes, we expected general word-of-mouth to spawn significant interest in Round II from residents who decided to pass on the program during the first awareness campaign.

To our complete surprise, after the second deadline passed for Round II, only 8 out of a possible 48 families elected to participate in project, the majority of whom were Spanish-speaking, as we were late distributing the flyers in their native-language during Round I. In other words, even the families that elected to participate in Round II were likely to have been Round I participants if the marketing materials had been distributed in Spanish on time.

Unwilling to accept these numbers as being representative of residents' interest, we embarked on a grassroots, door-to-door, outreach campaign to make sure people were fully aware of this special
opportunity. As a result, we were able to increase Round II numbers from 8 to 27 families, raising the total number of families participating in the project to 59 out of 80 eligible families, as shown in Figure 9.

![Bar chart showing resident participation and non-participation]

**Figure 9: Resident Participation and Non-Participation**

To clearly demonstrate the relevance of technology to potential participants' lives, we emphasized outcomes instead of access. For example, an elderly, sick-and-shut-in woman at Camfield was one of the project's staunchest opponents. Upon initial contact, she flatly refused being involved. Rather than focusing on the computer and Internet service (access) as a selling point, one of the instructors helped her discover the information she could obtain online in areas such as health care and wellness as well as the people with whom she could communicate to improve her quality-of-life (outcomes). A few weeks later, she commented, "This computer is better than all of my medication combined!" Other initiatives have made similar observations (Cohill & Kavanaugh, 1997).

For the 19 families that did not participate in Round I, and initially did not sign-up for Round II, but decided to participate after subsequent outreach, the most commonly cited reasons were:
• Miscommunication/misunderstanding ("I never received any of the flyers")
• Skepticism ("It sounded too good to be true"), and
• They already owned a computer and weren't as quick as others to move on the opportunity

For the 21 families that did not participate in either Round I or Round II, the most commonly cited reasons were:

• Lack of relevance ("I just don't want to be involved")
• Too many responsibilities, including a few single mothers juggling multiple jobs, and
• Health-related conditions preventing involvement such as pregnancy

Figure 10 shows the breakdown for resident participation and non-participation in Round I and Round II.

In January 2001, Round II courses also began. These courses lasted approximately sixteen weeks (one session per week, one-and-a-half hours per session), and covered roughly the same material as the Round I courses.

![Figure 10: Resident Participation and Non-Participation Breakdown](image-url)
One of the areas we improved upon between the Round I and the Round II courses was linking the curriculum to our desired outcomes. The Round I curriculum was more generic when compared to the Round II curriculum which achieved greater depth with respect to how technology can support community building. First, we dedicated more time to learning the C3 modules. For example, after participants learned how to use a browser, they were required to post subsequent technical questions to the C3 "Help" discussion forum as a way of establishing this habit and acclimating them to the system. We believed the "Help" forum was a natural entry point due to the inevitability of technical problems. This facilitated a natural transition from a familiar context into other contexts such as the "News and Announcements" or calendar of events modules. Second, we explored how the various modules could improve communication at the development inside the actual class sessions, as opposed to solely relying on residents to do so outside the classroom. For example, as part of the introductory courses, each class created an e-mail list so they could stay in touch, and each participant added their e-mail address to their class e-mail list and the residents' e-mail list. Third, we encouraged more resident interaction during classes. For example, in classes where we observed a marked skill-differential amongst participants we facilitated peer mentoring to build relationships.

In the fall 2001, the 27 families from Round II received their computers, software, and high-speed Internet access.

**Phase III: Community Building - General and Specific Asset-Mapping**

Per the asset-based community development approach, a resident-led, general asset-mapping took place during the summer 2000 with technical assistance from Richard and me.

Our efforts were heavily informed by the work being conducted at the Asset-Based Community Development Institute (ABCD) at Northwestern University pertaining to asset-mapping and asset-mobilization, as described in their workbooks: *Building Communities from the Inside Out: A Path Toward Creating Community Connections*
Finding and Mobilizing a Community's Assets (Kretzmann & McKnight, 1994), Creating a Neighborhood Information Exchange: Building Communities by Connecting Local Skills and Knowledge (Kretzmann, McKnight & Puntenney, 1998), Mapping and Mobilizing the Economic Capacities of Local Residents (Kretzmann, McKnight & Puntenney, 1996), Voluntary Associations in Low-Income Neighborhoods: An Unexplored Community Resource (Kretzmann, McKnight & Turner, 1998), and Mapping Local Business Assets and Mobilizing Local Business Capacities (Kretzmann, McKnight & Puntenney, 1996). These documents provide a step-by-step methodology for asset-mapping as well as sample survey instruments, questionnaires, and case studies of successful initiatives.

We conducted our asset-mapping in two steps: general asset-mapping and specific asset-mapping. General asset-mapping begin in June 2000, and consisted of identifying all the associations, institutions (e.g., libraries, schools, etc.), and businesses within a specific radius of Camfield, and gathering basic information about these entities. We gathered the following information for associations and institutions: name, address, contact, telephone number, fax number, e-mail address, website address, mission, and up to four program/service descriptions according to a pre-defined typology (e.g., religious, social service, etc.). For businesses, we gathered the following information: name, address, district, hours of operation, telephone number, fax number, e-mail address, website address, and primary and secondary product/service descriptions according to a pre-defined typology (e.g., market/grocery, restaurant, etc.).

This broad attempt to identify community resources was done to obtain local information of potential benefit to residents that would eventually be made available through C3, and as a preparatory step for asset-mobilization to be conducted after analyzing the results of the preliminary assessment. Not surprisingly, the process of gathering this information served to heighten residents' awareness of assets in their own neighborhood. For example, the first-pass general asset-map was conducted within a few square blocks of the property. Residents soon discovered there were very few organizations and institutions and only a small cluster of businesses in this catchment area. The decision was then made to
expand the radius of the asset-map to 1.5 miles, which captured approximately 757 businesses, 178 organizations, 67 churches, and 29 schools, as shown in Figure 11.

Figure 11: Camfield Estates Catchment Area

Recognizing that much of the information we needed to gather was likely to exist already, we made every effort to avoid reinventing the wheel. Consequently, we conducted our general asset-mapping by gathering as many relevant and up-to-date publications, directories, listings, and databases as possible, with a particular focus on gathering these items in electronic format to avoid unnecessary data entry. Despite these efforts, the process did involve a limited amount of data entry, as well as occasional outreach via telephone to verify certain pieces of information.

Once gathered, this information was formatted and entered into an Excel spreadsheet that could be easily uploaded to C3. This was not necessarily the best approach to gathering community information.
in terms of keeping it up to-date, especially since it is likely to be subject to change and rendered obsolete. Nonetheless, we have found both the process of residents exploring the assets in their community and the product of the resulting database to be very useful. Alternatively, many municipalities and cities are known to maintain and offer similar databases to the public. This is an option we have yet to explore.

Specific asset-mapping began in November 2000, and consisted of mapping the formal and informal skills of residents as well as a more detailed mapping of a targeted sample of the organizations, institutions, and businesses previously identified during general asset-mapping. As mentioned earlier, the former activity took place during the final two weeks of the introductory and specialized courses. Using an early release of C3, residents entered their formal and informal skills and interests online, by selecting from an inventory of more than 150 items, including plumbing, babysitting, web design, etc., according to those skills they “can perform” and those skills they “want to learn.” Given this information, as well as the data gathered during the general asset-mapping, residents could now use the C3 site-wide search module to perform a single query and identify all of the individual gifts and talents, as well as local businesses and neighborhood institutions and organizations, relevant to a particular search term such as photography, sewing, or computer repair.

We also recognized that while the ABCD publications listed above are excellent guides for understanding how to conduct an asset-mapping initiative, they make little reference to the role of technology in supporting these efforts. Because technology can dramatically improve the efficiency with which asset-related data is gathered and disseminated (Turner & Pinkett, 2000), one must take into consideration the means by which this information is obtained. Stated differently, there is a tension that often arises between “process,” or capacity-building activities that build relationships, and “product,” or tangible outcomes such as a completed database of resources (Aspen Institute, 1997). For example, residents skills and interests were entered directly into C3 as part of the introductory courses at NTC. We found this method to be extremely efficient as it bypassed the need for paper-based records and
data entry. The disadvantage to this approach is the lost opportunity and effectiveness of residents interviewing other residents to obtain this information, which can heighten their awareness and appreciation of their neighbor's abilities. In a previous research project conducted at Northwest Tower in Chicago, Illinois (Turner & Pinkett, 2000), in collaboration with Nicol Turner from the Asset-Based Community Development Institute, we found the process of resident-to-resident interviewing with subsequent data entry to be slightly less efficient with respect to time, but much more effective in fostering relationships. As a general rule, one should attempt to find as much balance as possible between process and product given the available human resources, money and time.

Phase IV: Sociocultural Constructions and Asset-Mobilization Online and Offline

Sociocultural constructions are physical, virtual, and cognitive artifacts that are resonant with a given social environment and its culture as mediated by technological fluency. Asset-mobilization involves the establishment of productive and meaningful connections between residents, organizations, institutions, and businesses, which previously did not exist, toward achieving specific outcomes, as facilitated by asset-mapping. The nature of sociocultural constructions and strategies for asset-mobilization are heavily informed by the preliminary assessment and involve outreach and the formation of new community partnerships.

In April, the results of the preliminary assessment were compiled. Again, results from the preliminary assessment are outlined in Chapter 6. With this information, a series of meetings took place among members of the project committee to discuss these findings and address the issues raised by residents. Because sociocultural constructions and asset-mobilization manifest themselves online and offline in the context of an integrated community technology and community building initiative, these discussions focused on ways to effect change in both physical and virtual settings. Again, a description of the strategies undertaken in response to the preliminary assessment can be found in Chapter 7.
Phase V: Post-Assessment and Evaluation

During the summer 2000, we developed a post-assessment survey instrument that included many of the same questions from the pre-assessment survey as well as additional questions pertaining to computer use. The post-assessment survey instrument was designed not only to provide comparative and summative data for the research study relative to the preliminary assessment, but also to evaluate the project to-date and inform future initiatives.

In August 2001, Richard, Nakia, myself, two members of the staff at NTC, one member of the staff at Camfield, and one volunteer, administered the post-assessment survey via one-on-one interviews with each of the Round I participants (lasting between approximately one and four hours). The results of the post-assessment can be found in Chapter 8. Case studies of four residents and one staff member can be found in Chapter 9.

During the fall 2001, approximately 22 families moved into Camfield to fill the vacant units, bringing the number of occupied apartments to full-capacity (102 units). A Round III awareness campaign will be conducted in fall 2001, along with a flexible training program (e.g., one-on-one instruction), which will hopefully enable the participation of residents who were interested, but unable to participate in Rounds I and II, while also targeting the families that recently moved in. Round III training will begin in the fall 2001 and will complete circa the spring 2001. An evaluation of Round II and Round III participants is scheduled to take place sometime in the fall 2002/winter 2003.
CHAPTER 5

TECHNOLOGY AND THE CREATING COMMUNITY CONNECTIONS (C3) SYSTEM

This chapter presents the technological infrastructure at Camfield Estates and the Creating Community Connections (C3) System, including an overview of the community network, community technology center (CTC), and community content, in place at Camfield, as well as background information, a description of the modules, and technical specifications for C3.

TECHNOLOGICAL INFRASTRUCTURE

The technological infrastructure at Camfield Estates combines the three primary models for community technology – a community network, community technology center (CTC), and community content – along with a community building agenda.

Camfield Estates Community Network

In New Community Networks: Wired for Change, Douglas Schuler (1996) describes community networks as an "innovation that [is] intended to help revitalize, strengthen, and expand existing people-based community networks much in the same way that previous civic innovations have helped communities historically." Schuler (1996) identifies six core values, or systems that sustain life, for what he calls the "new community," and how new community networks support these areas:
• **Conviviality and Culture** — Conviviality, or “together with living,” is embodied by new community networks by establishing informal, online spaces for people to interact with one another, while at the same time promoting various forms of culture such as music, art, and other means of expression.

• **Education** — New community networks support both formal and informal learning by making it easier to create communities of learners centered around shared interests, connect novices with experts and students with teachers, and make information more accessible by disseminating it to the broadest audience possible.

• **Strong Democracy** — New community networks have the potential to redistribute power by facilitating organizing and advocacy efforts more efficiently, redefining the democratic process via greater accessibility and accountability of elected officials, and increasing participation in the political process by fostering greater dialogue around issues.

• **Health and Well-Being** — Greater accessibility and anonymity, increased comprehensibility and control, and improved timeliness and convenience of healthcare service/delivery, can all be facilitated to a greater or lesser extent by new community networks.

• **Economic Equity, Opportunity and Sustainability** — By facilitating greater awareness and utilization of resources such as employment opportunities, job training, small- to medium-sized business development programs, and products and services of businesses, new community networks can play a significant role in promoting economic development.

• **Information and Communication** — New community networks can facilitate greater information and communication exchange in the form of business and social service directories, classifieds, discussion forums, chat rooms, community resource maps, and more.
Schuler argues that community networks have played, and will continue to play, an important role in fostering and sustaining all six of these core values. Similarly, a community network has been established at Camfield to connect residents to the information and resources of the global Internet, but also to the assets and knowledge indigenous to their local community.

The Camfield community network infrastructure consists of state-of-the-art computers, software, and high-speed Internet connectivity via cable-modem, all of which have been made available, free-of-charge, to every family participating in the Camfield Estates-MIT project.

The computer systems are Hewlett-Packard Brio BA400 Minitower computers with the following specifications: Intel Celeron 500 MHz processor, 64 MB RAM, 10 GB HD, 10/100 Ethernet Network Interface Card (NIC), Windows 2000, and a HP 71 17" color monitor. Residents also received a free copy of Microsoft Office 2000 Premium, which includes the following applications: Word, Excel, Outlook, PowerPoint, Access, Publisher, FrontPage, PhotoDraw, and Small Business Tools. High-speed Internet access was provided by RCN Telecom Services through their Cable Modem Internet Service.

The typical topology of a computer, TV/VCR, and cable modem is shown in Figure 12. The Camfield Estates community network topology is shown in Figure 13. The coaxial cable that normally connects to a TV/VCR is instead routed through a cable splitter, which separately directs the signal to both the TV/VCR and the cable-modem, which is then connected to the computer's Ethernet NIC via RJ-45 cabling.
The cable-modem is capable of delivering speeds up to 1-2 Mbps downstream and 128-384 Kbps upstream, as shown at the top of Figure 13. This is as high as 69 times the speed of a 28.8 Kbps modem. Cable-modems are a shared bandwidth technology, and typically engineered for sharing between 500 and 2,000 users. As a result, the connection speed varies depending on the amount of network traffic. For example, residents have sometimes experienced particularly slow connection speeds during peak periods, such as the hours immediately after their neighbors have arrived home from work.
In *Community Technology Centers: Impact on Individual Participants and Their Communities*, Mark, Cornebise and Wahl (1997), reported on the benefits of CTCs from a study of 130 users at five sites. Their results included the following:

- **Increased Job Skills and Access to Employment Opportunities** — Participants were able to access information and resources about job search and employment opportunities (14%), improve job skills including computer and literacy skills (38%), and considered new, higher-wage, career options that involved the use of technology (27%).

- **Education and Improved Outlook on Learning** — Participants gained access to lifelong learning opportunities such as computer literacy and mathematics programs (15%), changed their goals for learning and educational attainment (e.g., decided to pursue a GED or more) (27%), and improved their outlook and perspective on learning (e.g., using the computer they "learned that they can learn." ) (27%).
• Technological Literacy as a Means to Achieve Individual Goals — Participants obtained greater computer awareness and new computer skills that increased their comfort with technology as a tool for accomplishing their goals (91%).

• New Skills and Knowledge — Participants improved their reading and writing (37%), mathematics skills and interest in science (8%).

• Personal Efficacy and Affective Outcomes — Participants achieved greater personal autonomy (18%) and feelings of pride and competence as a result of success with computers (e.g., decided to stay off drugs) (23%).

• Use of Time and Resources — Individuals found productive uses for their time (15%) which resulted in positive outcomes such as reduced reliance on public assistance (4%).

• Increased Civic Participation — Individuals identified new avenues for voicing their opinions on a range of social and political issues (5%), gained access to community, municipal, and government services and resources, and demonstrated greater interest in and engagement with current events (5%).

Interestingly, they also found that "community technology centers serve not only as places for accessing information and learning about technology but also places to build and strengthen community ties, where people can make social connections and seek out others with similar interests" (Mark, Cornebise & Wahl, 1997). In other words, CTCs serve not only a technological function for individuals and communities but also a social one.

Recognizing the potential for such benefits to their residents, the Camfield Estates Neighborhood Technology Center (NTC) was established in 1998 as a resource not only for members of the Camfield
community, but also the neighboring housing developments of Roxse Homes, Lenox Street Apartments, and Grant Manor.

NTC is an approximately fifteen-computer CTC, established in the Camfield community center where comprehensive courses such as web design, networking, graphics and animation are offered, as well as technical support. NTC is a HUD Neighborhood Networks site as well as a CISCO Networking Academy. A picture of NTC is shown in Figure 14.

A TI communications line connects NTC to the Internet. A TI line is a dedicated, specially-conditioned, telephone circuit between two sites that can deliver speeds up to 1.544 Mbps. This corresponds to 53.6 times the speed of a 28.8 Kbps modem. NTC uses a fractional TI to deliver data at a fixed rate of 768 Kbps, as shown at the bottom of

![Figure 14: Picture of Camfield Estates Neighborhood Technology Center (NTC)](image-url)
Camfield Estates Community Content

One of the challenges associated with community technology which has received considerable attention recently, is the provision and maintenance of community content, or the production and availability of material that is relevant and interesting to a specific target audience (e.g., low-income residents) to encourage and motivate the use of technology (Lazarus & Mora, 2000). In their recent report, *Online Content for Low-Income and Underserved Americans*, Lazarus and Mora (2000) of the Children’s Partnership identified the following content-related barriers for the residents of low-income and underserved communities (among others):

- A lack of local information or information about their communities, and
- A lack of cultural diversity or Internet content generated by ethnic communities themselves or organized around their unique cultural interests and practices

They also presented the following recommendations (among others):

- **Build new online community resources**
- **Build community information portals or "one-stop, interactive online center[s]", and**
- **Enlist local talent in building these resources**

Based on the above findings and recommendations, there is a glaring need for web resources that adequately address the content needs of low-income and underserved communities. But given the web’s apparent neglect of these populations to-date, who will provide this content? While there is certainly a role for traditional content-providers such as corporations and government agencies in the generation and dissemination of information to these groups, there also exists and untapped and underutilized resource in the form of community residents themselves. In fact, some of the best
content-related initiatives led by these institutions unfortunately regard community residents as "passive consumers of information rather than active producers" (Beamish, 1999).

One of the factors contributing to this orientation is the reality of who is in a position to produce (or stated differently, who controls the distribution channels) and the extent to which they are willing to apportion control of the content that is generated. Whereas a passive orientation relies on a core set of individuals who must manage services for the end-user, an active disposition decentralizes and distributes this responsibility across multiple individuals who can provide services for one another. An active orientation not only provides a mechanism for greater sustainability, but also ensures that the content being generated is by the community, for the community, and socially and culturally relevant to the community. To this point, Bishop et al.'s (1999) study of low-income, predominantly African-American residents in the Urbana-Champaign area, found that "the desire for relevant local content extended beyond the need to obtain resources and services... a number of people sought the means to contribute information themselves and their assets to the community's store of networked knowledge."

Therefore, it is critically important that as community technology efforts continue to shift toward issues related to content, that we empower the residents of low-income and underserved communities as the active creators and producers of their own information and content, rather than the passive consumers of recipients. Such an approach requires a reorientation as to how we address different populations through information and communications technology. Rather than seeing our role as designers, we must see our role as designers for designers — or meta-designers (Resnick, 1996) — who provide a set of tools or a virtual construction kit for the end user (Resnick, Bruckman & Martin, 1996). In the end, community members should then be empowered to play the same role for themselves as well as the members of other communities.

I advocate a class of technological tools that is consistent with these principles and ideals. Toward this end, I have worked with Camfield residents to design and implement the Creating Community Connections...
Connections (C3) System, a web-based, community building system, that engages users as the active producers of community information and content, rather than passive consumers or recipients.

**The Creating Community Connections (C3) System**

*Background*

The Creating Community Connections (C3) System is a web-based, community building system designed to establish and strengthen relationships between community residents, local businesses, and neighborhood institutions (e.g., libraries, schools, etc.) and organizations. C3 is a sociocultural constructionist and asset-based tool, specifically designed to engage low- to moderate-income residents as the active creators and producers of their own information and content, while focusing on indigenous assets instead of perceived needs. C3's content is generated by the community, for the community, and highlights the community's strengths, instead of its weaknesses.

C3 is reminiscent of Multi-User Sessions in Community (MUSIC), a computer networking system designed by Dr. Alan C. Shaw while a Ph.D. candidate at the MIT Media Laboratory (Shaw, 1995). Shaw describes MUSIC as "a computer system that uses text, graphics, digitized voice, and speech synthesis features to inter-act within a shared networked environment designed to support activities taking place in real communities as opposed to virtual communities" (Shaw & Shaw, 1998). MUSIC was deployed as part of the Making Healthy MUSIC project in a small neighborhood in Dorchester, Massachusetts, and a low-income community in Newark, New Jersey.

C3 was first prototyped as part of a pilot study at Northwest Tower, a federally-assisted, affordable housing development in Chicago, Illinois, in collaboration with Nicol Turner at the Asset Based Community Development (ABCD) Institute at Northwestern University (Turner & Pinkett, 2000) in December 1999, as shown in Figure 15 and Figure 16. This first version of the system was developed as
part of my participation in MIT Laboratory for Computer Science (LCS) course 6.916: Software Engineering of Innovative Web Applications.

The second prototype of C3 was co-designed by Camfield residents and me beginning in June 2000. C3 was pre-released in November 2000, just in time to incorporate the system into the specialized courses (final two weeks of the ten-week courses), and completed in December 2000, as an integrated component of the Camfield Estates website, as shown in Figure 17 and Figure 18. This second version allowed the Camfield home page to be automatically updated with dynamic content such as the latest news and announcements, upcoming events, recent postings to the discussion forums, current participants in the chat rooms, and more.

**System Modules**

C3 serves two primary functions. First, C3 is a community intranet that facilitates community communication and information exchange. In that regard, C3 offers the following features: resident profiles, web-based e-mail, calendar of events, discussion forums, e-mail lists (listservs), chat rooms, and file storage, as listed in Table 4. Second, C3 is a community extranet and community building tool that facilitates resource exchange, asset-mapping, and asset mobilization among community residents, associations, institutions, and businesses. In that regard, C3 includes the following features: news and announcements, organization and business database, geographic information system (GIS) maps, job and volunteer opportunity postings, surveys and polls, online résumés, personalized web portals, and site-wide search capabilities, as listed in Table 5. Notes on the use of selected modules are listed in Table 6.

Given the goals of the Northwest Tower initiative, the initial version of C3 was designed to achieve outcomes related to employment, volunteerism, and economic development. Consequently, this instantiation of C3 offered the following modules: resident profiles, organization and business database, job and volunteer opportunity postings, online résumés, personalized web portals, and site-wide search.
Given the community building objectives for the Camfiled Estates-MIT project, the following modules were deemed relevant and therefore included in the Camfield Estates instantiation of C3: resident profiles, business and organization database, GIS maps, calendar of events, discussion forums, news and announcements, e-mail lists, chat rooms, and site-wide search. Scheduled for possible later introduction were: file storage, job and volunteer opportunity postings, personalized web portals and web-based e-mail, pending use of the system.
Figure 15: Northwest Tower Website

Figure 16: The Creating Community Connections (C3) System v1.0
Figure 17: Camfield Estates Website

Figure 18: The Creating Community Connections (C3) System v2.0
<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Profiles</td>
<td>Users can enter and update contact, demographic, education, and employment information, as well as their formal and informal skills and interests (e.g., plumbing, photography, web design, etc.) according to what they &quot;can perform&quot; or what they would &quot;like to learn.&quot; Users can also upload a picture to their profile. A screen shot of the resident profile module is shown in Figure 18.</td>
</tr>
<tr>
<td>Web-Based E-Mail</td>
<td>Users can check e-mail from any web browser.</td>
</tr>
<tr>
<td>Calendar of Events</td>
<td>Users can manage and contribute to personal or group calendars, and view their calendar(s) by day, week, month, or year. Events can be categorized according to a pre-defined typology and repeated according to a specified interval (e.g., the first Monday of each month). A screen shot of the calendar of events module is shown in Figure 25.</td>
</tr>
<tr>
<td>Discussion Forums</td>
<td>Users can create discussion forums (bulletin boards) in a commentary or question and answer format. Uses can also configure automatic e-mail notification/receipt of messages when posted according to a specified time interval (e.g., instantly, once per week, etc.). Discussion forums can also be configured as moderated or unmoderated. A screen shot of the discussion forums module is shown in Figure 22.</td>
</tr>
<tr>
<td>E-Mail Lists (Listservs)</td>
<td>Users can create e-mail lists as public or private and moderated or unmoderated. Users can also receive messages according to a specified time interval (e.g., instantly, once per week, etc.). Web-accessible message archives are available for each list. A screen shot of the e-mail lists module is shown in Figure 24.</td>
</tr>
<tr>
<td>Chat Rooms</td>
<td>Users can enter a predetermined selection of chat rooms. Communication options include text postings, a limited range of audible postings (e.g., &quot;Hello&quot;), and images/emoticons (e.g., an image of a smiling face). Access to ICQ channels can be granted or denied. A screen shot of the chat rooms module is shown in Figure 26.</td>
</tr>
<tr>
<td>File Storage</td>
<td>Users can upload files and assign read/write/edit permissions to users and user groups. The system also tracks file versioning.</td>
</tr>
</tbody>
</table>

Table 4: Creating Community Connections (C3) System Intranet Modules
Module Description

**News and Announcements**
Users can post news and announcements. Postings can be moderated or unmoderated.

**Organization and Business Database**
Users can contribute entries to the database including contact information, and products/services (businesses) or programs/services (organizations) according to a predefined typology (e.g., restaurants or youth organizations). Users can also append comments to database entries. A screen shot of the business and organization database is shown in Figure 20.

**Geographic Information System (GIS) Maps**
Represents geocoded information (e.g., organization and business database) in the form of a geographic map with hyperlinked symbols for various resources (e.g., red squares for churches, blue circles for child care facilities, etc.). Users can zoom, pan, and select resources to obtain their full database record in a popup window, or link to a relevant website (if applicable). A screen shot of the GIS module interfacing with the geocoded organization and business database is shown in Figure 20.

**Job and Volunteer Postings**
Users can respond to job and volunteer opportunities by interested employers/organizations. Employers and organizations can view user's responses to their postings or receive e-mail notification. Postings can be submitted and sorted according to a predefined typology.

**Surveys and Polls**
Users can create online surveys and polls and obtain automatic compilation of results (quantitative data only).

**Online Résumés**
Using a template, users can create an online résumé including fields such as objective, education, work experience, special skills, and more. Users can also make their résumé available for employers to view in reference to a job posting.

**Personalized Web Portals**
Users can manage their own personal web portal that highlights system content such as quick links to web-based e-mail, their profile, upcoming calendar events, recent discussion forum postings, etc.

**Site-Wide Search**
Users can conduct a full site-wide search, or a search specific to one of the following modules: resident profiles, calendar of events, discussion forums, news and announcements, organization and business database, job and volunteer postings, and online résumés. A screen shot of the site-wide search module is shown in Figure 27.

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>News and Announcements</td>
<td>Users can post news and announcements. Postings can be moderated or unmoderated.</td>
</tr>
<tr>
<td>Organization and Business Database</td>
<td>Users can contribute entries to the database including contact information, and products/services (businesses) or programs/services (organizations) according to a predefined typology (e.g., restaurants or youth organizations). Users can also append comments to database entries. A screen shot of the business and organization database is shown in Figure 20.</td>
</tr>
<tr>
<td>Geographic Information System (GIS) Maps</td>
<td>Represents geocoded information (e.g., organization and business database) in the form of a geographic map with hyperlinked symbols for various resources (e.g., red squares for churches, blue circles for child care facilities, etc.). Users can zoom, pan, and select resources to obtain their full database record in a popup window, or link to a relevant website (if applicable). A screen shot of the GIS module interfacing with the geocoded organization and business database is shown in Figure 20.</td>
</tr>
<tr>
<td>Job and Volunteer Postings</td>
<td>Users can respond to job and volunteer opportunities by interested employers/organizations. Employers and organizations can view user's responses to their postings or receive e-mail notification. Postings can be submitted and sorted according to a predefined typology.</td>
</tr>
<tr>
<td>Surveys and Polls</td>
<td>Users can create online surveys and polls and obtain automatic compilation of results (quantitative data only).</td>
</tr>
<tr>
<td>Online Résumés</td>
<td>Using a template, users can create an online résumé including fields such as objective, education, work experience, special skills, and more. Users can also make their résumé available for employers to view in reference to a job posting.</td>
</tr>
<tr>
<td>Personalized Web Portals</td>
<td>Users can manage their own personal web portal that highlights system content such as quick links to web-based e-mail, their profile, upcoming calendar events, recent discussion forum postings, etc.</td>
</tr>
<tr>
<td>Site-Wide Search</td>
<td>Users can conduct a full site-wide search, or a search specific to one of the following modules: resident profiles, calendar of events, discussion forums, news and announcements, organization and business database, job and volunteer postings, and online résumés. A screen shot of the site-wide search module is shown in Figure 27.</td>
</tr>
</tbody>
</table>

Table 5: Creating Community Connections (C3) System Extranet Modules
<table>
<thead>
<tr>
<th>Module</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident Profiles</td>
<td>Useful for highlighting resident's skills/interests and making this information available in a manner that is easy to browse, update, and search.</td>
</tr>
<tr>
<td>Organization and Business Database/GIS Maps</td>
<td>Useful for highlighting community assets such as child care facilities, employment agencies, afterschool programs, etc. along with a visual/geographic reference of the location and proximity of these resources. Also useful when users can attach evaluative comments to organizations or businesses based on first or second-hand experience.</td>
</tr>
<tr>
<td>Calendar of Events</td>
<td>Useful for communicating scheduled or regular activities and events (e.g., a meeting, a class, or a birthday). The news and announcements forum is perhaps better suited for communicating one-time events (e.g., a march or emergency meeting) if simultaneously posted to the calendar of events and cross-posted to an e-mail list for the target audience.</td>
</tr>
<tr>
<td>Discussion Forums</td>
<td>In commentary format, useful for discussing themes that are relevant to communities of interest (e.g., photography enthusiasts), communities of practice (e.g., a tenants association board) or simply posting information (e.g., good websites). In question and answer format, useful for posting and responding to questions pertaining to specific topics (e.g., technical problems, questions posed to a tenants association board) or frequently asked questions (FAQs). In either format, useful for archival purposes and online access to information repositories.</td>
</tr>
<tr>
<td>News and Announcements</td>
<td>Useful for communicating news items and general announcements. Also useful for communicating one-time or atypical events (e.g., an emergency meeting) particularly when simultaneously posted in conjunction with the calendar of events and cross-posted to an e-mail list for the target audience.</td>
</tr>
<tr>
<td>E-Mail Lists (Listservs)</td>
<td>Useful for maintaining e-mail communication to/from/amongst a target audience or group (e.g., seniors, youth, parents, etc.). Also useful when used to receive cross postings from discussion forums of relevance to the group. While the e-mail lists are archived, the discussion forums are better suited when users would benefit from the ability to access old postings since the discussion forum postings are searchable, while the e-mail list postings are not. In fact, this is often the only distinguishing characteristic between a discussion forum and an e-mail list other than the added convenience of posting a message to an e-mail list, when compared to a discussion forum, which requires a web browser.</td>
</tr>
<tr>
<td>File Storage</td>
<td>Useful for storing, maintaining versioning, and sharing files among users or user groups. Also useful when used in conjunction with other modules such as the discussion forum and calendar of events by enabling users to attach files to messages and events.</td>
</tr>
<tr>
<td>Job and Volunteer Opportunity Postings</td>
<td>Useful for brokering connections between users and interested employers/organizations. Also useful when cross-referenced with the skills and interests captured by the resident profiles to match residents well-suited to particular opportunities. Note that the job and volunteer opportunity postings module requires partnering with a local employment agency or other community-based organization(s) to ensure comprehensiveness.</td>
</tr>
<tr>
<td>Web-Based E-Mail</td>
<td>Useful for providing web-based access to e-mail. Recognizing that e-mail is still the &quot;killer application&quot; of the Internet, web-based e-mail can dramatically increase the stickiness of a site as a result of user's regular visits to C3.</td>
</tr>
</tbody>
</table>

Table 6: Creating Community Connections (C3) System Selected Module Notes
Figure 19: C3 Resident Profiles Module

Figure 20: C3 GIS Maps Modules
Figure 21: C3 Business Database Module

Figure 22: C3 Organization Database Module
Figure 23: C3 Discussion Forums Module

Figure 24: C3 E-Mail Lists (Listservs) Module
Figure 25: C3 Calendar of Events Module

Figure 26: C3 Chat Rooms Module
Technical Specifications

As shown in Figure 28, C3's core architecture is built using the ArsDigita Community System (ACS), a publicly available, open-source software platform comprised of TCL (scripting language), AOL Server (web server), and Oracle Enterprise Server (database) running on Redhat Linux (operating system).

Many of the core ACS modules such as the discussion forums, calendar of events, personalized web portals, and news and announcements were reprogrammed and repurposed for C3. The ACS user permissioning schema was also employed and allows C3 to track who is logged on, their membership status in various user groups, and their contributions to the system. The resident profile, organization and business database, job and volunteer opportunity postings, and online résumé modules were custom-designed specifically for C3. The e-mail lists (listservs) module was custom-designed using the Mailman list manager software package. The chat room module was implemented using the jPilot jIRC
applet. The geographic information systems (GIS) and asset-mapping module was custom-designed using ESRI's ArcIMS (Internet Map Server) software package.

As shown in Figure 29, C3 uses a dual-server architecture. All of the modules, other than the GIS module, are served from a Penguin Altus HA Tower computer with the following specifications: Intel Pentium II 700 MHz processor, 768MB RAM, 36.4 GB HD.

The GIS module is served separately from a Dell PowerEdge 2300 Tower computer running the iPlanet Web Server Fast Track Edition (web server) on Microsoft Windows NT (operating system), with the following specifications: Intel Pentium III 450 MHz processor, 1 GB RAM, 9 GB HD. The distinction between which pages are served by the main server or the map server are transparent to the user. Using HTML frames, the HTTP (web) requests for maps are serviced by the map server, whereas all remaining HTTP requests are serviced by the main server.

To access C3, only an Internet accessible computer with a web browser is required (e.g., Netscape Navigator or Internet Explorer). C3 is being delivered to Camfield Estates by MIT as an application service provider (ASP) — a third party that offers individuals or organizations access to applications (such as software) and related services via the Internet. Camfield residents create and maintain the content, while I administer and maintain the associated hardware and software on campus.
CLIENT WEB BROWSER

HTTP REQUEST

HTML AND JAVASCRIPT

TCL
v8.3
(Sciptng)

AOL SERVER
v3.2
(Web Server)

ORACLE
Enterprise v8.1.6i
(Database)

REDHAT LINUX v6.2
(Operating System)

Mailman
List Manager v1.1

ArsDigital
Community System
ACS v3.4

JPlilot jIRC
Applet v2.5.1

Figure 28: C3 Core Architecture

CLIENT WEB BROWSER

HTTP REQUEST

HTML AND JAVASCRIPT

MAIN SERVER
Redhat Linux v6.2

TCL / AOL Server / Oracle
ACS / Mailman / JPlilot

Penguin Computing Altus HA Tower

MAP SERVER
Microsoft Windows NT v4.0

iPlanet Web Server v4.1
ESRI ArcIMS v3.3

Dell PowerEdge 2300 Tower

Figure 29: C3 Dual-Server Architecture
CHAPTER 6

INITIAL ASSESSMENT

This chapter presents results from the preliminary assessment of the Camfield Estates-MIT Creating Community Connections Project, conducted in August 2000, as well as the subsequent recommendations that were generated as a result of the assessment. In the next chapter, I discuss the strategies undertaken in response to these findings.

RESULTS AND DISCUSSION

The preliminary assessment consisted of face-to-face interviews with the head-of-household from each of the 32 families who initially agreed to participate in the Camfield Estates-MIT project. Recall that 26 of these families completed the introductory courses in November 2000 and received their computers that same month. The high-speed Internet connections for each family were configured between the months of November 2000 and January 2001.

The preliminary assessment survey instrument served two related, yet distinctly different purposes. First, to obtain formative data that would guide the project's implementation. This would help us in identifying possible outcomes and inform the strategies undertaken to achieve these outcomes. Second, to obtain baseline data for the research study. This would serve as a benchmark for comparative analysis in the future. This chapter is solely focused on the former, whereas Chapter 7 is focused on the strategies undertaken based on this analysis, and Chapter 8 is centered on the latter.
The results and discussion below cover the following areas from the preliminary survey deemed relevant to the initiative moving forward, at the time the data was compiled (March 2001): demographics, community interests and satisfaction, awareness of community resources, community involvement, community attachment, computer experience and training interests, and hobbies, interests, and information needs. Note that for several tables and figures the percentages sum to more than 100% because multiple-responses were permitted by respondents.

**Demographics**

The average participant is described as a single, Black/African-American female, head-of-household. Figure 30 shows the race of participants, Figure 31 shows the gender of participants, Figure 32 shows the age of participants, Figure 33 shows the marital status of participants, Figure 34 shows the education of participants, Figure 35 shows the family size of participants, and Figure 36 show the annual income of participants. 25 participants (78%) were parents with an average of 1.5 children, while 7 participants (22%) were either single, married, or divorced without children. The relatively low participation of Hispanics is explained by delays in distributing Round I marketing materials in their native language. Their participation increased in Round II to 10 families (37%). The relatively low participation of males is partially explained by the fact that the majority of Camfield residents (60%) are women.
Community Interests and Satisfaction

Camfield has a number of qualities that residents appreciate. The best thing about living in Camfield is its convenient location (71%), new facilities (19%), familiar and comfortable environment (16%), and the people (13%), as shown in Table 7 (only top-ranked responses listed).

<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenient location</td>
<td>71%</td>
</tr>
<tr>
<td>New building, better living conditions</td>
<td>19%</td>
</tr>
<tr>
<td>Familiarity and comfort</td>
<td>16%</td>
</tr>
<tr>
<td>People/neighbors/community</td>
<td>13%</td>
</tr>
<tr>
<td>Safe environment/security</td>
<td>10%</td>
</tr>
<tr>
<td>Computer center/computer program</td>
<td>10%</td>
</tr>
<tr>
<td>Affordable</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 7: Best Thing about Living in Camfield Estates

Apparently, activities for youth and the rules governing youth were important issues. The space available for youth to play is located behind the community center. The majority of this space is open grass that was designated by CTA as off-limits to preserve the grounds' aesthetics. This rule has somewhat reduced the amount of available space. Furthermore, although NTC primarily serves the youth population at Camfield, there are structured hours throughout the week for adult classes, at which time youth must identify alternative ways to occupy their time.

A lack of activities for youth was cited most often (42%) as a problem facing the Camfield community, and by a 2 to 1 ratio when compared to the second ranked response, lack of community communication/involvement (19%), and a 3 to 1 ratio when compared to the third ranked responses, safety/security (13%) and noise due to neighbors (13%), as shown in Table 8 (only top-ranked responses listed). When asked to identify ideas for making Camfield a better place to live, residents reinforced these sentiments by identifying, first, more activities and fewer rules for youth (39%), second, more social events for residents to interact (32%), third, better communication/information between residents (29%), and fourth, improved security (16%), as shown in Table 9 (only top-ranked responses listed).
Safety and employment were also considered very important issues. Residents ranked safety/environment first, employment and housing second, education fourth, and health care fifth, from among a list of issues deemed important to them, as shown in Table 10. In fact, along the lines of safety, residents articulated a number of concerns such as the desire for improved relations with security guards and police, their lack of responsiveness, and other problems such as drugs, noise due to neighbors, vandalism, and preferential treatment by security, management, and CTA (i.e., targeting certain residents and not others). With respect to employment, the desire for job and career-related information was also a prominent theme in the “Hobbies, Interests and Information Needs” section of the survey, described in greater detail below (see Table 25).

### Table 8: Problems Facing the Camfield Estates Community

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not enough activities for youth/too many rules for youth/too many youth running around</td>
</tr>
<tr>
<td>Lack of community communication/involvement</td>
</tr>
<tr>
<td>Safety/security</td>
</tr>
<tr>
<td>Noise due to neighbors</td>
</tr>
<tr>
<td>Escalating rents/gentrification</td>
</tr>
<tr>
<td>Vandalism and riff-raff hanging out from surrounding residents</td>
</tr>
<tr>
<td>Drugs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>42%</td>
</tr>
<tr>
<td>19%</td>
</tr>
<tr>
<td>13%</td>
</tr>
<tr>
<td>13%</td>
</tr>
<tr>
<td>10%</td>
</tr>
<tr>
<td>10%</td>
</tr>
</tbody>
</table>

### Table 9: Ideas for Making Camfield Estates a Better Place to Live

<table>
<thead>
<tr>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>More activities/events/space and fewer rules for children</td>
</tr>
<tr>
<td>Organize social events/activities for residents to interact</td>
</tr>
<tr>
<td>Better communication/information between residents-awareness of issues</td>
</tr>
<tr>
<td>Work with security/improve security</td>
</tr>
<tr>
<td>More/improved cross-cultural interaction/communication</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>39%</td>
</tr>
<tr>
<td>32%</td>
</tr>
<tr>
<td>29%</td>
</tr>
<tr>
<td>16%</td>
</tr>
<tr>
<td>10%</td>
</tr>
</tbody>
</table>

Lastly, residents wanted more social interaction with their neighbors and wanted to improve communication between residents, and between CTA and residents. The ways residents wanted to see the Camfield Estates-MIT project help improve the community at Camfield included improving community communication/information sharing (35%), improving residents’ computer skills and comfort (32%), bringing people closer together (26%), expanding access to services/resources for residents...
(26%), jobs (16%), and expanding residents knowledge/world-view (16%), as shown in Table 11 (only top-ranked choices listed).

<table>
<thead>
<tr>
<th>Issue</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety/Environment</td>
<td>1</td>
</tr>
<tr>
<td>Employment</td>
<td>2</td>
</tr>
<tr>
<td>Housing</td>
<td>2</td>
</tr>
<tr>
<td>Education</td>
<td>4</td>
</tr>
<tr>
<td>Health Care</td>
<td>5</td>
</tr>
<tr>
<td>Child Care</td>
<td>6</td>
</tr>
<tr>
<td>Parenting</td>
<td>7</td>
</tr>
<tr>
<td>Political Involvement</td>
<td>8</td>
</tr>
<tr>
<td>Community Activism</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 10: Ranked Issues

<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve community communication/information sharing</td>
<td>35%</td>
</tr>
<tr>
<td>Improve residents computer skills/level of comfort</td>
<td>32%</td>
</tr>
<tr>
<td>Bring people closer together</td>
<td>26%</td>
</tr>
<tr>
<td>Expand access to services/resources for residents</td>
<td>26%</td>
</tr>
<tr>
<td>Jobs</td>
<td>16%</td>
</tr>
<tr>
<td>Expand residents knowledge/world-view</td>
<td>16%</td>
</tr>
<tr>
<td>Give youth something to do</td>
<td>13%</td>
</tr>
<tr>
<td>Empower the community</td>
<td>13%</td>
</tr>
<tr>
<td>Increase community involvement</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 11: Desired Improvements as a Result of Camfield Estates-MIT Project

This also reinforced the results from previous questions that cited "lack of community communication/involvement" (see Table 8) as a problem and called for "better communication/information between residents/awareness of issues" (see Table 9).

Awareness of Community Resources

Residents were asked to rate their awareness of various community resources, as shown in Table 12. The only resources that received a favorable awareness rating were local businesses (57% "very well informed" or "well informed"), and institutions in the community such as libraries and schools (75%
"very well informed" or "well informed"), which is likely a reflection of the fact that close to 8 out of every 10 respondents were parents with exposure to the school system. All of the remaining resources received an unfavorable awareness rating of "somewhat informed" or "not informed" including employment opportunities (79%), skills and abilities of other residents (75%), volunteer opportunities in the community (75%), community projects, activities, and events (71%), associations and organizations that serve the community (68%), and social services and programs provided for the community (64%). Despite these results, 72% of the respondents felt "very satisfied" or "somewhat satisfied" with their overall awareness of community resources, as shown in Table 13.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Very Well / Well Informed</th>
<th>Somewhat / Not Informed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills and abilities of other residents at Camfield Estates</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>Associations and organizations that serve the community</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>Volunteer opportunities in the community</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>Institutions located in the community (e.g., schools)</td>
<td>75%</td>
<td>25%</td>
</tr>
<tr>
<td>Social services and programs provided for the community</td>
<td>36%</td>
<td>64%</td>
</tr>
<tr>
<td>Community projects, activities, and events</td>
<td>29%</td>
<td>71%</td>
</tr>
<tr>
<td>Businesses located in the community</td>
<td>57%</td>
<td>43%</td>
</tr>
<tr>
<td>Products and services sold by local businesses</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Employment opportunities in the community</td>
<td>21%</td>
<td>79%</td>
</tr>
</tbody>
</table>

Table 12: Awareness of Community Resources

<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>20%</td>
</tr>
<tr>
<td>Somewhat satisfied</td>
<td>52%</td>
</tr>
<tr>
<td>Somewhat dissatisfied</td>
<td>20%</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>4%</td>
</tr>
<tr>
<td>Don't know</td>
<td>4%</td>
</tr>
</tbody>
</table>

Table 13: Feelings about Awareness of Community Resources

**Impressions of the Community**

According to a number of indicators, residents enjoy living at Camfield, would like to have more interactions with their neighbors, and feel a sense of responsibility to give back to the community, as shown in Table 14. For example, 96% of residents think Camfield is a good place to live, 79% wish they
had more contact with people in Camfield, 75% feel an obligation to make a contribution to Camfield, 75% believe they can count on their neighbors to keep their eyes open for possible trouble, and 100% would be willing to work with others to improve the neighborhood. While roughly half of the residents believe that very few neighbors know them, 71% believe they can recognize most of the people who live there, and only 32% believe it is hard to make good friends there.

Community Involvement

Camfield residents are involved in a variety of citizens associations and community organizations. Religious groups ranked first (74%), and the tenant's association second (68%), whereas membership in all remaining organizations was one-third of these totals or less, as shown in Table 15 (only top-ranked responses listed). The number of residents who identified themselves as members of CTA is likely to be overstated as there was some confusion between being a resident of the development, and being a member of CTA, whereas the latter is a dues-paying distinction.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree Strongly / Somewhat</th>
<th>Disagree Strongly / Somewhat</th>
<th>Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>I think Camfield Estates is a good place to live</td>
<td>96%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>I can recognize most of the people who live in Camfield Estates</td>
<td>71%</td>
<td>25%</td>
<td>4%</td>
</tr>
<tr>
<td>Very few of my neighbors at Camfield Estates know me</td>
<td>54%</td>
<td>39%</td>
<td>7%</td>
</tr>
<tr>
<td>I wish I had more contact with people in Camfield Estates</td>
<td>79%</td>
<td>21%</td>
<td>0%</td>
</tr>
<tr>
<td>It is hard to make good friends at Camfield Estates</td>
<td>32%</td>
<td>46%</td>
<td>21%</td>
</tr>
<tr>
<td>I feel an obligation to make a contribution to Camfield Estates</td>
<td>75%</td>
<td>21%</td>
<td>4%</td>
</tr>
<tr>
<td>If others in Camfield Estates wanted to do something that I thought would improve the neighborhood, I would probably be willing to work together with them</td>
<td>100%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>When I am away from home, I can count on my neighbors at Camfield Estates to keep their eyes open for possible trouble</td>
<td>75%</td>
<td>7%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Table 14: Impressions of Camfield Estates
With respect to political involvement, the top ranked activities among residents were visiting their child's school (77%), voting in a tenant's association meeting (62%), voting in a general election (54%), giving money to a voluntary organization for a special cause (52%), and volunteering time to an organization (44%), as shown in Table 16 (only top-ranked responses listed).

<table>
<thead>
<tr>
<th>Group</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Church/Temple/Mosque activities or groups</td>
<td>74%</td>
</tr>
<tr>
<td>Camfield Tenants Association (CTA)</td>
<td>68%</td>
</tr>
<tr>
<td>School services groups (e.g., tutoring, parent association)</td>
<td>22%</td>
</tr>
<tr>
<td>Discussion group/reading club/support group</td>
<td>19%</td>
</tr>
<tr>
<td>Community organizations (Outside Camfield Estates)</td>
<td>17%</td>
</tr>
<tr>
<td>Labor unions/professional groups</td>
<td>15%</td>
</tr>
<tr>
<td>Other groups</td>
<td>12%</td>
</tr>
<tr>
<td>Sports teams</td>
<td>11%</td>
</tr>
<tr>
<td>Youth groups (e.g., Boy/Girl Scouts)</td>
<td>11%</td>
</tr>
</tbody>
</table>

**Table 15: Membership in Community Organizations**

<table>
<thead>
<tr>
<th>Activity</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visited child's school</td>
<td>77%</td>
</tr>
<tr>
<td>Voted in a tenants association meeting</td>
<td>62%</td>
</tr>
<tr>
<td>Voted in a general election</td>
<td>54%</td>
</tr>
<tr>
<td>Gave money to a voluntary organization for a special cause</td>
<td>52%</td>
</tr>
<tr>
<td>Volunteered time to an organization</td>
<td>44%</td>
</tr>
<tr>
<td>Signed a petition</td>
<td>33%</td>
</tr>
<tr>
<td>Went to a political rally or meeting</td>
<td>22%</td>
</tr>
<tr>
<td>Wrote a letter to a public official</td>
<td>19%</td>
</tr>
<tr>
<td>Phoned or went to see a public official</td>
<td>19%</td>
</tr>
<tr>
<td>Boycotted a product</td>
<td>18%</td>
</tr>
<tr>
<td>Participated in voter registration drive/campaign</td>
<td>18%</td>
</tr>
<tr>
<td>Went to a demonstration</td>
<td>15%</td>
</tr>
<tr>
<td>Collected signatures for a petition drive</td>
<td>11%</td>
</tr>
</tbody>
</table>

**Table 16: Political Involvement**

Furthermore, 60% of residents reported that they had performed unpaid volunteer work in the past month, whereas the average number of hours volunteered by these residents during that time period was 22 hours (approximately 5.5 hours/week). Finally, although 63% of residents expressed an interest to participate on a committee to oversee this project, 41% of residents felt they were involved as much
as they could be in the Camfield community, while the top reason cited for resident non-involvement (excluding "all of the above") was "not enough time" (35%).

We included four questions to gauge the level of community involvement (cognitive ties), based on the work of Rothenbuhler et. al (1996), Stamm (1985), and Kavanaugh and Patterson (1998). These questions are based on research that has found community involvement to be positively correlated with local newspaper readership and localism of the respondent's routine activities, among other social and demographic factors. Rated according to a scale of "Never," "Seldom," "Occasionally," and "Frequently," the four questions were as follows:

- **How often would you say you keep up with the local news in Camfield Estates?**
- **How often would you say you have ideas for improving things in Camfield Estates?**
- **How often do you get together with people who know what's going on in Camfield Estates?**
- **How often do you work to bring about changes in Camfield Estates?**

With a numerical value between 1 and 4 assigned to each response, a community involvement index was calculated for each respondent, as well as a composite community involvement index for all respondents. The individual indices were placed along the community involvement continuum below, and compared with identical data from 558 residents of Blacksburg, Virginia (home of the Blacksburg Electronic Village), and surrounding environs (Kavanaugh & Patterson, 1998), as shown in Figure 37.

Relatively speaking, participants demonstrated a high degree of community involvement. More than 1 in 10 Camfield residents reported the highest possible score for community involvement, which is more than twice the scores reported in Blacksburg. In the three remaining categories, Camfield residents reported scores very similar to Blacksburg residents.
We included five questions to gauge the level of community attachment (affective ties), including two questions pertaining to community identification, and three questions pertaining to community affect. Rated according to a scale of "Very Happy," "Somewhat Happy," "Somewhat Unhappy," "Very Unhappy," and "Don't Know," the two community identification questions were as follows:

- How do you feel about living in Camfield Estates?
- If for some reason you had to leave Camfield Estates and live somewhere else, how would you feel?

These questions have been used extensively in the work of Rothenbuhler et. al (1996) and Stamm (1985). The three community affect questions were as follows:

- Would you say that you always, sometimes or never feel a part of the local community in Camfield Estates?
- Another way to ask the previous question is, imagine that the people of Camfield Estates are a circle. Would you put yourself inside the circle, on the edge of the circle, or outside the circle?
- How you feel about being from Camfield Estates? Would you say that you are proud, have mixed feelings, are indifferent, or are ashamed?
These questions have been used extensively in the General Social Survey, Detroit Area Survey, and the work of Rothenbuhler et al (1996). With a numerical value between 1 and 4 assigned to each response, a community attachment index was calculated for each respondent, as well as a composite community attachment index for all respondents. The individual indices were placed along a community attachment continuum, as shown in Figure 38.

![Community Attachment Continuum](image)

**Figure 38: Community Attachment Continuum**

The data suggests that Camfield residents also demonstrate a high degree of community attachment with more than 78% scoring in the highest two categories, and almost 16% in the highest possible category.

**Computer Experience and Training Interests**

Several residents at Camfield had prior experience with computers but were eager to increase their knowledge and skills. Approximately 4 out of every 10 residents owned a computer prior to the project (44%), while more than half reported regular use of the Internet (54%). An equal number rated their computer skills as "beginner" (54%), with 32% and 14% rating their skills as intermediate and advanced, respectively. Computer usage by location, outside of the home, was broken down as follows: work (72%), NTC (on-premises CTC) (40%), off-premises CTC (8%), school (25%), public facility such as a library (38%), and other (29%).

The topics residents wanted to see addressed through training included web design (83%), and how to access government (78%) and community information (74%), as shown in Table 17.
When asked how they envisioned a new computer and high-speed Internet access changing their lives, residents chose “accessing more information/resources” first, and foremost (68%), as shown in Table 18 (only top-ranked choices listed). This was followed by improving their education or their children’s education (29%), finding employment (13%), being able to use a computer in the comfort of their home (13%), and becoming more fluent with technology (13%).

<table>
<thead>
<tr>
<th>Topic</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to create my own website</td>
<td>83%</td>
</tr>
<tr>
<td>How to access government information online</td>
<td>78%</td>
</tr>
<tr>
<td>How to access community information online</td>
<td>74%</td>
</tr>
<tr>
<td>Protecting my children from certain online content</td>
<td>68%</td>
</tr>
<tr>
<td>How to find jobs online</td>
<td>68%</td>
</tr>
<tr>
<td>How to help my children in school</td>
<td>65%</td>
</tr>
<tr>
<td>How to start a business</td>
<td>65%</td>
</tr>
<tr>
<td>Managing my finances</td>
<td>64%</td>
</tr>
<tr>
<td>How to shop for groceries online</td>
<td>36%</td>
</tr>
</tbody>
</table>

Table 17: Desired Training Topics

<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to more information/resources and research</td>
<td>68%</td>
</tr>
<tr>
<td>Help with my education/my children’s education</td>
<td>29%</td>
</tr>
<tr>
<td>Find employment</td>
<td>13%</td>
</tr>
<tr>
<td>Can use computer at home/not have to go out</td>
<td>13%</td>
</tr>
<tr>
<td>Become more fluent with the computer</td>
<td>13%</td>
</tr>
<tr>
<td>Shopping online/save money</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 18: Anticipated Life Changes as a Result of New Computer and Internet

Furthermore, residents expressed a strong desire to obtain local information, connect with others, and obtain education/career-related resources. The top choices for planned use of the computer were accessing community information (100%), communicating with family/friends (96%), continuing education (92%), and pursuing career opportunities (88%), as shown in Table 19.

Interestingly, creating a personal website (83%) ranked above playing games (76%), which ranked just slightly above contributing/publishing information (67%).
Resident’s hobbies were scattered across a considerable number of areas, with reading and music identified with the greatest frequency. When asked how they usually obtained information about what is going on in the community, residents cited a number of local sources including neighbors/word-of-mouth (55%), newspaper (35%), television (29%), flyers/postal mail (23%), and CTA (19%), as shown in Table 20 (top responses only listed).

The community information and organizations that residents desired to be more accessible cut across a number of general areas. With respect to community information, residents wanted the following items to be more accessible: community events and activities (e.g., local activities, local political/government
information, volunteer opportunities, local organizations including CTA, etc.) (32%), social services and programs (e.g., training programs, parenting programs, home-ownership programs, etc.) (29%), education (e.g., schools, continuing education, etc.) (19%), employment (16%), and safety/security (13%), as shown in Table 21 (top responses only listed). With respect to community organizations, residents wanted the following entities to be more accessible: general community organizations (and/or their websites) (23%), and more specifically, youth-oriented organizations (19%), social service/family organizations (19%), and health care organizations (16%), as shown in Table 22 (top responses only listed). In their study of 136 predominantly African-American, low-income, residents of Urbana-Champaign, Illinois, Bishop et al. (1999) reported similar findings.

<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community events and activities</td>
<td>32%</td>
</tr>
<tr>
<td>Social services and programs</td>
<td>29%</td>
</tr>
<tr>
<td>Education</td>
<td>19%</td>
</tr>
<tr>
<td>Employment</td>
<td>16%</td>
</tr>
<tr>
<td>Nothing/no answer/don’t know</td>
<td>16%</td>
</tr>
<tr>
<td>Safety/security</td>
<td>13%</td>
</tr>
<tr>
<td>Politics/Government</td>
<td>10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community organizations/website</td>
<td>23%</td>
</tr>
<tr>
<td>Youth</td>
<td>19%</td>
</tr>
<tr>
<td>Social/Family Service</td>
<td>19%</td>
</tr>
<tr>
<td>Health Care</td>
<td>16%</td>
</tr>
<tr>
<td>Nothing/no answer/don’t know</td>
<td>16%</td>
</tr>
<tr>
<td>Political/Civic</td>
<td>10%</td>
</tr>
<tr>
<td>Education</td>
<td>10%</td>
</tr>
<tr>
<td>Religious/Church</td>
<td>10%</td>
</tr>
<tr>
<td>CTA</td>
<td>10%</td>
</tr>
</tbody>
</table>

Table 21: Community Information Desired to be More Accessible

Table 22: Community Organizations Desired to be More Accessible

Residents expressed a desire to obtain, and to a greater extent, share local information. This was consistent with their expressed, strong intent to access community information, as mentioned earlier (see Table 19). Although 58% of residents did not identify any category of information they thought might be especially useful in dealing with problems in their community, 16% identified security/safety/police-related information, and 13% identified youth programs and activities, as shown in Table 23 (top responses only listed). While 45% of residents expressed no interest in sharing information with others by using computers and the Internet, 19% intended to share information about community organizations and programs, and community events and activities, and 13% employment, as shown in Table 24 (top responses only listed).
<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing/no answer/don’t know</td>
<td>58%</td>
</tr>
<tr>
<td>Security/safety/police</td>
<td>16%</td>
</tr>
<tr>
<td>Youth programs and activities</td>
<td>13%</td>
</tr>
<tr>
<td>Health/lifestyle awareness or training</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Table 23: Information Desired to Share**

<table>
<thead>
<tr>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing/no answer/don’t know</td>
<td>45%</td>
</tr>
<tr>
<td>Community organizations and programs</td>
<td>19%</td>
</tr>
<tr>
<td>Community events/activities</td>
<td>19%</td>
</tr>
<tr>
<td>Employment</td>
<td>13%</td>
</tr>
<tr>
<td>Health care/healthy living</td>
<td>10%</td>
</tr>
</tbody>
</table>

Lastly, when asked what they would like to see made available on the Camfield website, the top responses were, in order: employment opportunities, Camfield resident’s information, education, local news, safety, government, and health care information, and a calendar of events, as shown in Table 25 (top responses only listed).

<table>
<thead>
<tr>
<th>Rank</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Employment opportunities</td>
</tr>
<tr>
<td>2</td>
<td>Camfield resident’s information</td>
</tr>
<tr>
<td>3</td>
<td>Education</td>
</tr>
<tr>
<td>4</td>
<td>Local news</td>
</tr>
<tr>
<td>5</td>
<td>Safety</td>
</tr>
<tr>
<td>6</td>
<td>Government information</td>
</tr>
<tr>
<td>7</td>
<td>Health care</td>
</tr>
<tr>
<td>8</td>
<td>Community calendar of activities/events</td>
</tr>
<tr>
<td>9</td>
<td>Business information</td>
</tr>
<tr>
<td>10</td>
<td>Volunteer opportunities</td>
</tr>
<tr>
<td>11</td>
<td>Organization information</td>
</tr>
<tr>
<td>12</td>
<td>Weather</td>
</tr>
<tr>
<td>13</td>
<td>Sports</td>
</tr>
<tr>
<td>14</td>
<td>Regional and national news</td>
</tr>
<tr>
<td>15</td>
<td>Classifieds (want ads)</td>
</tr>
<tr>
<td>16</td>
<td>Electronic commerce</td>
</tr>
<tr>
<td>17</td>
<td>Online forums and discussion groups</td>
</tr>
<tr>
<td>18</td>
<td>Arts and entertainment</td>
</tr>
</tbody>
</table>

**Table 25: Items Desired on the Camfield Estates Website**

Note that several of these items were eventually made available through C3, such as the resident profiles module, news and announcements module, calendar of events module, and business and organization database module. Noticeably absent was the top choice, employment opportunities, whereas the C3 job and volunteer opportunity postings module was not incorporated into the first release of the system, particularly in light of the fact that operationalizing this module would require partnering with a local employment agency or other community-based organization to ensure comprehensiveness and sustainability. The project team decided to wait until the results of the preliminary interviews before doing so, to confirm that demand truly existed. Interestingly, even though this module was not available, a discussion forum was created a few months after the system was
released by one of the staff members at NTC to allow residents to post employment opportunities within their own purview.

**SUMMARY**

The following is our analysis and summary of the results from the preliminary assessment:

- **Generally speaking, residents enjoy living at Camfield.** 96% of residents think Camfield is a good place to live; the top reasons residents enjoy living at Camfield are its convenient location (71%) and the new building/living conditions (19%).

- **The most important issues at Camfield were, in order:** 1) lack of activities for youth, 2) lack of community communication/interaction, 3) safety/security, and 4) employment. These issues appeared consistently throughout the interviews. Education and a lack of activities for seniors also stood out in the data.

  ⇒ **YOUTH: Residents believed there were not enough things for youth to do and there were too many rules restricting what they can/can't do.** The top ranked choice for problems facing Camfield was not enough activities for youth/too many rules for youth (42%); the top ranked choice for ideas to improve Camfield was more activities and events for youth (39%); the second choice for community organizations residents desired to be more accessible was youth-oriented organizations (19%).

  ⇒ **COMMUNITY:** Residents wanted more social interaction with their neighbors and wanted to improve communication between residents, and between CTA and residents. 79% of residents wanted to have more contact with neighbors; the second and third ranked choices for ideas to improve Camfield were to organize more social events (39%) and improve communication at Camfield...
the second ranked item residents wanted to see on the Camfield website was information about other residents.

SAFETY/SECURITY: Safety, security and the environment at Camfield were regularly identified as important issues. Residents wanted to improve relations with security and the police as well as their responsiveness. Problems that were expressed during the interviews included drugs, noise due to neighbors, vandalism, and preferential treatment by security, management, and CTA (i.e., targeting certain residents and not others). Safety/environment was ranked first by residents in terms of issues deemed important to them; safety-related information was ranked fifth by residents in terms of items they would like to see on the Camfield website.

EMPLOYMENT: Residents wanted to see more employment opportunities at Camfield including job postings, job training, and using the Camfield-MIT project and NTC to improve residents technology skills and employability. Employment was ranked second by residents in terms of issues deemed important to them; employment opportunities was ranked first by residents in terms of items they would like to see on the Camfield website; employment opportunities was ranked third by residents in terms of information they wanted to share with others by using computers and the Internet (13%).

- There was a strong desire to obtain and share community information while, at the same time, residents rated their awareness of community resources relatively low. 78% and 74% of residents wanted to use their computer to obtain government and community information online, respectively; 100% of residents planned to use their computer to access community information; the community information most desired by residents was community events and activities (32%) and social services and programs (29%); the top ranked information residents wanted to share with others using computers and the Internet was information about community organizations and programs (19%), and community activities and events (19%); several items connected to community information
ranked high on the list of items residents wanted to see on the Camfield website including employment opportunities (1st), resident's information (2nd), local news (4th), and government information (6th); at the same time, the majority of residents rated their awareness of community resources as low ("somewhat/not informed") in seven out of nine categories including a low awareness rating for the following items: employment opportunities (79%), skills and abilities of other residents (75%), community projects, activities, and events (71%), and community organizations (68%).

- While residents felt a sense of responsibility to give back to the community, they were also extremely busy and lacked the time to do so. 75% of residents felt an obligation to make a contribution to Camfield and 63% expressed an interest in participating on a committee to oversee this project; 41% of residents felt they were as involved as much as they could be in the Camfield Estates community; the reason cited most often for lack of involvement was "not enough time" (35%).

**Recommendations**

Based on our analysis of the findings, the following online and offline recomendations were presented by the project team to the leadership at Camfield in May 2001:

- **Youth (and Seniors).** Offer more activities at Camfield for youth and seniors; create a space on the Camfield website where youth can post and share projects online using the C3 file storage module; although seniors weren't highlighted (nor represented) prominently in the preliminary assessment, a related recommendation was to establish a time for them to socialize and interact with each other at the community center and also create a C3 discussion forum to further enhance that interaction online.
• **Community.** Continue to organize social events and activities at Camfield where families can meet one another; combine online activities with offline activities as a way to encourage residents to interact with each other and engage technology.

• **Safety/Security.** Ensure that the security guards at Camfield are being responsive and held accountable for the safety of residents; make safety-related information and statistics available to residents via C3 (e.g., regular postings of safety briefs using the discussion forum module or regular uploading of safety reports using the file storage module).

• **Employment.** Partner with existing community organizations that conduct job training and placement (i.e. local employment agencies) or the Boston Empowerment Zone to heighten residents' awareness of job opportunities. Add the C3 job and volunteer opportunity postings module to the Camfield site.

• **General.** Offer the following courses at NTC as a follow-up to the introductory courses: 1) web design, 2) how to find and share community information online, and 3) how to find and share jobs online. Expand the project team to include residents who expressed an interest in joining the committee; dedicate time for the committee to further strategize around the aforementioned issues.

In the next chapter, I will discuss the actions taken by the project team and Camfield leadership in response to these recommendations, as well as the results and observations from the post-assessment.
CHAPTER 7

STRATEGIES UNDERTAKEN

This chapter presents the strategies undertaken to integrate community technology and community building as informed by the results of the preliminary assessment. In the next two chapters, I discuss the early results from the post-assessment and present case studies of the experiences of five people including four residents and one member Camfield's staff.

There were 26 families who completed the Round I introductory course and received their computers in November 2000. Due to technical and bureaucratic problems, we did not complete configuration of the cable-modem Internet connections until January 2001. At the beginning of that month, we began interviewing the 27 families who signed up for Round II, and by the end of the month their introductory courses were underway. Needless to say, with the cable-modem Internet connections up-and-running, the project team was now able to shift our attention away from the tasks associated with establishing access to technology, and instead focus on the more important issues related to the use of technology. At this time, we were able to begin thinking strategically about how to leverage the technological infrastructure and support the residents at Camfield, as informed by the results of the preliminary assessment.

APPLICATION OF FINDINGS

The preliminary assessment suggested the following strategies: 1) offer more activities for youth, 2) improve community communication and social interaction at the development, 3) augment current safety and security measures, and 4) expand employment opportunities for residents. As mentioned
previously, although seniors' concerns were not visibly represented in the results of the assessment, another recommended strategy was to offer more activities for seniors in addition to youth.

Leadership at Camfield consists of the following people: Mrs. Paulette Ford, President of the Camfield Tenants Association (CTA), Inc., an additional eight members of the CTA Board of Directors, Ms Constance Terrell, Ms. Luon Williams, Mr. Edward Harding, Ms. Susan Terrell, Ms. Marzella Hunt, Ms. Cora Scott, and Ms. Alberta Willis, CTA advisors Ms. Minnie Clark and Mr. Daniel Violi, Mr. Thaddeus Miles, Director of Public Safety for the Massachusetts Housing Finance Agency (MHFA) who also volunteers to teach courses at Camfield on animation and graphics, Mr. Wayne Williams, President and CEO of Williams Consulting Services (WCS) the company that manages the Neighborhood Technology Center (NTC), Donna Fisher, former Resident Social Service Coordinator through Cornu Management Company, the property management company, now Director of Community Relations, Tresza Trusty, Property Manager for Cornu, Miguel "Mikey" Santiago, Property Superintendant for Cornu, Virginia Davis, Administrative Assistant for Cornu, and Nakia Keizer, Project Leader for the Camfield Estates-MIT project. Because NTC also serves Roxse Homes, a neighboring housing development, Linda Evans, President of the Roxse Tenants Association is also keenly concerned with issues that affect the technology center and the neighborhood.

At the time the preliminary assessment findings were presented to Camfield leadership (May 2001), many of the areas that were identified were already receiving attention. For some, the preliminary survey reinforced their understanding of the existing concerns at the development and gave cause to strengthen their efforts. For others, it provided new information or insight to the nuances surrounding certain issues and gave cause to redirect their efforts. For example, social events were already being held at Camfield on a regular basis to encourage interaction among residents. The preliminary survey highlighted the importance of these events while the recommendations from the project team offered new suggestions on how to do so both offline and online.
In the following sections, I discuss some of my efforts to promote use of the Camfield Estates website and the C3 system, which is followed by an overview of the programs and activities that have been initiated by residents and staff along the lines of youth, seniors, community, safety/security, and employment. Some of these initiatives were already underway at the time the assessment was compiled, while others were either instated at the beginning of the summer or are now being considered for the fall.

**Camfield Estates Website and the C3 System**

During the months of February through May 2001, I took a very active role in promoting use of the Camfield Estates website and the C3 system. Here I discuss some of the strategies I conducted personally or along with the project team. Again, in the following sections I present an overview of the programs and activities initiated by residents and staff as well as how they made use of the site and the system.

I envisioned my role as a facilitator – making sure that residents were familiar with the tools and how to use them, along with a vision for their possibilities. Furthermore, if I happened to see a resident or a staff member at a meeting or in passing, I would often inquire as to their use of the website to-date, and encourage them to continue (or begin) using it.

One of the early challenges was the “chicken-and-egg” phenomenon of building an online community: community members won’t join if there isn’t a critical mass online, and there won’t be a critical mass online until community members join. To overcome this hurdle, at least initially, we had residents register for the site as part of the introductory course. This ensured that once they received their computers and Internet connections that there would be other community members and classmates who were already on the site. In doing so, we hoped to create an immediate audience by registering as
many people as possible in a relatively short period of time, as opposed to creating an audience gradually
as a result of intermittent or sporadic registrations over a long period of time.

Another strategy we employed was to limit the number of features on the site with the hopes of scaling up its offering later, according to its patterns use. We believed it was better to start small as far as online features, and provide additional functionality in a fashion commensurate with the size and the needs of the audience. Consequently, and as mentioned earlier, the following modules were chosen: resident profiles, business and organization database, GIS maps, calendar of events, discussion forums (only two, “Help,” for technical questions and problems and “News and Announcements,” for general postings), e-mail lists (only two general lists, “residents@camfielddestates.net,” for residents, and “participants@camfielddestates.net,” for participants in the Camfield Estates-MIT project, and then a single e-mail list for each class), chat rooms (only two, one for Camfield at-large and one for CTA), and site-wide search. Scheduled for possible later introduction were: file storage, job and volunteer opportunity postings, personalized web portals and web-based e-mail, pending use of the system.

I felt it necessary to identify and work closely with a core group of lead users. I believed that a small group of residents making productive use of the tools could encourage and engage other community members to contribute. As mentioned earlier, one of the areas where we could have done a better job during Round I was to better incorporate the use of the website into the courses. This made it even more imperative to cultivate a group of early adopters amongst the Round I participants. The logical choice was the members of the CTA board of directors. I was already attending CTA meetings on a fairly regular basis to encourage use of the website for information and communication purposes both amongst board members and for residents of the development overall. During the months of February, March, and April 2001, I met with each member of the board in their home at least once (at most five times) to review the features of the site and provide a reference guide on how to use it. I also met with a few residents who were not board members and a few members of Camfield’s staff.
Once the site was launched, a simple strategy that was employed to promote use was to cross-reference all postings made to the discussion forums with the residents’ e-mail list. In other words, all of the postings to the discussion forums were automatically sent to the residents’ e-mail lists.

Finally, in response to the preliminary assessment and to encourage creative use of technology as well as contributions to the site, a web design course was slated for the summer 2001. Unfortunately, it was deferred due to unanticipated delays in completing the courses for Round II.

These strategies were helpful in promoting initial use of the Camfield Estates website and C3 system. In the next sections, I present some of the programs and activities led by residents and staff in the areas of youth, seniors, community, safety/security, and employment, and highlight the role of these online tools where applicable.

Youth

There is a growing repertoire of programs for young people at Camfield. Activities for youth have ranged from a holiday party replete with gifts that were donated from local businesses to a tutoring program in partnership with students from Northeastern University to courses at NTC for youth focused on graphics, animation, and website design. During the summer 2001, NTC’s youth offering included open access hours at various times throughout the week, a weekly youth A+ course (computer service and repair), weekly education workshop, and weekly social skills class.

One occasion when the youth organized themselves and the community rallied to support them was a summer field trip to Six Flags, the outdoor amusement park, which included approximately 40 kids and 10 adult chaperones. During the weeks leading up to the trip a few youth decided that they wanted to raise money to pay for their tickets by having a bake sale. Without asking for assistance from any of the adults in the community they pseudo-randomly picked a day to sell baked goods. Because very few
residents were even aware of the event, there was little to no participation by others and they made very little money. Disappointed, yet still determined, they subsequently solicited the assistance of others at Camfield to make a second attempt at coordinating the event. Under the guidance of a few adults, they created flyers at NTC that were subsequently placed around the development. Parents and staff members were recruited to contribute baked goods. The event was posted on the “News and Announcements” forum and the calendar of events on the Camfield Estates website/C3 system, and an e-mail was sent to the “residents@camfieldestates.net” e-mail list a few days prior to the event. As a result of these efforts, the second bake sale was a success. Donna looks back on her experience with the youth:

They came to me. They told me what they wanted to do. They said they wanted to do a bake sale because they wanted to raise some money for Six Flags. Originally they were supposed to buy their tickets, but they didn’t raise quite that amount of money. So it was just raising money to buy their own food when they got there. I met with them and pointed them in the direction of what they needed to do. They designed the flyers in the center and Lawrence, who works in the center, helped them as needed. Since I now know how to use the discussion forum on the website, I posted information on there pertaining to the bake sale. I mean it was really advertised. The word really got out that these kids were doing this.

We had people from MHFA come and they bought things. People from Roxse even came… the seniors from the Senior Internet Café [described below], they came, and bought things to support them, or they gave money to support them. And everyone, especially the seniors really thought that that was really something wonderful to see these young kids really trying to do something and raise money on their own. And it also gave them a way to work together better and work together as a team, it was their own little community building. They got some money. Most importantly, they got to see that people really cared about their effort, and they got to see that they were supported in what they were doing.
Through a combination of basic community organizing, traditional and Internet-based marketing, and community building, the youth were able to offset the cost of the trip. The amount of money they raised wasn’t nearly as important as the acknowledgement of their efforts by the community. Leadership at Camfield regards these kinds of activities as critical to fostering a sense of responsibility amongst its youth.

Presently, Camfield leadership is applying for grants to fund a part-time Youth Multimedia Coordinator. Her or his responsibilities will include “expanding multimedia classes, development of new multimedia projects and classes for youth, recruit youth to work on the Camfield Estates website and C3 system, specific skill development among youth in computer technology, with a focus on projects that promote self-expression and artistic skills, and involvement of youth in the governance, programming and staffing of the computer center” (CTA, 2001). The Youth Multimedia Coordinator will join Donna, staff at NTC, and the soon-to-be-hired new Resident Social Service Coordinator, in further expanding the range of possibilities for young people at Camfield.
Seniors

Efforts to engage seniors at Camfield are beginning to ramp up. For a period of time there weren't any ongoing, weekly activities provided for this constituency. There were some one-time events such as a seniors luncheon during the holidays (at this event, one of the senior participants from Round 1, Mr. Harding, spoke to other seniors of his positive experiences with the Camfield Estates-MIT project) and a day during Black Family Technology Week, where seniors worked with youth to explore the Internet, but during the summer 2001, a concerted effort was made to reach out to seniors at Camfield.

Wayne and his staff decided to offer a “Senior Internet Café” at NTC every Tuesday and Thursday from 11 am until 1 pm. The purpose of the Café is to provide a pleasant social atmosphere for seniors to fellowship and explore the Internet. However, recruiting seniors to attend the Café was not particularly easy. Presently, there are 9 seniors that faithfully attend each session, 2 from Camfield and 7 from Roxse. There are approximately 17 seniors at Camfield. Staff have concluded that some of the seniors who have not attended are either reluctant to leave their homes or intimidated by technology.
reach out to these individuals they have begun offering and marketing the Café in conjunction with various social activities such as movies and lunches. Along with some telephone outreach and personal visits, they are beginning to see a few new faces. Donna adds:

I think they enjoy it. They come faithfully each week. They enjoy their time together. Because of the weather last week, and the fact that a number of them don’t have A/C, I decided to extend the Café and I had movies and served a lunch. So I had some flyers sent out to the seniors and telephoned them. Some did come for the movie only. The day before the movie, I went door knocking and I attached the Senior Internet Café flyer to the movie flyer. And I called also that day, and I also delivered the flyer. About 3 more came for the movie. I think they are a little scared of the computer. A lot of them said to me, “What do I want to use a computer for? I don’t want to do work.” And I told them, “There are other things you could do.” I told them they could look up information if they needed information, send e-mail to a family member or friend, or if you needed to type a letter you could do that. There are games you could play on the computer. But they don’t seem like it is something that is connected to them. It is more for younger people who are working who have more use for a computer than they do. There’s got to be a way to get past that and I’ve got to think about a way to bridge that small group of people together. I think if I make the movie a regular thing, maybe, that will get them connected, more connected, and hopefully that will help them gain some interest in other things, besides movies.

The strategy here is to shift the focus to things that are unrelated to technology (i.e. social benefits, social interaction) and eventually break down the perceptions of technology that previously inhibited participation. Toward this end, there is one Café participant who originally declined to participate with the Camfield Estates-MIT project but is now very likely to change her decision having attended these sessions. This demonstrates the positive social and cultural effect that has taken place and will hopefully
continue to gain momentum. The Café will continue in the fall in addition to another ambitious initiative that will likely involve seniors and is described below in the context of employment.

Community

CTA has placed considerable emphasis on building community at Camfield since the day residents moved back to the renovated property. This has taken the form of general meetings, cluster (block) meetings, CTA board meetings, dinners such as a holiday banquet for CTA board members, management and staff, social night at NTC on Friday evenings, theater outings, a trip to “Disney on Ice,” and more.

Between February and June 2001, Richard worked with Wayne and his staff to offer a series of thematic, follow-up workshops once every month for the Round I participants to promote empowerment and self-sufficiency. The topics for these workshops included “Online Educational Services,” “Online Banking Services,” “Online Shopping Services,” “Online Government Services,” and “Online Housing Services.” A few of these workshops were posted to the calendar of events on the Camfield Estates website. Wayne remarks on the impact of these sessions:

"I think people really got a sense of how to use the Internet for different activities. For example, I think the workshop on educational services was just tremendous in terms of helping parents and even the young people who came with their parents, to look closely at the issues of higher education, financial aid, scholarships, etc. Each of the workshops had an overall evaluation for everyone who attended and the majority of the responses were positive. A typical response was the following: "I found the workshop very interesting and very educational in helping me to continue my computer skills and training. I will have a long way to go but I am learning as I am going along with your program and workshops." I think at some time in the future each of those workshops could be turned into a mini-course to go into even greater depth."
In February 2001, Wayne and his staff organized a series of events for Black History Month and Black Family Technology Week. This included a workshop on how to use the Internet for personal development, a college/university visitation day for youth, a joint session with youth and seniors to explore the Internet and discuss technology, and a Black history contest, all of which were advertised on the Camfield Estates website. The contest awarded prizes for the best essays and PowerPoint presentations dealing with Black History at a closing dinner, which culminated the week's events.

Wayne comments on the success of the event:

First, I think it brought various groups across Boston together for the very first time. I think that was historical in itself. It was the first time you had a major focus on technology among minorities, low-income families, led by all of these various groups that tended to do separate work, coming together to be organized and unified.
Second, I think the various programs really had a tremendous impact on seniors, adults, and young people. For example, we had a program for the seniors where they were able to come out and learn from the youth surrounding the Internet and different things going on in terms of Internet operations. They learned about Black history on the Internet because a lot of the youth participated in a contest on Black History, and they were able to go and help the seniors look at different issues in Black History and how it affects today's life. They were mainly going to websites dealing with the people who the youth wrote about as part of the Black History contest. And it wasn't just the traditional people like Martin Luther King, for instance, it was like Garrett Morgan, the person who invented the stop light, Charles Drew, looking at the medical field, and many others.

I think we need more of that … not just across Boston, but across the United States in general. Because I think the more you bring young people and seniors together the more you get away from this kind of impasse between generations and the more you overcome the generational gap surrounding communication and surrounding community development.

In April 2000, NTC held a strategic planning retreat in New York that was attended by parents and youth from Camfield and Roxse, as well as Paulette, Linda, Thaddeus, Donna and me. The purpose of the retreat was to spend focused time discussing and strategizing ways to further enhance NTC's service offering to the community. Over the course of the weekend a variety of areas were covered such as incorporating NTC as a separate 501(c)(3) from CTA, fundraising, communication, and the Camfield Estates website. On the importance of the retreat, Wayne adds:

We have the strategic planning retreat at least once a year. It's important to do it because as with any organization, it's always good to at least once a year come and review where you are. There were people there from Camfield Estates, Roxse Homes, MHFA, MIT, and Williams Consulting Services. The different sessions were focused on incorporation, fundraising, and
communication. Those were the main themes. I think it brought Camfield and Roxse closer together, and it led to a number of strategic planning initiatives for the upcoming year. And I think, overall, it just led to a better sense of communication between the various groups and the key players at NTC.

Finally, to improve communication at the development, Nakia has re-established the Camfield Estates newsletter. Working with other residents, CTA, Cornu Management and NTC staff, he believes the newsletter will keep residents informed of the latest developments at Camfield and encourage them to get involved in community matters. It includes upcoming events, property updates, NTC news, notices from property management, and more. Nakia comments on how the newsletter idea came to fruition:

A lot of the residents I had talked with wanted to get regular updates on what was going at Camfield to keep people in the loop. So I brought the idea to Paulette and that eventually spawned a meeting between her, Donna, Tresza, and me. After the meeting we had a couple of e-mail correspondence, and I started working on a draft. I asked another resident, Rosa Cabrera, to translate the newsletter into Spanish for the Spanish-speaking residents, and she agreed to do it. She said she had actually done something similar at Camfield before and was happy to do it again. That resulted in the first issue. I hope it gets the word out and starts to work as a bridge between the goings on of CTA, NTC, Cornu Management and residents to improve the overall flow of information. You have a lot of people with information to share and a lot of people who don’t always have time to make it to every meeting, etc., so I see this as a way to meet in the middle. I see this as a win-win.

This newsletter is being distributed in electronic format to the “residents@camfieldestates.net” e-mail list and in paper-based format beside residents’ doors.
Finally, in the fall approximately 20 new families will move into Camfield and fill the remaining vacant apartments. A selection committee was formed during the summer to review the more than 1,800 applications that were received, along with an e-mail list, “selectioncommittee@camfieldestates.net,” to facilitate communication amongst the committee members. Presently, a welcome committee is also being formed (as advertised in the newsletter) to ease the transition of these new families to the development. As they become a part of the Camfield Estates community, it will become increasingly important that residents and staff continue to make a concerted effort to cultivate relationships amongst neighbors and keep them informed as they have in the past. Initiatives such as the ones described above will allow this growing community to continue to grow.

**Safety/Security**

Safety and security represent two of the areas that may undergo the most noticeable organizational changes after Camfield assumes ownership of their property. Presently, these areas are primarily addressed by Thaddeus on behalf of MHFA, working with CTA. As Director of Public Safety for MHFA, his role is to oversee safety and security for all of the demo-dispo properties including Camfield. This includes accepting bids and awarding security contracts, receiving, reviewing, and analyzing incident reports and daily logs, and being integrally involved in a safety task force that includes community residents, local police, representatives from property management companies, security guards, and more. Post-disposition, CTA will assume many of these responsibilities with only regulatory oversight from MHFA.

For years, Thaddeus has been actively involved at Camfield. He was instrumental in establishing NTC as well as five other community technology centers (CTCs) in the Roxbury and Dorchester neighborhoods of Boston, primarily at demo-dispo locations. Working with Paulette he applied to the U.S. Department of Housing and Urban Development’s (HUD) Neighborhood Networks program to establish NTC initially at Academy Homes (another demo-dispo property) because Camfield was being demolished at
the time. Once Camfield's reconstruction was completed and Academy Homes underwent demolition, the center was relocated to Camfield. In fact, part of Thaddeus' original vision for NTC and the other CTCs he helped establish throughout Boston was to reduce crime and potential gang-related activity by giving young people a productive way to spend their time. Case-in-point, to this day NTC continues to receive funding from his security budget. Thaddeus reflects on his thinking at that time:

*The question became, what can we do to help challenge the intellect of these young people? I felt like there were enough basketball leagues and other kinds of activities, but what was there to challenge their minds and help them to realize who they really were, and what opportunities there were in life beyond athletics or entertainment? I also wanted somewhere for the good kids to go – the ones that don't cause problems in the neighborhood but might be afraid to go three blocks over, or are at home without anything to do. That was my vision… something to allow the youth and the adults to use their minds. I don't believe we can change anybody, but we can change what's available for them to do with their lives. I wanted the center to be a place that gave them the opportunity to move forward.*

In addition to NTC, and a full-time security detail, some of the security measures that have been put in place at Camfield include a closed-circuit video monitoring system and the aforementioned "Security Tips and/or Issues" discussion forum. Currently under consideration are web-based access to the video cameras (the legality of which is being investigated) and stronger security measures at the community center so residents and staff can see who is outside the door.
In anticipation of disposition, Thaddeus is working closely with Camfield and Roxse (who has recently completed reconstruction) to devise their security plan, as he anticipates they will both need greater resident participation to forge the partnerships necessary to ensure their property’s safety. He remarks:

Safety is an important issue at Camfield, but what has to be addressed is a crime prevention program, instead of law enforcement, and refocusing on the youth. You have two totally new complexes right between Boston Housing Authority (BHA) public housing [Lenox St. Apartments] that has not received any significant structural improvements within the past 20 years and has a notorious reputation for gang activity. So it is hard to maintain. Things that have worked well have been my relationship with Paulette and Linda and their perspective. They have allowed me to do the kinds of things I need to do. The challenge ahead will be for them to put a good security plan in place given their budgetary constraints. They have numerous partnerships via me and management, but they don’t have enough direct partnerships and they don’t have a subcommittee for building those relationships in the...
Looking forward, Thaddeus will assume a volunteer position on the board of directors for NTC as a way to continue his involvement at Camfield. Furthermore, CTA is in the process of establishing a security committee (as advertised in the newsletter) for the reasons articulated by Thaddeus above, and to help chart Camfield's future direction in this arena.

**Employment**

The prospect for expanded employment opportunities holds tremendous promise for Camfield residents. It is an area where CTA and NTC have taken significant steps to establish one marquis program, and two additional programs that are under consideration.

First, Nakia is deciding whether to pursue a partnership between Camfield and the Boston Empowerment Zone to facilitate job placement for residents, that may be partially mediated online. During the asset-mapping process he arranged a meeting with Shirley Carrington, Deputy Director, to help identify community resources but also to discuss the goals of the Camfield Estates-MIT project. She was interested in establishing a partnership that would place participants in local positions. Nakia is also contemplating whether the current “Jobs” discussion forum, or the C3 job opportunity postings module (not on the site presently) could also play a role in this endeavor.

Second, NTC was awarded status as a Cisco Networking Academy in 2000. The Cisco Networking Academy Program is a partnership between Cisco Systems, education, business, government, and community organizations around the world (Cisco Systems, 2001). The program’s curriculum centers on teaching students to design, build, and maintain computer networks and prepares them for the 21st Century workplace. Graduates from the academy are eligible to become certified as a Cisco Certified
Network Associate (CCNA) leading to a professional career in the technical industry. NTC's selection as a Cisco Networking Academy was contingent on a detailed review by Cisco representatives and the successful certification of NTC instructors. Wayne reflects on the goals of the academy and how it came to fruition:

The idea came to the table because of the leadership that Paulette had at Camfield. They [Cisco] actually sought us [CTA and NTC] out. It was one of ten academies started across the United States. And it was an extremely competitive process. That was the first major issue. We had to go to Washington several times and meet with HUD, Cisco, and also Communities in Schools (CIS, the other partner with CISCO and HUD on the Cisco Networking Academy initiative). So this was the first time HUD was going to try this for really grassroots community groups. The second major issue was how to present this to the residents in a way that they saw the benefits of spending a year, or close to a year, taking a course. The third issue was CISCO's strict and rigorous training program and having to have an instructor or instructors — which was the preference, to have one primary and one backup — go through the training program.

The goal is to actually have housing residents be able to take the program, get out there and get their CCNA (Cisco Certified Network Associate) certification, and go into good, technical positions, both in terms of pay and skills. And also to do that in a way that gives back to the community, because instead of these people being outside the community these were actually people who were in the community, that by having good, technical jobs can also be around the community and help to instill that type of technical capacity across the community.

During the summer 2001, NTC offered a prerequisite course for residents interested in the CCNA course, which included 7 participants, 3 from Camfield and 4 from Roxse. In the fall 2001, in addition to offering the complete CCNA suite, NTC will also offer an Academy course in website certification.
(NTC, 2001). During subsequent semesters, NTC will offer Academy courses in Unix and IT Fundamentals.

Third, and finally, leadership at Camfield is now investigating the possibilities of running a Kinkos-like business out of NTC. This would involve residents in designing and producing flyers, signs, notices, stationary, etc., for local businesses using desktop publishing and graphics software. The purpose of the business would be to: 1) provide employment opportunities for residents (primarily youth and seniors who would have the time to dedicate part-time energies to the venture), 2) actively engage residents as creators and producers, and 3) generate a revenue stream that could augment Camfield's operating income. Paulette describes the thinking behind it:

We're looking into it. We've talked to the folks at Mirage [a club located adjacent to Camfield] about it and it would incorporate youth and a few seniors in running the business. They would produce flyers and signs for them.

I look at the center and sometimes I see the kids playing games... When they have recreational time, there should be other things incorporated. Here's how you can create a homepage. Through building those skills they learn. Creativity also reinforces the mathematics and the grammar for the youth, and the things that they may not connect to in school. I call it "active situational learning." If it is something they perceive as something to know, that facilitates their learning.

Paulette also believes that this entrepreneurial venture would leverage the abilities that residents are cultivating at NTC in the social skills course, adult A+ course, web design course, and graphics and animation course. Furthermore, as residents continue to make use of NTC and the other resources at Camfield, the skill-base of the overall development will continue to be strengthened, resulting in even greater possibilities regarding jobs and employment.
SOCIOCULTURAL CONSTRUCTIONS AND ASSET-MOBILIZATION

Sociocultural constructions are physical, virtual, and cognitive artifacts that are resonant with a given social environment and its culture as mediated by technological fluency. Asset-mobilization involves devising strategies to create community connections between residents, organizations, institutions, and businesses, which previously did not exist, toward achieving specific outcomes. The preliminary assessment revealed that the issues of youth, seniors, community, safety/security, and employment were paramount in the minds of the residents who were interviewed. For some residents at Camfield, this was confirmation of the obvious, while for others it shed light on residents' concerns in the post-reconstruction era at the development. Regardless, it is clear that, other than planning and preparing for the impending disposition, most of the programmatic activity at Camfield over the past year and a half since residents moved back to the property has had a direct or tangential connection to one of these areas.
Although I have presented the areas of youth, seniors, community, safety/security, and employment somewhat separately, they are acknowledged and addressed by Camfield leadership as being interrelated and inextricably linked. Events such as the bake sale involved both youth and seniors working together, as will the proposed business venture at NTC. NTC was not just established to provide employment training and technical courses, but also to support Camfield’s youth and address safety/security related issues. In fact, an evaluation of the technology center revealed that NTC plays just as strong a social role at Camfield as it does a functional role (O’Bryant, 2001). Efforts to solicit resident participation and refine Camfield’s safety and security plan will be bolstered by their efforts to build community and foster relationships. Community building strategies, in turn, bring individuals and families together throughout the development to stay connected and stay informed about all of the aforementioned initiatives and the cyclical relationships between these areas continues on.

Since the first cohort of residents received their computers and Internet connections, and the Camfield Estates website and C3 system went live, the use of technology has been woven into the fabric of some of the initiatives that were started or continued. More often than not, this was done in a way that combined both a physical and a virtual component, recognizing that the true power of building community online is that it can enhance, rather than supplant face-to-face, or offline community interaction.

The strategies undertaken and described above depict the evolving efforts of a community that is integrating community technology and community building. Computers and high-speed Internet in residents’ homes, NTC, the Camfield Estates website, and the C3 system, have all, to a greater or lesser extent, been brought to bear on the issues deemed important to residents. As Camfield develops as a community, similarly, a suite of sociocultural constructions are emerging that foster expression, communication, and information exchange both online and offline as shown in Table 26, and an “asset-mobilization map” is developing that portrays the local resources being utilized to vitalize the neighborhood, as shown in and Figure 39.
The above list of sociocultural constructions represents a sample of the physical and virtual artifacts that are contributing to the social and cultural milieu at Camfield in a positive way. The above map captures a snapshot of the connections that have been established among residents, associations, institutions and businesses, in the Camfield community and its environs. Undoubtedly, there are more constructions and more connections to come in the future. Paulette likens Camfield’s evolution to that of a child moving from infancy to the stage of being toddler – more mature and advanced in certain facets, yet young and in need of further development in others:

"Camfield, to me, is not in its infantile stage but rather a toddler stage. It's not an old established resident group but I think we've come a long way in comparison with groups that have been here all along. I think a commitment to purpose has a lot to do with where we are today."
Under her direction, and that of the other leaders in the community, we can expect to see Camfield, the only property in the demo-dispo program to assume complete ownership of their property, continuing forward as one of the leading housing developments in the greater Boston area.
CHAPTER 8

EARLY RESULTS

This chapter presents early results from the post-assessment of the Camfield Estates-MIT Creating Community Connections Project, conducted in August 2001, and an overall evaluation of the project to-date.

RESULTS AND DISCUSSION

The post-assessment included face-to-face interviews with the head-of-household from each of the 26 families that completed Round I of the project. These families finished the introductory courses in November 2000, received their computers that same month, and were configured for high-speed Internet access during the ensuing months.

The post-assessment survey instrument was designed to obtain comparative data relative to the preliminary assessment and summative data to evaluate the overall initiative to-date. For comparative purposes, it included the following areas (that were also included on the preliminary assessment): demographics, community interests and satisfaction, social networks, neighboring, awareness of community resources, community impressions, and community involvement and attachment. For summative purposes, the following areas were also included: Camfield Estates-MIT project, training experience, and computer and internet use.

Demographic information for the participants in the post-assessment is presented first. This is followed by a discussion of the results in relation to community social capital and community cultural capital.
Demographics

The 26 participants who completed the program represent a subset of the 32 participants who initially agreed to participate in Round I. Consequently, the demographics for these 26 participants are almost identical to the demographics of the larger superset that was represented in the preliminary assessment sample (note that complete data was only available for 19 of these 26 participants at the time of this publication). Again, the average participant could be described as a single, Black/African-American female, head-of-household. Figure 40 shows the race of participants, Figure 41 shows the gender of participants, Figure 42 shows the age of participants, Figure 43 shows the marital status of participants, Figure 44 shows the education of participants, Figure 45 shows the family size of participants, and Figure 46 shows the annual income of participants. Here, 14 participants (74%) were parents with an average of 1.5 children, while 5 participants (24%) were either single, married or divorced without children.
COMMUNITY SOCIAL CAPITAL

An increase in community social capital includes reconfigured (Contractor & Bishop, 1999) social networks (e.g., extent and proximity of strong and weak ties), increased obligations and expectations of trustworthiness (e.g., reliance on neighbors for advice or help and other social support measures), expanded access to information channels (e.g., awareness of community resources), and strengthened norms and effective sanctions (e.g., interaction that inhibits certain behaviors). Among these areas, the most significant changes at Camfield thus far have been enhanced social networks and increased access to information channels.
Social Networks

Participants' social networks have been reinforced and expanded from a number of perspectives. For example, the change in participants' local ties is shown in Table 27. The number of residents that were recognizable by name increased from 30 to 40 out of a possible 137 adults. From among those residents that participants recognized by name, although there were negligible changes in the number of people they visited, there was a doubling in the number of residents contacted via telephone and via e-mail ($t = -1.978 ; p = 0.063$).

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean August 2000</th>
<th>Mean August 2001</th>
<th>Paired-Samples T Test</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please identify those residents whom you recognize by name?</td>
<td>29.7</td>
<td>39.5</td>
<td>-1.108</td>
<td>0.283</td>
<td></td>
</tr>
<tr>
<td>Please identify those residents whom you talk to on what you would consider to be a regular basis?</td>
<td>10.2</td>
<td>9.2</td>
<td>0.604</td>
<td>0.553</td>
<td></td>
</tr>
<tr>
<td>Please identify those residents whom you have invited into your home in the last six months?</td>
<td>4.4</td>
<td>4.5</td>
<td>-0.043</td>
<td>0.966</td>
<td></td>
</tr>
<tr>
<td>Please identify those residents whom have invited you into their home in the last six months?</td>
<td>3.4</td>
<td>4.2</td>
<td>-0.790</td>
<td>0.440</td>
<td></td>
</tr>
<tr>
<td>Please identify those residents whom you have called on the phone in the last six months?</td>
<td>2.4</td>
<td>4.6</td>
<td>-1.542</td>
<td>0.141</td>
<td></td>
</tr>
<tr>
<td>Please identify those residents whom you have contacted using e-mail in the last six months?</td>
<td>1.3</td>
<td>3.0</td>
<td>-1.978*</td>
<td>0.063</td>
<td></td>
</tr>
</tbody>
</table>

*Denotes statistical significance ($|t| > 1.96 ; p < 0.05$)

Table 27: Residents' Social Networks at Camfield Estates

Similarly, the majority of participants (53%) reported that they are more connected with family and friends both within (and beyond) their local area. Almost one out of every four participants reported that they were more connected to residents at Camfield, while only one in twenty reported that they were less connected. It is also worth noting that from among those participants that were employed, almost half (46%) felt more connected to their co-workers, and from among those participants that attended a place of worship, the same number (46%) felt more connected to people there. Participants' feelings of connectedness since receiving their computer and high-speed Internet access is shown in Table 28.

Creating Community Connections
Table 28: Residents’ Connectedness Since Receiving Their Computer and Internet Access

Excerpts from the interviews provide additional context on participants’ feelings of increased connectedness to friends and family in the local area.

I have managed to get in touch with some neighbors that I have never been in touch with.

(Participant C115)

It has brought us closer together as a community. I know more now about my neighbors than I did before this program began. (Participant C33)

I think people get along better. When they took that workshop [the courses] they got to know each other. Sometimes a neighbor you’re not friendly with sends you an e-mail. Somebody from my class sent me an e-mail to say, “Hello,” after the class was done. (Participant C90)

The data suggest that participants have reinforced and expanded their local ties. The various social events described in the previous chapter such as holiday events, luncheons, and dinners, as well as the social environment established via the introductory courses and other offerings at NTC, have undoubtedly contributed to these changes. It appears that technology, e-mail in particular, may have enhanced those...
activities by connecting neighbors with other neighbors online. Conversely, it is also plausible that these events promoted greater use of technology by providing a forum to establish new relationships or strengthen existing ones offline. This demonstrates the symbiotic relationship between community technology and community building. This is an important development, particularly from a sociocultural constructionist and asset-based approach viewpoint. It suggests that the social environment at Camfield has changed. The increase in local ties implies that new connections have been formed or are being formed. This represents an important and valued outcome, because these relationships can now be marshaled to achieve more tangible outcomes.

Obligations and Expectations of Trustworthiness

The preliminary and post-assessment survey instruments included 6 measures of neighboring and the extent to which participants turn to neighbors for material and social support. There were no statistically significant or noticeable changes in any of these measures of obligations and expectations of trustworthiness. A potential explanation for this result is the possibility that measurable changes along these lines would require additional time beyond the period between the preliminary and post-assessments to manifest themselves, given the social and cultural environment at Camfield.

Norms and Effective Sanctions

Similarly, the preliminary and post-assessment survey instruments included 26 measures of participants' impressions of Camfield Estates including their reliance on neighbors to watch out for possible trouble, monitor their children, etc. There were no statistically significant or noticeable changes in any of these measures for norms and effective sanctions. Again, a possible explanation for this result is that the period of time between the preliminary and post-assessment was not sufficient to allow for measurable changes to take place.
Access to Information Channels

Perhaps the most significant changes at Camfield under community social capital have taken place with respect to access to information channels, or specifically, heightened awareness, but not necessarily utilization of community resources.

First, the number of City of Boston services, programs, and/or departments that participants had heard of or used, increased from 34 to 43 ($t = -1.276$; $p = 0.218$). Second, a paired-samples T test of participants awareness and utilization of community resources in nine categories resulted in a statistically significant increase in four of those categories (a fifth was nearly significant) including: residents skills and abilities ($t = 3.284$; $p = 0.004$), volunteer opportunities in the neighborhood ($t = 3.684$; $p = 0.002$), social services and programs provided for the community ($t = 3.240$; $p = 0.005$), and community projects, activities, and events ($t = 4.371$; $p = 0.000$). The change in participants’ awareness and utilization of community resources is shown in Table 29.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Very Well / Well Informed</th>
<th>Paired-Samples T Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>August 2000</td>
<td>August 2001</td>
</tr>
<tr>
<td>Skills and abilities of other residents at Camfield Estates</td>
<td>11%</td>
<td>32%</td>
</tr>
<tr>
<td>Associations and organizations that serve the community</td>
<td>26%</td>
<td>58%</td>
</tr>
<tr>
<td>Volunteer opportunities in the community</td>
<td>0%</td>
<td>42%</td>
</tr>
<tr>
<td>Institutions located in the community (e.g., schools)</td>
<td>74%</td>
<td>84%</td>
</tr>
<tr>
<td>Social services and programs provided for the community</td>
<td>26%</td>
<td>63%</td>
</tr>
<tr>
<td>Community projects, activities, and events</td>
<td>11%</td>
<td>58%</td>
</tr>
<tr>
<td>Businesses located in the community</td>
<td>53%</td>
<td>63%</td>
</tr>
<tr>
<td>Products and services sold by local businesses</td>
<td>32%</td>
<td>32%</td>
</tr>
<tr>
<td>Employment opportunities in the community</td>
<td>5%</td>
<td>37%</td>
</tr>
</tbody>
</table>

*Denotes statistical significance ($|t| > 1.96$; $p < 0.05$)

Table 29: Residents’ Awareness and Utilization of Community Resources

There was also a noticeable increase in participants’ awareness of employment opportunities in the community from 5% who rated their awareness as “very informed” or “somewhat informed” in 2000 to 37% in 2001.
Not surprisingly, the Camfield Estates website and the C3 system played an important role toward fostering these changes. The Camfield Estates website received high marks from participants when they were asked to rate its usefulness against each of the aforementioned nine categories, as shown in Table 30.

<table>
<thead>
<tr>
<th>Question: Please rate the usefulness of the Camfield Estates website in heightening your awareness and utilization of the following community resources.</th>
<th>Very Useful / Somewhat Useful</th>
<th>Not Useful / Don't Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills and abilities of other residents at Camfield Estates</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>Associations and organizations that serve the community</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>Volunteer opportunities in the community</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>Institutions located in the community (e.g., schools)</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>Social services and programs provided for the community</td>
<td>74%</td>
<td>26%</td>
</tr>
<tr>
<td>Community projects, activities, and events</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>Businesses located in the community</td>
<td>84%</td>
<td>16%</td>
</tr>
<tr>
<td>Products and services sold by local businesses</td>
<td>74%</td>
<td>26%</td>
</tr>
<tr>
<td>Employment opportunities in the community</td>
<td>74%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Table 30: Residents Rating of the Usefulness of the Camfield Estates Website

Shaw’s (1995) exposition of social constructionism found the MUSIC system to be similarly effective in promoting these outcomes, in addition to its strong support of social relationships (mentioned above) social events (mentioned below), and shared social goals and projects.

We can reasonably conclude that residents have a heightened awareness of community resources. The Internet and the Camfield Estates website have apparently functioned extremely well as repositories of information. At the same time, one data point does suggest that participants are not making use of certain categories of information, generally speaking. In August 2000, 79% of participants “strongly agreed” or “agreed” with the statement that they know where the local social service agencies are in their neighborhood. In August 2001, that number increased to 90% (t = 0.839 ; p = 0.413). Yet, during the same period of time the number of participants that “strongly agreed” or “agreed” with the statement that they use the local social service agencies in their neighborhood often, remained stagnant at 37%.
A heightened awareness and appreciation of community resources represents a foundational building block to revitalization through a sociocultural constructionist and asset-based lens. However, it is a necessary but not sufficient condition. In order for sustainable, community-driven change to occur, residents must take an active role in mobilizing these assets (whereas social services represent just one category of several potential resources that can be mobilized such as local businesses and the skills and abilities of residents). While according to the aforementioned statistic it may not appear to be taking place for the category of social service agencies, it is indeed taking place in other categories. The previous chapter described a number of initiatives at Camfield that are mobilizing local assets to affect community change ranging from the bake sale where adults contributed baked goods to the proposed business venture at NTC that will involve youth and seniors.

Furthermore, another way that residents are beginning to leverage local assets is through the sharing and exchange of knowledge. The post-assessment interviews provided insight to the ways this is happening. In the next section, I will explore this matter in greater detail within the context of community cultural capital.

**COMMUNITY CULTURAL CAPITAL**

Activated community cultural capital constitutes exchanging *knowledge and resources* (e.g., formal or informal sharing of information, products, services, etc.), improving *technological fluency* (Papert & Resnick, 1995; Resnick, Rusk & Cooke, 1998) (e.g., the ability to create a personal website that portrays a particular interest such as books), coalescing around *shared interests* (e.g., a group of mothers discussing effective child rearing practices), and shifting *individuals’ attitudes and perceptions* of themselves and the world (e.g., renewed confidence in their abilities, their capacity to learn, and their appreciation of assets in their community). The most noticeable changes at Camfield have been in the areas of
improved exchange of information and the transformation of participants' sense of their efficacy and capacity as a continuous learner.

**Knowledge and Resources**

As mentioned earlier, Camfield residents have significantly heightened their awareness of various community resources. Moreover, there is a general consensus that participants are better informed about what is happening locally and there is an improved communication and information flow at the development, as almost half (47%) reported that they are more aware of what is going on at Camfield when compared to before the project started.

I think we are more connected to what is going on in the area. You can go to your e-mail in terms of what is happening. Activities and things of that sort. From Paulette and Donna and the things they are doing at the center. For example, they had a bake sale and they sent out a notice about that. (Participant C54)

We are communicating more without a doubt. They send out e-mails to keep us updated. I think we are finding out more because they are sending it out. People had a problem finding out what was going on because they would say, “I didn’t get this or that” like the flyers or something that the kids would send out, then if they didn’t get it they didn’t know. (Participant C90)

People that have their computers on, they receive different e-mails from the community… you know when there are things that are being advertised, people are finding out about it. They are receiving e-mails. And they can see what they want to go to and what they are interested in. (Participant C92)
This is partly due to the fact that a core group of residents, primarily members of the CTA board of directors, and staff have taken the lead in actively contributing to the Camfield Estates website and the C3 system.

Sometimes I post questions and I did put my son's birthday party on the site and people responded. (Participant CI31)

I contribute to the site all of the time. I have posted some notices many times... things like meetings, emergency notices, summer events and more. In fact, I created two discussion forums, one for educational websites and one for tenants association notices. (Participant C28)

I have used the Camfield website to find out what's going on in the community, to set up distribution lists to easily disseminate information among certain members, to find out information about the computer center classes, and to schedule meetings. (Participant C25)

I posted a few things just recently in fact. They pertained to the Six Flags trip and the bake sale, and also I think I posted something regarding job recruitment. (Participant CI33)

As a result of their efforts, the community has benefited from an improved flow of information and communication at the development.

I check the website for news, upcoming events, to see if there are any new newsletters. (Participant CI33)

I used [the website] basically to get information and notes of what is going on in Camfield. (Participant C54)
I check [the website] for updates, events, look up other residents telephone numbers and emails, send emails to group email addresses like CTA, management, NTC classes, and general surfing. (Participant C23)

I've visited it as a resource to troubleshoot technical problems and resolve a problem I had with my connection to the Internet issues. (Participant C115)

I have used it for information purposes, to find out information about training [classes], community postings, community resources. (Participant C11)

The site visits I conducted with members of the CTA board of directors and a few additional selected families/members of staff between February and May 2001, revealed that the most popular modules were the resident profiles, calendar of events, and discussion forums. This was confirmed by the statistics from the Camfield Estates web server logs as shown in Figure 47.

![Pie Chart]

**Figure 47: Camfield Estates Web Server Percent Hits By Module**

(October 2000 to April 2001)

These visits also provided insight as to how these tools were being used. The discussion forum has primarily been used to post and respond to technical questions and problems in the "Help" discussion forum. When the system was initially released, two forums were already created, the "Help" discussion forum.
 forum and the "News and Announcements" bulletin board. Since then, six additional forums have been created including "Jobs," for employment opportunities, "Software and Virus Updates" for the latest browser and virus protection releases, "Websites" for general postings on good Internet resources, "Security Tips and/or Issues," for security updates and information, "Education Links and News," for education-related resources on the web, and "Tenants Association Notices and Announcements," for postings from CTA. However, these forums have received very little activity when compared to the Help" forum, which itself experiences sporadic use. Typical use of the "Help" discussion forum has been a one-time, question-and-answer-like exchange between two residents as shown in Figure 48. The relative popularity of the "Help" discussion forum is not surprising given its obvious utility and the often urgent nature of the postings.

![Software and Virus Updates](view_comments.jpg)

**Figure 48: Camfield Estates Help Discussion Forum**

The calendar of events has primarily been used to communicate intra-community events such as CTA board meetings, CTA general meetings, resident's birthdays, bake sales, field trips, etc., as shown in Figure 49. Residents have not used the calendar to share or advertise activities occurring outside of the development.
Residents have used the resident profiles to learn more about the skills and interests of their neighbors as shown in Figure 50. This is consistent with the fact that information about their neighbors was ranked second by residents in terms of items they wanted to see made available on the Camfield website. However, it was not readily apparent that residents were making use of this information as of yet. In other words, while residents were curious to browse through the profiles of their neighbors, very few took the next step of contacting a neighbor in this regard.

I go in to see who else is online and be nosy. (Participant C113)

I get people's e-mail addresses off of it. I just use it for e-mail addresses or I use it to find out what is going on. I also use it to find out about the local businesses and organizations too. But usually I use it to find out somebody's address. I am just being nosy, just browsing. (Participant C90)

I just go in there just to occasionally see what's happening at Camfield. (Participant C102)
Residents have browsed the business and organization database/GIS maps, while a few residents have contributed new entries to the database that they noticed were missing, including their own home-based businesses.

The chat room logs show that a number of residents have entered the chat room, but given the limited size of the online community, very few have entered at a time when someone else was present. As mentioned in the previous chapter, the "residents@camfieldestates.net" e-mail list has received moderate traffic, primarily in the form of broadcasts and updates. A few additional lists have also been created such as the "selectioncommittee@camfieldestates.net" for members of the selection committee for new residents.

Recall that the C3 system was specifically designed to engage community members as the active creators and producers of their own information and content, rather than the passive consumers or recipients. Thus far, I believe it has been moderately successful in this regard, particularly in light of the fact that all of the system's content has been generated by the Camfield community, for the Camfield community.

The resident profiles were created by community members as part of the introductory course at NTC.
The business and organization database/GIS maps are the result of residents’ efforts in mapping the assets within a 1.5-mile radius of their property. The calendar of events, discussion forums, and e-mail lists constitute an information and communications infrastructure that is now being defined, redefined, and utilized by members of the Camfield community in some way, shape, or form. In summary, the C3 system has experienced appreciable use for communicating and sharing information about general news, announcements, and events at Camfield, and auspicious activity in the discussion forums where neighbors are just beginning to rely on other neighbors for technical assistance. This holds promise for an even deeper exchange among residents in the future.

The logs from the Camfield Estates web server show that site usage has continued to increase steadily as shown in Figure 51 and Figure 52 (sessions have been logged since the site went live, while daily and monthly hits have only been logged since May 2001). Repeat sessions refers to returning registered users, total sessions refers to new and returning registered users (only Camfield residents, staff, and guests are registered for the site). Daily hits and monthly hits refer to registered and non-registered users including general visitors to the site. Looking forward, this also suggests that the Camfield Estates website will continue to play a more significant role in the day-to-day lives of residents, and particularly

![Figure 51: Web Server Sessions and Daily Hits](image1)

![Figure 52: Web Server Monthly Hits](image2)
as the participants in Round II complete the introductory courses and receive their computers and high-speed Internet connections.

To put these patterns of use of the Camfield Estates website and the C3 system in context, it is important to note that residents are also making regular and productive use of their computers and high-speed Internet connections in areas unrelated to the local community. 63% of participants reported that they use their computer without the Internet (i.e. using their computer offline, meaning, no web browser) either "everyday" or "almost everyday," while 89% reported that they use their computer with the Internet (i.e. using their computer online, meaning, with a web browser) with the same frequency. The average number of hours spent on the computer by each participant was 5 hours per day. Stories portraying the benefits accrued to each family abound as they have perused the Internet for information and other resources.

I read the newspaper and do searches on information related to spinal cord injuries. I used to run my own business, but I was shot in the back about 2.5 years ago and now I use the Internet to look up information related to my injury. (Participant C14)

My sister is dying with cancer so I am researching how to get information for her, who to call, even medicine. There is a system where if you get certain kinds of medication you can find out what it is for and the secondary effects. (Participant C92)

Basically, right now the kids see it as a resource that they can use to enhance themselves. Some of them view practice tests on the Internet [and] as a result of that they are getting higher scores in their classes... I would say for the most part they are doing better in school. (Participant C54)
I look up a lot of things on books. And I love to look up the latest stuff on African-American literature. I can buy it online and what I like actually. It's like a huge encyclopedia. For example, I type African-American literature and there it all is. They bring it up. Books that have been out of print. The knowledge is absolutely phenomenal. Absolutely. Just about every subject. So, it's great. Anytime I want to know something [my son] will say go type so-and-so, something dot com and I do it and it just comes up beautifully. It's an encyclopedia and I love it. Truly love it. (Participant C108)

When I got the certificate from your education program I started in status line [an entry-level position] and now I am in publication [a department further up the hierarchy] and I am working my way up. (Participant C92)

And to be able to shop is important because I can’t [physically] go in stores. There are days you don’t feel like going to the store. You don’t feel good and you might not feel good for a month. You don’t feel good but you need, say, a nightgown. Well, you go online, you can find that nightgown and the color you want. Now if they got it, it’s right there on screen. That comes to your door. You never had to go outside your house... If you don’t have the means, you don’t have a car. You can’t get to, say, Sears or Macy’s. You don’t have to. It can come to your door. And I love it. I love it. In fact I just ordered today. (Participant C2)

While these personal accounts are inspiring, particularly from the perspective of each family as a self-contained entity, none of them elucidates the role of technology for the purpose of building community, which is born from the perspective of each family in relation to one another. The comments above reflect the pursuit of information and resources for individual or perhaps family-related purposes. Such activities would be socioculturally constructive and asset-based if they sought to express indigenous knowledge, exchange community resources, or leverage local assets toward collectively defined outcomes. Not surprisingly then, one of the factors that competes with an appropriate emphasis on
local resources and local issues via technology, is the plethora of information and content that is targeted beyond the confines of the community. To this point, I discuss residents' oft-inclination to explore non-local interests as opposed to local issues in following section.

Shared Interests

While participants have made use of the Camfield Estates website and the C3 system for local purposes, their activity around shared interests appeared to be taking place with people or resources located outside of the neighborhood (in cyberspace). Stated differently, the impetus to connect with other people or resources was typically derived from characteristics that transcended locality. For example, some residents sought out information about an illness they were dealing with, or a family member was dealing with.

I've also had cancer. I've had breast cancer. And I can find out new medicines for it and different diets that are healthy for it and it goes on and on and on. And it is all for my benefit. And also for my husband. He has prostate cancer... When I first brought up the chat room there were was something like gardening... there was gardening, there was talking about movies, the different movies coming up, and there was cancer. It was two other things on there. I picked cancer. (Participant C2)

Alternatively, there were also residents who sought out individuals with the same nationality as theirs.

[The people from my country] have an online society. Dahai.org is the name of the site. So, we use this organization to coordinate our activities all over the world. Everything we do is facilitated by this website so having magnificent access helps tremendously. It is more efficient. We are forming this organization in Boston and we undertake campaigns from time-to-time and some of the petitions with our demands and people sign them. So, in all the activities we
undertake, having access to the Internet and the computer is almost a must now. We couldn’t be as efficient without it, in terms of our tools. (Participant C115)

For some, their activities were a reflection of their ethnicity.

I go into Yahoo and I click on and once I get into there and I put in African-American literature and it will come up. I will go down the list and I usually pick current African-American literate. It will come up with the latest literature like Teri McMillan, or Iyanla Vanzant, I love her... or who is on Oprah. If I want to look at old books and if I want to look up African-American authors, I can look them up and all the ones I want... and [it] tells you if it is out of print and how you can get them... The computer... is very informative. It also gives me something at my fingertips. Something that I just have to know about I can look it up or the book or the author’s title especially if I want it now. There is no lapse of time. It is right there at my fingertips. (Participant C108)

While for others, their interests were situated outside of the local community.

My whole focus is somewhere else and I’m not so much into my neighborhood here and my community here. If that were not the case, I am the type of person that likes to be involved in stuff but my goals and priorities are different. There are other important things that have a higher priority. If I could resolve those problems, it would be different. (Participant C115)

The logs from the proxy server provide an additional perspective as shown in Table 31. Of the top ten websites at Camfield in January 2001, two were ethnically-oriented, blackplanet.com and espanol.yahoo.com, two were search engines and e-mail sites, yahoo.com and msn.com (which includes hotmail.com), one was entertainment-related, launch.com and two were locally-oriented, camfieldestates.net and boston.com. To some degree this makes intuitive sense as non-local sites typically
offer significantly more content than local sites. At the same time, while it signifies the importance of local content, it also points to the abundance of other online resources that vie for users’ attention.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Domain</th>
<th>Rank</th>
<th>Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>blackplanet.com</td>
<td>11</td>
<td>musicmatch.com</td>
</tr>
<tr>
<td>2</td>
<td>yahoo.com</td>
<td>12</td>
<td>nick.com</td>
</tr>
<tr>
<td>3</td>
<td>msn.com</td>
<td>13</td>
<td>wwf.com</td>
</tr>
<tr>
<td>4</td>
<td>launch.com</td>
<td>14</td>
<td>gohip.com</td>
</tr>
<tr>
<td>5</td>
<td>espanol.yahoo.com</td>
<td>15</td>
<td>peoplelink.com</td>
</tr>
<tr>
<td>6</td>
<td>camfieldestates.net</td>
<td>16</td>
<td>shockwave.com</td>
</tr>
<tr>
<td>7</td>
<td>oneplace.com</td>
<td>17</td>
<td>uproar.com</td>
</tr>
<tr>
<td>8</td>
<td>boston.com</td>
<td>18</td>
<td>microsoft.com</td>
</tr>
<tr>
<td>9</td>
<td>aol.com</td>
<td>19</td>
<td>simmons.edu</td>
</tr>
<tr>
<td>10</td>
<td>collegeclub.com</td>
<td>20</td>
<td>nbci.com</td>
</tr>
</tbody>
</table>

Table 31: Camfield Estates Proxy Server – Top 20 Domains (January 2001)

Another worthwhile perspective is derived from the patterns of use reported by participants themselves. When asked how often they go online to obtain national information, information local to the City of Boston, and information local to Camfield Estates, the number of participants that responded “Frequently” dropped from 53% to 26% to 11%, respectively. Again, this is not to suggest that local information and communication is not being valued because there are vast amounts more national content than Camfield-specific content. However, it does suggest that although this category of content is indeed important, it still competes with non-local opportunities to obtain information and connect with people.

In summary, there were no noticeable changes with respect to residents coalescing around shared interests with members of their local community. Recall from the preliminary assessment that almost half of participants (45%) expressed no interest in sharing information with others by using computers and the Internet. This suggests that the pre-existing social and cultural milieu at Camfield has contributed to the lack of activity in this area. Furthermore, from among 10 measures of community involvement, including Rothenbuhler and Stamm’s measures (Rothenbuhler, 1991; Stamm, 1985), 6 measures of community attachment, and 2 measures of community satisfaction, there were no
statistically significant or noticeable changes to these measures. Also recall from the preliminary assessment that participants already demonstrated relatively high levels of community involvement and attachment. This could easily explain why these measures have experienced little to no change. It is also possible that this is explained by the existing demands on participants' time. The participants in this study were all adult, employed, heads-of-household, many of whom were also members of the CTA board. Meanwhile, measurable increases in youth involvement or senior involvement may have taken place, that were not captured by this investigation. The issue of participants' lack of time will be revisited shortly.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequently</th>
<th>Occasionally</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you go online to obtain national information such as news, sports, etc.?</td>
<td>53%</td>
<td>37%</td>
<td>0%</td>
<td>11%</td>
</tr>
<tr>
<td>How often do you go online to obtain information local to the City of Boston such as news, activities and events, weather, etc.?</td>
<td>26%</td>
<td>58%</td>
<td>16%</td>
<td>0%</td>
</tr>
<tr>
<td>How often do you go online to obtain information local to Camfield Estates such as news, activities and events, meeting schedules, etc.?</td>
<td>11%</td>
<td>47%</td>
<td>32%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Table 32: Residents' Patterns of Use for National and Local Information

The patterns of use of the Camfield Estates website hold promise that the community's interest in local issues may be steadily broadening. Increased use of the site is very likely a reflection of residents' increased interest in the affairs of the community. Moreover, in the next section I discuss participants' expressed desire to create their own content, which could also lend further credence to this point. The creation of local content could certainly be indicative of greater levels of community engagement, as reflected by more frequent and significant contributions to the Camfield Estates website. On this matter, I will now discuss participants' progress toward achieving technological fluency and their ability to make "things" using technology such as websites, flyers, newsletters, photo albums, etc.
Technological Fluency

The most popular uses of the computers and high-speed Internet connections by participants are shown in Table 33.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Activity</th>
<th>Occasionally/Frequently</th>
<th>Never/Seldom</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Browse the Internet</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>Send/receive electronic mail</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>2</td>
<td>Research a topic, hobby or interest</td>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>4</td>
<td>Communicate with family/friends</td>
<td>84%</td>
<td>16%</td>
</tr>
<tr>
<td>5</td>
<td>Career or job exploration</td>
<td>79%</td>
<td>21%</td>
</tr>
<tr>
<td>5</td>
<td>Access educational resources for children</td>
<td>79%</td>
<td>21%</td>
</tr>
<tr>
<td>7</td>
<td>Play games</td>
<td>74%</td>
<td>26%</td>
</tr>
<tr>
<td>8</td>
<td>Use an office application (i.e. word processing, spreadsheet, etc.)</td>
<td>68%</td>
<td>32%</td>
</tr>
<tr>
<td>9</td>
<td>Purchase something online</td>
<td>63%</td>
<td>37%</td>
</tr>
<tr>
<td>10</td>
<td>Work or school-related tasks</td>
<td>58%</td>
<td>42%</td>
</tr>
<tr>
<td>11</td>
<td>Use an instant messenger</td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td>11</td>
<td>Access healthcare information</td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td>11</td>
<td>Design a document or presentation for family/friends</td>
<td>47%</td>
<td>53%</td>
</tr>
<tr>
<td>14</td>
<td>Business or entrepreneurial activity</td>
<td>42%</td>
<td>58%</td>
</tr>
<tr>
<td>14</td>
<td>Access social service information</td>
<td>42%</td>
<td>58%</td>
</tr>
<tr>
<td>16</td>
<td>Continuing education</td>
<td>37%</td>
<td>63%</td>
</tr>
<tr>
<td>16</td>
<td>Search for housing</td>
<td>37%</td>
<td>63%</td>
</tr>
<tr>
<td>18</td>
<td>Contribute content to the Camfield Estates website (i.e. calendar)</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>19</td>
<td>Design a flyer, poster, or newsletter</td>
<td>26%</td>
<td>74%</td>
</tr>
<tr>
<td>19</td>
<td>Contribute content to another website (i.e. articles)</td>
<td>26%</td>
<td>74%</td>
</tr>
<tr>
<td>21</td>
<td>Home banking</td>
<td>21%</td>
<td>79%</td>
</tr>
<tr>
<td>21</td>
<td>Participate in online discussion groups</td>
<td>21%</td>
<td>79%</td>
</tr>
<tr>
<td>21</td>
<td>Place telephone calls</td>
<td>21%</td>
<td>79%</td>
</tr>
<tr>
<td>21</td>
<td>Online chat</td>
<td>21%</td>
<td>79%</td>
</tr>
<tr>
<td>25</td>
<td>Investing</td>
<td>11%</td>
<td>89%</td>
</tr>
<tr>
<td>26</td>
<td>Design a web page</td>
<td>11%</td>
<td>89%</td>
</tr>
<tr>
<td>27</td>
<td>Create an online photo album</td>
<td>5%</td>
<td>95%</td>
</tr>
</tbody>
</table>

Table 33: Residents' Most Popular Uses of Their Computer and Internet Access

The top-ranked activities that stand out are #2, sending/receiving e-mail and researching a topic, hobby or interest (89%), #4, communicating with family/friends (84%), and #5, exploring career or job opportunities (79%). These activities are consistent with earlier observations that residents are
connecting with family and friends, pursuing interests, and heightening their awareness of employment opportunities. Interestingly, there are also several creative activities that were ranked low such as #18, contributing content to the Camfield Estates website, #19, designing a flyer, poster, or newsletter and contributing content to another website, #26, designing a web page, and #27, creating an online photo album.

A closer examination reveals that although these creative uses of technology were not ranked high, there was a strong desire among participants to engage in this type of activity. In fact, another major theme that emerged during the follow-up assessment was that participants wanted to use technology in creative ways but were often too busy to do so or their schedule was not amenable to attending follow-up courses. This issue ran consistently throughout the interviews.

I'm so into this stuff that I don't have time to do the things that I want to. I started building a website but I couldn't continue. That's what I would really like to do is build a website. Hopefully, one of these days that is something I will really learn how to do. You have to consciously put stuff aside, but when there are more important things, more immediate, you cannot afford to. You just cannot afford to. Otherwise, the tools are right there and the opportunities are right there and you know how useful the stuff is, but first things first and just keep hoping that some of these things will ease up. (Participant CI I5)

I have been buying lots of technology books and I look at them and they keep piling up, and I just look at them. It's kind of sad. (Participant CI I5)

Doing an invitation, [or] something creative like putting a website up. I think time is the issue that is why I haven't done them. (Participant CS4)

I want to setup my own website. Time has been the main constraint. (Participant CS6)
Build a website. I haven't done [it] because I don't know how to. I’ve been too busy, honestly.  
(Participant C90)

There are a lot of things on my job where people take a lot of digital pictures and do a presentation summary of what happened. So it would be nice to learn how to move pictures or films and move them into the computer system. That would be something that would be nice to add to the program. But we need more classes on Saturdays for those people who work. Before I used to go to the classes, but now I can’t because I get home too late. So, they need to offer classes at a time that is more flexible to my schedule. A lot of people want to join in, but during the week it is impossible because of the traffic or they work too far, and they are missing out on a great opportunity. To tell you the truth, the only people taking the classes at night are those that aren't working. The people who really need it, can’t make it. We really need it. (Participant C92)

I would like to design my own web page, I have been busy doing other things on the CPU.  
(Participant C123)

I would love to build a web site. I’ve never gotten around to it only because of time constraints.  
(Participant C133)

At the same time, there are residents who are using technology in fluent ways.

I have been working on my own web page, an online photo album from my cruise of Europe. I have done several PowerPoint presentations for people. I did one for my job of a friend's baby shower. I download and upload digital photos of Jamaica Pond, and share with friends all over the world. I sent in a photo of the recent rainbow and mailed it to Channel 7 News who said that they were looking for photos recently. They used the image on television! (Participant C11)
I use my computer all the time to create flyers and business cards. I like how you can buy the business card paper and just print them out from your computer. (Participant C28)

I design flyers with Microsoft Publisher and calendars. (Participant C23)

I make calendars with the kids pictures with the picture disc. I make birthday cards, friendship cards, hello cards and other stuff. With the PowerPoint and the presentations, I do that kind of thing too. I play around with it. I send it in-house at work and I ask them how it looks. Sometimes when we have meetings, we have a deadline for a new program and we will do [a PowerPoint presentation] on the computer and send a sample to human resources. I think it is so cute. (Participant C90)

And equally as important, there are other participants who have yet to move fully into that space but see some value in doing so.

On a personal note, that's the only way I can feel validated. I have to feel like I use something as a means to get me to another point where I can produce something from it. I'm at a point where I want to make my contribution and I've got a lot of different ideas that I'm working on now. (Participant C56)

Again, while these endeavors are foundational to the sociocultural constructionist and asset-based paradigm, it is only when the resulting physical or virtual constructs are shared with other residents that they represent a positive contribution to the community, as opposed to a single individual or family. Because only then do such activities have the potential to reshape the culture of the community.

There are a few examples of activities taking place at Camfield that are consistent with this notion, many of which were presented in the previous chapter. The newsletter initiated by Nakia is one example. It
can help catalyze resident engagement in a number of ways including participation with the security committee or the welcoming committee. This moves the community closer to the outcomes of improved safety and a stronger community. The proposed business venture at NTC involving youth and seniors producing flyers, signs, posters, etc., can cultivate a sense of pride in the community and at the same time provide a meaningful service to local businesses like Mirage. This moves the community closer to the outcomes of better employment for residents, more meaningful activities for youth and seniors, and greater financial independence for the technology center. Even the simple act of posting the youth bake sale to the "News and Announcements" discussion forum and the community calendar of events, provided greater exposure for the efforts being put forward by the youth. This moved the community closer to the outcome of engaging the youth.

In addition to these existing activities, there was supposed to be a course in web design offered at NTC during the summer 2001. Participants' desire to learn web design was a prevalent theme during the preliminary assessment so in response to this finding the course was slated. As mentioned in the previous chapter, it was unfortunately deferred due to unanticipated delays in completing the courses for Round II. Nevertheless, it is clear from many of the quotations above that the demand still exists. When the course finally comes to fruition it will tap into this latent potential and hopefully promote greater levels of expression and creativity by residents.

One possible explanation why some residents have not chosen to make time for such activities thus far is that creative uses of technology were sometimes relegated to the category of leisure activities and often subordinated to more immediate, pressing concerns in their midst. Again, the participants in this study are mostly working adults. Meanwhile, there are several youth at the development that have been engaged in technologically fluent activities since NTC opened its doors, by way of the graphics, animation, and website design courses being offered there. One factor that partially explains the success of the Computer Clubhouse (Resnick, Rusk & Cooke, 1998) in engaging its constituent population in these types of activities has been its exclusive focus on a youth population. For adults at Camfield, with
multiple, competing demands on their time such as their jobs and their children, time is a scarce resource. As mentioned in Chapter 4, this phenomenon was also observed during recruitment efforts for Round II. A “lack of time” was one of the most commonly cited reasons for residents’ non-participation.

This theme highlights a related trend that also emerged during the post-assessment, participants’ making the greatest strides toward technological fluency, were those receiving some form of ongoing support for continuous learning. This was not surprising, however, the interviews clearly demonstrated the difference between users who had structures to support their learning and those who did not. Those who did not have a readily accessible or convenient means of support made only moderate progress toward becoming more technologically fluent since completing the introductory course, despite their desire to do so.

For those that had support, it came in various forms. In some cases, a family member, typically a son or a daughter, or a close friend provided technical assistance after they completed the introductory course.

> *If I have any kind of questions or answers, I usually ask my son and if he is not around I just go to the computer center and I ask one of the gentlemen and tell them what is wrong…. My son has always been into computers. He is always showing me different things about the computer and then e-mailing about what it can do and he is very good… he loves to do the fancy sheets [spreadsheets] and he loves to make different pictures. So he keeps me up-to-date. He will say look at this and this and when he shows me stuff I say, “This is too much!”* (Participant C108)

> *I can do things like printing up envelopes and cards for [my business], but it takes me a long time to do some of the stuff so I get people to help me like my daughter.* (Participant C111)
In other cases, as evidenced by the last quotation, some people relied on the staff at NTC, to the extent that they were home during the center's hours of operation.

And I'm saying, wait a minute, "How did they do that?" So now I'd write it on a piece of paper. I'd always have a pencil and paper beside me, so when the person, Garfield, would come from the computer center I can say to him, Garfield, "How did they do this in colors?" So, you know, now you're fascinated even more because you're learning, you're constantly learning something as you're doing it. (Participant C2)

And so there's a thing in the chat room [that] if you don't like the topic there is another way you can... go further which I don't know how to do. I don't know how to do it right now, but I need to ask the person who comes here, who is Garfield, "How do I do that?" Once I know that then I can get to what I want. (Participant C2)

As indicated by the last quotation above, some form of support is critical to continued progress. Those without it often expressed the desire to do something that they "didn't know how to do" or "didn't have the right equipment" to do.

I haven't gone far into doing creative tasks. I don't know how to do them yet and that is why I would like to take classes, say, on scanning so that way I could send family members pictures of how the family is growing and things like that instead of having to mail them or maybe they get lost or whatever. (Participant C92)

Yes, I would like to create my own web site, and a bunch of other things. I do not have the equipment like a printer. (Participant C117)

I would like to create a web page but I do not have the skills to do so. (Participant C23)
I would like to scan pictures to make cards... but I do not have a scanner. (Participant C131)

I would love to design a web site for myself. I would like to learn how to use Photoshop, digital camera and the Web cam all for the purpose of building my web site. I need to get more training in these areas. (Participant C28)

I wanted to do a birthday card but I wasn’t able to do one... the other day... because I didn’t know how to. (Participant C111)

Ironically, residents have not turned to other residents en masse for such support.

Creative uses of technology often require particular skills and knowledge that lie beyond an introductory familiarity with computers. There is no doubt that residents could easily master these skills, but the challenge is to identify a convenient means to develop them on an ongoing basis. Fortunately, as evidenced by the excerpts above, participants harbor the desire to produce and create and learn. Many have moved beyond their initial fears of technology to regard themselves as competent and capable learners. In the next and final section, I discuss this transformation.

**Attitude and Perception**

Perhaps the most significant change at Camfield with respect to community cultural capital, has been a shift in participants’ attitudes and perceptions of themselves as learners. This was another strand that ran consistently through the interviews.

*The training has changed my life in more ways than one. A good example of this is that I found enough courage to teach myself HTML. Had I not had this opportunity, I might still be looking*
to muster up the courage. I know that technology is key to the future and I know that I could personally do anything with it that I put my mind to. (Participant C33)

Technology, I believe it can be, at times, frightening. So it enabled me to see that it is not something to be frightened of, it is something for me to get used to... to use it and learn about and put it in my daily activities. Because like it or not, it is here to stay and whether you want to be part of it, it is always going to be moving towards an improvement in all areas of technology and right up... to be left behind, join the group and go with the flow. I think it has... it has taught me that sometimes you think things are too far out of your reach. It is there if you seek to get it, you will get what you want. But basically, it is your desire to get it. And the Internet has taught me that... it doesn't matter how... whatever class you are, with the Internet it doesn't discriminate. Once you get it, you can get the information you need. (Participant C54)

I feel more confident now. Before I wouldn't touch a computer and now I play around with it. Before I used to ask questions, “How do you do this? How to you do that?” And now I am much more likely to go into the computer and do it myself. To go in and find out what I want. (Participant C92)

And as a result, participants now aspire to reach even greater heights technologically. In similar fashion, Hooper’s (1998) exploration of cultural constructionism revealed “positive attitudes about programming” among the students at Paige Academy as a result of their experience in a computer class. As further evidence of participants’ renewed commitment to learning, according to NTC attendance records, the number of new, adult (18-years and older) registrants has almost doubled from 19% to 34% over the past year. Another factor that may have contributed to this increase was our earlier decision to require the participation of at least one adult from each household in order to receive the computer and Internet access.
The following quotes were in response to the question, "What follow-up courses/experiences are you planning on engaging in based on your training experience?"

I am particularly interested in the Cisco Systems certification. I would also like to take the A+ certification as well. (Participant C113)

I'm hoping to utilize the opportunity to deepen my knowledge of networks. (Participant C115)

Web design, continuing with Cisco Systems and desktop publishing. (Participant C23)

I think I might tackle C++ or XML next. I think I may even contract to build websites at this point. (Participant C33)

C++ programming and CISCO networking classes. (Participant C56)

What I would like to do. I want to take web design. And I want to learn how to take the computer apart and rebuild the computer because I want to know what is going on. I want to know the time. Everything is computerized. You have to touch-tone that and punch this and enter that. I want to learn web design because it looks good. It looks fun. I want to have my own website. I might want to sell some things. Some cookies. What if I had my own business? That would come in handy. (Participant C90)

I recently started an online computer skills training program where I will get a certification and a laptop to complete it. The program is through Sullivan and Cogliano and the nice part about it is that my job actually pays for the course. Hopefully, I will be in college sometime next year. (Participant C131)
Putting aside the question of what competencies residents have or have not developed, participants have cultivated the meta-competence of a renewed confidence in themselves and their ability to learn. Again, this represents a significant development, particularly from a sociocultural constructionist and asset-based perspective. It suggests that the culture at Camfield has changed. Participants' experience has reshaped their attitudes, beliefs, and ways of interpreting the world, and it has done so in a positive way. As a result of this transformation, it has given them a greater appreciation of their strengths (instead of their weaknesses), and it has given the community a greater appreciation of its most basic assets, the skills and abilities of its residents (as opposed to its needs).

**SUMMARY**

The following is a summary of the early results from the post-assessment:

- **Participants have reinforced and expanded their local ties.** The number of residents that were recognizable by name increased from 30 to 40 out of a possible 137 adults; the number of residents contacted via telephone and e-mail doubled ($t = -1.978 ; p = 0.063$); and 53% reported that they were more connected to family and friends in the local area.

- **Participants have a heightened awareness of community resources.** The number of City of Boston services, programs, and/or departments that participants had heard of or used increased from 34 to 43; a paired-samples T test of residents awareness and utilization of community resources in nine categories resulted in a statistically significant increase in four of those categories (a fifth was nearly significant) including: residents skills and abilities ($t = 3.284 ; p = 0.004$), volunteer opportunities in the neighborhood ($t = 3.684 ; p = 0.002$), social services and programs provided for the community ($t = 3.240 ; p = 0.005$), community projects, activities, and events ($t = 4.371 ; p = 0.000$), and employment opportunities in the community ($t = 1.924 ; p = 0.070$); the Camfield Estates website
and the C3 system received high marks from participants when asked to rate its usefulness in this regard.

- **Participants are better informed about what is happening locally and there is an improved communication and information flow at the development.** Almost half of participants (47%) reported that they are more aware of what is going on at Camfield when compared to before the project was started; this was partly due to the fact that a core group of residents and staff have taken the lead in actively contributing to the Camfield Estates website and the C3 system; the most popular C3 modules were the resident profiles (31% of traffic), calendar of events (18% of traffic), and discussion forums (13% of traffic) on the Camfield Estates website, and while these modules experienced moderate use, their traffic has steadily increased since the site went live.

- **Participants desired to use technology in a variety of creative ways but were often too busy to do so or their schedule was not amenable to attending follow-up courses.** From among the top-ranked uses of their computer and Internet access, participants' ranked several creative activities low such as contributing content to the Camfield Estates website (#18), designing a flyer, poster, or newsletter (#19) and contributing content to another website (#19), designing a web page (#26), and creating an online photo album (#27). One possible explanation why some residents have not chosen to make time for such activities is that creative uses of technology were sometimes relegated to the category of leisure activities and often subordinated to more immediate, pressing concerns in their midst. In other words, for adults at Camfield, with multiple, competing demands on their time such as their jobs and their children, time is a scarce resource. Similarly, a “lack of time” was one of the most commonly cited reasons for residents' non-participation during assessment and awareness (Phase I).

- **Participants’ making the greatest strides toward technological fluency, were those receiving some form of ongoing support for continuous learning.** This was not surprising, however, the interviews clearly
demonstrated the difference between users who had structures to support their learning and those who did not. Those who did not have readily accessible or convenient means of support made only moderate progress toward becoming more technologically fluent since completing the introductory course, despite their desire to do so. For those that had support it came in various forms. In some cases, a family member, typically a son or a daughter, or a close friend provided technical assistance after they completed the introductory course. In other cases, participants relied on the staff at NTC, to the extent that they were home during the center’s hours of operation.

- Participants have cultivated the meta-competence of a renewed confidence in themselves and their ability to learn. Qualitative responses from the one-on-one interviews revealed a shift in participants’ attitudes and perceptions of themselves as learners. Several participants described their personal transition of moving from a reticence toward technology to envisioning themselves as (or taking actual steps to becoming) web designers, network administrators, and programmers. In particular, their participation in the training has given them a greater appreciation of their strengths, and it has given the community a greater appreciation of its most basic assets, the skills and abilities of its residents.

In the next chapter I present five case studies, four of Camfield residents and one of a member of Camfield’s staff. These case studies shed additional light on the conclusions drawn from the post-assessment, while also providing a more textured discussion of the impact of the project on the individuals profiled, their families, and their community.
CHAPTER 9

CASE STUDIES

This chapter presents case studies of the experiences of five people involved with the Camfield Estates-MIT project including four residents, Paulette Ford, CTA president and local teacher, Diane Atkins, longstanding resident and cancer survivor, Constance Terrell, CTA board member and entrepreneur, Nakia Keizer, Camfield Estates-MIT project leader and graduate student, and one member of Camfield's staff, Donna Fisher, Director of Community Relations.

As mentioned previously, in order to highlight different perspectives, these individuals were purposely chosen to be demographically diverse (primarily with respect to age and family composition) as well as in terms of their experience with the project, and not necessarily to be statistically representative of the demographics at the development or representative of the typical experience of a resident involved with the project. Initial visits took place in the participants' residence and lasted between 20 minutes and two hours. Thereafter, each of the five individuals participated in relatively brief, periodic follow-up interviews administered via telephone or face-to-face visits, between January and July 2001. A final, summative interview took place in August 2001 and lasted between two and three hours.

Each of the case studies portrays a different aspect of the project's impact on Camfield. Paulette's story provides an important and grounding viewpoint on the past at Camfield Gardens and the future at Camfield Estates. As a founding member and president of CTA since its inception, we are able to see the project through her historical lens and how it has influenced the development since reconstruction was completed. Diane Atkins' experience with the project demonstrates the positive influence the community can exert on its members. As a cancer survivor who is now surviving emphysema, Diane
exemplifies the importance of demonstrating relevance clearly as a means toward achieving a social and cultural resonance. Once the project's staunchest opponent she is now perhaps its' strongest proponent. Constance Terrell's narrative provides a deeper context for understanding what it means to move from technological literacy toward technological fluency as an entrepreneur. A local business owner for more than fifteen years, she has tapped into local resources, including family, friends, and NTC, to mold technology in a way that advances her community-minded agenda. Donna Fisher, Director of Community Relations at Camfield, and the former Resident Social Service Coordinator, has been involved at Camfield in some capacity for more than a year. As a non-resident, her formal participation with the project offers a unique perspective on the challenges of community technology and community building in a low- to moderate-income housing development. She has played a role in encouraging residents to become more involved and make better use of the established infrastructure. Finally, as project leader, Nakia Keizer's personal coming of age parallels that of the Camfield Estates-MIT project. His chronicles since returning to the renovated property depict the essence of being involved as an active agent of change, the social and cultural shift to becoming an active producer of information and content, and the benefits that are accrued thereof. Essentially, his story brings the concepts of sociocultural constructionism and an asset-based approach to community technology and community building to life.

**CASE STUDY #1 – PAULETTE FORD:**

**THE PAST AT CAMFIELD GARDENS, THE FUTURE AT CAMFIELD ESTATES**

The early 1990's marked a period of time when residents at Camfield Gardens were faced with a clear and present need to take action. In 1991, the U.S. Department of Housing and Urban Development (HUD) posted notices on residents' doors that they were going to foreclose the mortgage of the defaulted landlord and auction the property to the highest bidder. Almost immediately, residents organized at the nearby Columbus Ave. AME Zion Church to discuss their options and develop
strategies, and soon after a steering committee was formed. Although the development was constructed two decades earlier, and there had been attempts to organize residents in the past, there was no formal representative governing body in place at the development at that time. So in the spring of the following year, the Camfield Tenants Association, Inc., was chartered and Paulette Ford, a member of Columbus Ave. church and the steering committee, was elected as the first president of the board. This thrust her into a leadership role at Camfield where she has remained to this day.

Community Building at Camfield Gardens

Paulette and her husband decided to move to Camfield Gardens in the early 70's because it was affordable and would also enhance the educational opportunities for their five children. Paulette, a teacher, valued the importance of education and wanted to ensure that her children would attend good schools. Throughout the 80's the Ford family would witness the gradual deterioration of Camfield leading up to HUD's attempted foreclosure and sale. After convincing HUD not to sell the property, Paulette and the other members of the CTA board of directors began organizing residents to take an active role in determining outcomes for their community.

What we told the residents was that there are only two ways it can go. Somebody else comes in, develops the property and tells them how to live and where to live, or they take a risk and try to express how they feel they should live and what they feel is necessary. And we thought that was very important because then you begin to see a process of ownership and once you see the process of ownership... then you see the move towards having a vested interest in what happens to that property what happens to that community, and that's what helps build and stabilize the community.

We had lots of meetings and we walked them through the process... we kept telling them that it's more important that they make the decisions. If they want to have something done to them
or did they want to at least initiate it and have control over the process? And we stayed with that issue. They knew best as to what needed to happen and our role was to articulate and represent what they wanted us to do. And then the frequency of meetings increased – general meetings, cluster meetings – to get them involved. There was a lot of dialogue. We also had events. We had bake sales, yard sales, car washes, unity days... [These events] got people together.

Eventually, residents were faced with a very important decision – either seek to rehabilitate the property through HUD’s HOPE program or demolish it as part of HUD’s “demonstration-disposition” or “demo-dispo” program, which was under the aegis of the Massachusetts Housing Finance Agency (MHFA).

Connector pins holding the building together had rotted away or in some case were never installed. There were problems with the water, leaks, problems with sewage backup because of the way the plumbing was under the building, the weight of the building was pressing down on the plumbing. There were some units that had been offline almost since the place had opened in the 70’s. And at some point in time we had to make the choice... rather than do a rehab, we said, “No, tear it down.”

Paulette and others recognized that the decision to demolish the property was a calculated risk. It involved relocating each family, making it difficult to stay connected, and there were no guarantees they would return to the community they once called home. After assuaging these legitimate concerns, her family and neighbors relocated from Camfield Gardens in 1997. With great anticipation, they returned to the newly constructed Camfield Estates two years later.
When Paulette arrived back at Camfield Estates it was the culmination of years of hard work, but also the beginning of more to come. First, through the demo-dispo program, CTA had negotiated with HUD and MHFA to own the property after demolition and reconstruction. Now, she had to shift her attention toward preparing for the impending transfer of ownership and disposition. Second, with significant help from Thaddeus Miles, the Director of Public Safety at MHFA, CTA had arranged for the community center to house a community technology center (CTC), the Camfield Estates Neighborhood Technology Center (NTC), with funding from the HUD Neighborhood Networks program. NTC would also place appreciable demands on her time. Third and finally, within a few months of Camfield's final restitution, exploratory meetings for the Camfield Estates-MIT project were beginning to take place. The project was approved by CTA shortly thereafter.

Paulette believed that NTC and the Camfield Estates-MIT project were mutually supportive initiatives. Although NTC was not in the original plans for the new development, the opportunity to establish a computer center presented itself when the property's layout resulted in additional meeting space. With Thaddeus' support, CTA was able to obtain the necessary funding. Meanwhile, the Camfield Estates-MIT project represented a timely opportunity to extend the benefits of technology beyond NTC and into residents' homes.

Paulette already had a solid technological background. As part of her various degree programs (bachelors in social studies, bachelors in educational psychology, and masters in elementary education), she routinely used computers for papers and assignments. She subsequently incorporated these skills into her organizing work at Camfield, generating correspondence and other communiqué. Paulette has also completed an A+ certification course, which covered computer service and repair, and continues to enroll in additional courses at NTC on a regular basis.
As the first resident to sign up for the Camfield Estates-MIT project, she completed the courses with no problem and immediately made use of the C3 system on the Camfield Estates website. Paulette is a regular user of C3. She has posted numerous events to the community calendar such as general body and cluster meetings, Black Family Technology Week, summer events, and more. She has contributed to numerous discussion forums and even created two new ones. First, "Tenant Association Notices and Announcements," for communication between CTA and residents, and "Education Links and News," to share good websites for educational purposes. She has also posted e-mail to the "residents@camfieldestates.net" e-mail list. Paulette acknowledges that these tools are a step in the right direction toward improving communication and organization at the development. She also concedes that they are being underutilized and has thoughts on how Camfield leadership can improve matters.

I think they are just getting used to it. If we just consistently say, "Oh, you didn't know about it? It was on the website." That's how you get them to use it. I don't necessarily agree with using it [to replace general meetings]. On the other hand, like, the bake sale and Six Flags or different meetings, that should be the sole source of communication and maybe then a reminder to be sent out via hand. But if they get in the habit of looking on the calendar of events first, then that makes them use the website. I think that once you get there, usually, most people when they get to a website they just don't go to the one thing. They're kind of like, "Oh, let's see what this is." And I think that's the way.

I think we just have to put the stuff there and when they complain, "Well, I didn't know." Well [we can say,] "It was on the website. You got a computer, why didn't you check?" We need to put the responsibility on them.

I think if management were to say that if you have a computer and have a problem post it to our website. That's a good use of it. I think it will improve the communication because the
other thing is that this is an aging population. The average resident has lived here [a long time] and if they continue to stay here they are going to get older and they won’t be out there as much. We’ve only been back here one year or two and this program has only been around for a year. It just needs to go a little bit further and over time it will become part of the community.

The above comments suggest that one of the challenges is getting residents to adjust their habits and practices accordingly. However, another challenge is the existing patterns of resident interaction at Camfield. Because as is typically the case, the interaction online is merely a reflection of the underlying social and cultural environment offline.

Building Community at Camfield Estates

The role of community technology for the purpose of community building at Camfield cannot be separated from the context surrounding its use. Paulette cautions against assumptions that the levels of
resident involvement at Camfield Estates are necessarily the same as those at the former Camfield Gardens.

The thing about the old Camfield that we are trying to capture in the new Camfield is that they did stick together. For example, if you went away and somebody came with a package for you, your neighbor would hold it until you came back. They seemed to be more close knit then. And the reason why they are not close knit now, is that we've lost some of the families and some of the families have split up and I think there may be some new families who do not share the same ideals or principles as before, or don't recognize that this is our community.

Furthermore, in the post-reconstruction era at Camfield, there is no longer an imminently pressing "issue" to galvanize residents.

I think they rallied around an issue, a very basic issue in that hierarchy of needs... housing. If you don't have a place to live you might as well just forget it. So I think that was probably the critical thing. I think with any group, civil rights or whatever, you have a central issue which usually deals around basic needs and you're going to get a strong response. If it's something like - can I wear a pink dress on every Monday - that's not pressing. If it's - can I afford a pink dress to go to work - that's a whole different thing.

Interestingly, this reality exists despite the lingering prospect of gentrification and as-yet completed transfer of ownership that still very much endangers residents' future prospects.

I think that... there's a sense of complacency amongst some of the residents because they still don't fully comprehend the magnitude or the scope of the issue. Having the buildings done was just one thing... they are still at risk. Yeah, they have Section 8's [housing choice vouchers issued by HUD] and things have changed but Section 8 can be changed with the stroke of a
I think it's possible for residents at Camfield and Roxse and Grant Manor [neighboring demo-dispo housing developments] to co-exist in an area that is rapidly changing, but they have to adapt and have the skills and knowledge and services to make it possible to survive.

For CTA, a critical issue that must be addressed is how to organize residents without the visceral rallying point of an impending threat. For Paulette, a critical question that must be answered is what role she will play in helping the organization to resolve these and other important issues looking forward.

**Looking Forward**

Paulette's dedication to her neighborhood have earned her the respect of politicians, local leaders, community members, and most importantly, residents at Camfield. She believes the residents at Camfield have accomplished a lot, have much to proud of, and must continue to persevere given the inevitable challenges that lie ahead. Along the lines of community technology, she would like to see an even greater emphasis at NTC on engaging residents in creative projects.

I think classes that show people how to use digital cameras and other technologies like that... I think that we could tap into this even more. Everybody likes to take pictures and if they knew how to use the digital camera or even a disposable one, they could do a lot more. I think [activities like this] motivate some of the families to go the next step... maybe they could get a scanner or whatever their kids need.

I look at the center and sometimes I see the kids playing games... When they have recreational time, there should be other things incorporated. Here's how you can create a homepage. Through building those skills they learn. Creativity also reinforces the mathematics and the grammar for the youth, and the things that they may not connect to in school. I call it
"active situational learning." If it is something they perceive as something to know, that facilitates their learning.

She sees such activities not only as a means to achieve educational outcomes but to also promote residents working together collectively. Along the lines of community building, her vision is for Camfield to be a stable community that can act as a springboard for families to move themselves into the "mainstream" while avoiding many of the pitfalls and struggles that she has had to overcome.

When I was a kid growing up, the community had to be more consolidated. They formed around the church or maybe the NAACP, but you've seen the families fall apart. A community like Camfield actually can encourage that kind of stability that was lost I think. You have a group of people here who... even if they don't make it in their lifetime, they have produced the foundation for their children to cross that bridge. And that's very powerful.

She is confident that Camfield will maintain its standing in the community as a result of CTA's continued exemplary leadership. Finally, on the relationship between community technology, community building, and the future at Camfield, she offers her own concluding remarks.

I think it provides a tool and an access that will help them pull things together. It's not just you can pay your bills. It's not just you can entertain yourself. It's making you aware of your surroundings and the world itself. To me it's not a very complicated issue because it comes down to is this a valuable tool or is it not? Well, yes it's a valuable tool because it's the window on the world. But, how it's used is more the issue. How to use the technology and what the possibilities are go hand-in-hand. Isn't that what learning is all about?

In large part due to Paulette's leadership, a community that was once in poor physical and financial condition is now arguably one of the leading housing developments in the greater Boston area.
CASE STUDY #2 – DIANE ATKINS:
FROM STAUNCHEST OPPONENT TO GREATEST PROONENT

Diane and Joe Atkins arrived at Camfield Gardens in 1990. At the time, Joe was working for Reserve Realty, a property management firm that had recently bid on the contract to manage the housing development. When Reserve received word they were awarded the contract, they assigned Joe to the role of property superintendent. Joe and his wife then decided it would be more convenient if they moved, along with their daughter, into one of the apartments on the premises.

For the next seven years leading up to the eventual demolition of the property in 1997, their attachment to the neighborhood grew stronger as Camfield Gardens became their home. In 1999, despite the fact that another company was awarded the property management contract for the newly renovated Camfield Estates, the Atkins' enthusiastically decided to return to the development given their longstanding ties to the community. However, their return to Camfield was somewhat bittersweet as Diane was now battling chronic obstructive pulmonary disease (COPD), a combination of emphysema (over-inflation of the structures in the lungs leading to decreased respiratory function) and chronic bronchitis (inflammation of the tubes connecting the windpipe and the lungs) that obstructs airflow (the quality of life for someone suffering from COPD gradually diminishes as the disease progresses; it is the fourth leading cause of death and claims the lives of approximately 100,000 Americans each year).

Having been diagnosed with COPD three years earlier, Diane's days at the new Camfield would largely be confined to her residence. Now at age 57, she relies on an oxygen machine to provide constant respiratory assistance and uses a walker on the rare occasions when she leaves the house (usually to go to the hospital). On the August day I was scheduled to visit Diane to follow-up on her experience with the Camfield Estates-MIT project, the City of Boston had just escaped a summer heat wave where temperatures rose as high as 105 degrees. The humidity was so stifling that it caused Diane to cancel
our appointment as she had just returned from a brief stay in the hospital. That afternoon I telephoned
her to reschedule our appointment at which time she agreed to conduct the interview via telephone.

Reluctance, Recruitment and Resonance

Diane was first brought to my attention by Paulette Ford, the president of the Camfield Tenants
Association (CTA). During one of our project meetings leading up to delivery of the computers for
Round I participants, Paulette suggested to the committee that we relax some of the program's
stipulations and provide computers and Internet connections for a few residents who were sick-and-
shut-in, one of whom was Diane. She asked that we waive the initial and final interview requirement and
arrange for one-on-one instruction in their homes, which would be conducted primarily by Manuel
Roman as well as Garfield Williams, both staff members at the Neighborhood Technology Center
(NTC).

Paulette, who had a personal relationship with most of the sick-and-shut-in residents, agreed to do the
necessary outreach to solicit their participation. Suffice it to say that from the onset, Diane was the
project's staunchest opponent. When Paulette first spoke with Diane she flatly refused the offer for the
computer, Internet access, and home-based training. Subsequent efforts by Paulette, Brian DeLorean, a
representative from Massachusetts Housing Finance Agency (MHFA), the financier of the property, and
other residents at Camfield, also fell upon deaf ears. Meanwhile, the new computer intended for Diane
sat in a corner of the community center gathering dust. Eventually, Paulette convinced Diane to allow
someone to set up the computer and Internet connection in her home, but only on a trial basis.

When we moved back and this building was done and I heard that we were going to get
computers, I didn’t care why. I didn’t want one. And I told the CTA I didn’t want one. I told
the MHFA, only because I was in conversation with them about something else, that I was
offered a computer and I didn’t want it. And Brian DeLorean, who knows me and I know him,
even though we have never met, said, "Take it. It's a wonderful thing." I said, "I'm really not interested. I don't really care anything about it." He said, "Diane, just do it." So, I did. Now after it came in I just looked at it. I said to myself, "What do I do with this?" But with it I was told I would get somebody to come over once a week, either for an hour or two, to teach me the basics. And I didn't even want that. Because I was sickly, I almost figured it as an intrusion to be honest with you because I am always sick. So, I'm saying to myself, "I don't want... Now I'm going to have to work somebody in [who will] take up the little bit of time that I have." I was really disgusted with it all.

Rather quickly, Manuel has able to engage her. He did this not by showing her how to use the mouse or the keyboard per se, but by clearly demonstrating relevance. Initially this meant showing her how to connect with family and friends, which struck a definite chord.

Now they came in and I get my first session and, they set up the computer, I got my first session and I was amazed! I couldn't believe it! It was so fascinating! The concept comes to you right away, what it's about. I just couldn't believe it that it was... not that it was simple. It wasn't.

So, now I get my second session and I'm getting e-mail, which was totally blowing my mind. Honest to God. My brother was e-mailing me and he's long distance. So I'm saying to myself, "I can't even call him, yet I can speak to him through the computer." And I'm saying, "Oh my God, this is incredible."

Interestingly, Diane's early experience is almost a mirror image of how the relationship between community technology and community building is conceived. Typically, technology facilitates a connection between an individual and their community. Here, the community (Paulette from CTA, Brian DeLorean from MHFA, Manuel and Garfield from NTC, other residents, etc.) facilitated a
connection between an individual and technology. Social and cultural resonance is a journey, not a destination, and this marked the beginning of Diane’s journey.

Computer as Information Technology

During one of their early sessions, Manuel worked with Diane to show her how to search for information on Yahoo! Soon she was surfing and browsing the web at various times during the day and night, in the comfort of her home. Given her condition, it should come as no surprise that she soon began seeking information regarding her condition. And the timing was perfect because now, she was wrestling with a major decision of whether to undergo lung reduction surgery, which would remove a part of one of her lungs. The information she obtained from the Internet was brought to bear on this decision in a truly remarkable way.

I’d be up in the middle of the night wanting to know what to do with myself. I’d go to the computer and I was getting to be so grateful that was there. Well on one particular night I typed in on Yahoo, “COPD.” I didn’t have a clue if something would come up. Now up comes on the computer, when I say pages and pages of this disease. This was about quarter of three in the morning. I was there until quarter of ten that day with all of this information.

My doctors wanted me to go for a lung reduction which would cut out part of my bad lung… which I didn’t want to do but they were convincing me to do it. On the computer, there were different doctors on there talking about the surgery and they did not recommend it. They said it didn’t let you live longer… some people died from it. To me, when I got through with it [the information] on the computer, I decided because of the computer and the information I that was getting from there from all over the world, not to do it. When I told my doctors about it, they agreed. And that was really mind boggling because they didn’t say that in the beginning.
They told me to think about it, [to] try to go for it. But now when I told them what I read on the computer they agreed with it.

So it’s [the computer] giving you the answers that you’re looking for. You may not like them but they’re answers. And they’re actually helping you with some of the decisions by giving you this knowledge. I don’t need one or two doctors just to tell me something. I’m getting this from the world. So now I’m finding that... what would I have done without this computer? My brother’s mother-in-law died from lung reduction surgery. I could have gone under surgery and died. I could have had the surgery and lived and not lived. There’s good because I’m living now, which has been great, but it’s still my lung. It’s still something that if I had it operated on I can’t get what they took out back.

It would be an understatement to say that Diane was able to obtain valuable information. The information she received was potentially life saving. In using the computer as an information appliance solely, she better understood her options and made a choice – an informed choice. Next, she would experience the personal benefits of the computer as a communications device.

Computer as Communications Technology

With each passing day, Diane became increasingly more comfortable with the computer. However, the majority of her tasks still involved pointing and clicking. In fact, her husband became accustomed to only seeing her use the mouse. While she was familiar with e-mail she had not yet communicated with anyone in real-time or connected with others beyond family members and friends. Her first jaunt beyond e-mail, websites, and games was participating in a chat room on cancer (she is a survivor of breast cancer). Given her positive experiences thus far she didn’t hesitate entering the chat room and “watching” the conversation take place among the participants. In fact, her early experiences with
chat rooms were only characterized by watching the conversations of others as she was reluctant to contribute to the dialog. And then one day everything changed.

I’m looking at this screen and... now, they’re talking and now they’re on the subject of... food.

The question was, “Does anybody out there know what ‘Ensure’ [a vitamin drink] is for?” I wanted to... I knew [the answer]. I said [to myself], “Well, I don’t know if I’m good enough to type it in.” I said, well I can try it. I don’t have to actually send it yet. Let me try it and see if I can do it.

So now I’m typing, and as I’m doing this my husband’s coming up the stairs and he said to me, “What are you doing?” I said, ‘I’m in the chat room.’ [He replied,] “Doing what?” I said, “Talking to people.” He said, “I know, but what are you doing with your hands right now?” I said, “I’m typing in a message to somebody.” He said, “You know how to do that!” He was astonished! It made me feel so good. He said, “Diane, you haven’t been on the computer that long and you can do that already!” I said, “I don’t know. I’m going to try.” So he said, “Well, you’re not afraid of messing up?” I said, “Sure. But if you mess up you don’t have to send it.” I said, “Joe, there’s a thing on the computer that says, ‘Send,’ and now you send your message off. I don’t have to send that off if I think I messed this up.”

So now I type it in. It looked OK. And I sent it. I had the nerve. It’s like I was covering over my eyes. I was so afraid that someone would say, “What’s this jerk? Who’s this jerk? What’s she talking about?” So now the person that wanted to know [about ‘Ensure’] said, “Thanks Diane you cleared that up.” I was so happy I didn’t know what to do! I got up and I actually did a dance! You know when the football players do a... when they get a touchdown? I got up and did a dance just like those football players! When you are sick there is not much to celebrate.
With the simple click of a “send” button, the consumer was now a producer.

Diane soon found herself in various chat rooms on a regular basis. She spent as many as nine hours per day on the computer and says, “I remember one time our lights went out and the only thing I was interested in... I didn’t care about the food in the refrigerator, I wanted to be on the computer.” She began to see herself as an advisor, confidant, and sounding board for others. She shared her thoughts about cancer, about COPD, and about life. On making this transition from passive bystander to active contributor she remarks, “It’s so rewarding. And to be able to give... I’m not only getting, I am giving because I can tell them my experiences.”

Consumer and Producer

As mentioned earlier, in addition to her bout with COPD, Diane is also a survivor of breast cancer. During a routine self-examination she noticed a lump on her breast which doctors misdiagnosed as a cyst. For two years they explained that because the lump was tender and sore it could not possibly be cancerous. As a result of Diane’s instinctive persistence, it was eventually diagnosed accurately and treated within time.

One day, Diane was on the computer chatting when a girl named Tina entered the room. Tina commented that a lump is not malignant when it’s tender or sore because her doctors had told her so. In fact, she divulged that she had recently decided against a biopsy for that very reason. Diane immediately jumped in to offer her thoughts.

I logged in and said, “I really don’t like to say this, because I don’t want to scare you, on the other hand knowledge is everything... by you knowing it is giving you power... you’ve found somebody that it was sore and it was cancer. So, see, it’s not true. [They told me,] ‘Oh it’s nothing, it’s a cyst. It was not true.’
Now, I think it was three weeks later Tina had a biopsy and it was cancer. And she could draw, I can’t do it, on the computer like a teardrop. And she did like a teardrop like, in other words she was crying, but she was told it was caught in time. It was early stages which was wonderful. And I was logged in at the time [and Tina said,] “Diane. I can’t begin to thank you. Yes I was scared. I was actually angry that you said it because I was so scared. But like you said, it’s power. And I’m angry at my doctors, but thank God it’s at its early stages.”

It made me feel that I had my arms around Tina who I didn’t even know. That we were connected through this cancer, which we were. That’s more than money. Money can’t buy that. That’s two human beings feeling... feeling everything together. Spilling out their every emotion to each other. I don’t know what’s more important than that. If I died tomorrow, or today, I would have felt cheated without this computer. I really would.

Diane’s encounter with Tina represents just one of many interactions she has had with people around the globe. In less than one year, her use of the computer has run the gamut from the mundane (e.g., playing games) to the prolific (e.g., shopping online) to the sublime (e.g., obtaining information about better foods to abate cancer). She is also very interested in exploring a range of creative uses of her computer such as creating a digital photo album and designing a website. According to her, the sole limiting factor is not if she can learn to do these things, but when.

A Social and Cultural Shift

A cultural shift has taken place in the Atkins’ household at Camfield Estates. Attitudes have changed. Habits have changed. Ways of perceiving the world have changed.

I would have never wanted a computer. I didn’t see anything in it. Now I wouldn’t know what to do without it.
I believe I am better physically and mentally because of the computer.

A social shift has also taken place. An environment that was once closed-off to the outside world in certain ways has now been reopened. Connections are being made that previously didn’t exist and, in fact, weren’t possible.

I’m so sick and I can’t get out anymore, I’m actually out in the world because it takes me to the world.

I can’t go to my mother and cry on her shoulder, yet I can get on the computer and cry to the person on there and them cry back to me and embrace me. What’s more important than that? I don’t know of anything. Nothing.

After completing approximately ten sessions with Manuel and Garfield, Diane had to temporarily postpone their visits for health-related reasons. However, that has not prevented her from continuing to explore new arenas. There are two meta-competencies Diane has developed in her still embryonic exposure to digital technologies. First, she has developed a sense of empowerment as evidenced by her frequent references to having greater control of her life.

A TV is showing you what they want to see. A computer you bring up what you want to see. And you learn that. You learn with somebody.... On TV, I can’t pick what I want to see on there. On the computer I can choose what I want.

All of these scientists that get together and put this knowledge on the computer that we get to look at and say, “We’re going to choose. We’re part of this decision, not just what the doctors tell us.”
Second, she has developed a renewed faith in her capacity to learn.

And also what I found is I'm not as stupid as I thought I was. I could learn it. I did learn it. E-mail, I never thought I could, let alone get the e-mail, but e-mail somebody else. I did and I have and I do.

Third, she has experienced a meta-cognitive shift and transformation of her thinking about thinking with respect to computers and the Internet. Whereas in the past she saw no relationship between herself and these technologies due to unfamiliarity and consternation, she is able to reflect on that experience and realize that, now, the connection is very clear.

I knew nothing. I don't feel illiterate anymore, which I did. Embarrassed. All of those things. But I used to hide behind it and just say, "Oh, I don't want to be bothered. I can't be bothered with that. I just don't understand it. I don't get it. I don't need it. There's no... what do I need it for?" But you need it. You do.

Undoubtedly, the personal support Diane received from NTC was instrumental in breaking down these psychological walls and inculcating a sense of empowerment. NTC will also continue to play an important role in expanding her technical capabilities and further promoting her reorientation toward lifelong learning. In doing so, the project has not only brought access to technology, access to information, and access to people, it has also brought "access" to new ideas and new ways of thinking. This allowed Diane to have a foundational experience from which the results have been truly remarkable.
Community Technology and Community Building

Community technology, and in particular community building, are fundamentally local, shared social and cultural processes. Diane Atkins’ story is certainly one that incorporates notions of community, but in a more distant sense. Her interactions have largely been centered on a “community of interest” (i.e. cancer survivors) as opposed to a “community of practice” (i.e. Camfield Estates) (Koch et al., 1999), and her online activity has established global as opposed to neighborhood ties (excluding family). Is the Camfield community better off as a result of her experience? I reply with a resounding, “Yes.”

On one hand, Diane has reached out to others in the Camfield community to the best of her ability.

> Because you got it the way [we] got it, the computer, [we should ask], “What can I do to help somebody else because I have it?” I always say to my husband, “I wish I wasn’t sick because I could do this and that, or go over, say, to the computer center and help out there.” Not that I could tell them what to do with the computer, but maybe I could clean the room or clean the computers off [and] help in some kind of way because I’m grateful.

On the other hand, the more important lesson is that the Camfield community reached out to her. As a result of that outreach, her quality-of-life and her husband’s quality-of-life have improved, and for that reason alone, the Camfield community has improved too. Moreover, she clearly sees the potential role of technology for her community.

> You can say to somebody... “Over here we’re having a problem with the floors” [or] “Does your dining room floor have whatever?” Because you think sometimes it’s just your apartment. You know, you could find out things like that. Or, “How do I get something... fixed? Or, how do I get management to whatever?” So by being connected... if you have a problem inside of your apartment, you know, what’s the different routes you can go through. Is it just the
secretary? Is it just the manager? No, you can also go through [the] tenants association. There's different things you can learn from one another by living over here.

You know just like when they had the bake sale. Who knows what? Who didn't get what information? If there was a BBQ, maybe the people weren't home or they didn't get the paper, or somebody took it out of their door. Or, logging into one another to say, "I am so-and-so, glad to meet you. Haven't been able to get out of the house but I've seen you before. I'm interested in meeting you if you have the time or if you're going to be at the center," or, "Are you going to the meeting that's coming up in three days?" I mean there's so many things to talk about to get to know one another.

Diane's vision for Camfield is reminiscent of her personal sojourn since she reluctantly accepted a computer and Internet connection into her home. Her story demonstrates how technology can serve as a tool to break down walls, open doors, and reinvigorate life. More importantly, her story illustrates how the collective efforts of a community can open up new possibilities for one of its longstanding members. Thanks to the consolidated efforts of neighbors and caring staff at Camfield, one of the project's staunchest opponents is now, quite possibly, its greatest proponent.

**Case Study #3 – Constance Terrell:**

**Technological Literacy toward Technological Fluency**

The year was 1986 and Constance Terrell, a single-mother of three, was unemployed and in search of her next position. One year earlier she left her job working on the bar scene to pursue a family day care operation run out of her home. When she became dissatisfied with childcare as a long-term career move, she worked an interim job that involved cleaning banks for a cleaning business owned by a friend's uncle. During that time Constance, a graduate of hairdressing school, was reminded of her degree in
cosmetology that she had successfully completed a few years ago. This prompted her to take an open position at a local hair salon. Unimpressed with their level of service and professionalism, she quickly came to the conclusion that she could run a better hair salon herself. And after only eight-weeks of employment she quit this job, convinced two of her close friends to contribute the $1,100 she needed as a deposit, along with an additional $5,000 to purchase equipment and furniture, and secured a storefront at 719 Tremont St. in Roxbury. As a result, on August 19, 1986, A-1 Concepts of Hair Gallery, Inc. was founded.

Constance, a resident at Camfield since 1972 and long-time member of the adjacent People's Baptist Church, is one of a number of small business owners at the development. An extremely confident and outspoken woman, she is also one of the founding members of the Camfield Tenants Association wherein she remains active to this day, along with her youngest daughter Susan.

More Than a Salon

A-1's services include precision cuts, relaxers, blow-drys, color, press and curls, weaves, and more. Their philosophy statement reads that "A-1 Concepts of Hair is based on Christian beliefs and brotherly love. We feel that every client is special because they are like neighbors, and the Bible teaches to 'love thy neighbor as thyself'."

True to her founding philosophy and vision, A-1 has served the community for fifteen years, not only as a hairdresser but as a friendly social gathering place too. A visit to A-1 is more than just a hair appointment, the experience reflects Constance's commitment to two of her passions: doing hair and helping people.

I like doing hair and I like the fact that I can make people feel better. I grow hair <laughs>.

Doing hair is helping people to feel better about themselves. [A-1] is a place where you can
come in and release. It's basically women, and it is like a home atmosphere. It's women's
time, and we sit there and discuss our issues, and try to figure out the best way [to approach
different situations]. Everybody gives their suggestion on what we would do in the situation.
Being that we don't spend a lot of money on psychologists and psychiatrists... this is how we do
this in the Black community.

It's a nice feeling to be able to do these things for people. Make them feel better. You know
whatever's on their mind... because I can read people when they come in. [I'll say,] "You're
not having a good day today." You know. And after, [I] do the shampoo and so forth and so
on [and] they'll release. And they'll feel much better when they go home.

In 1993, A-I moved down the street to 683 Tremont St. At that time Susan was able to contribute to
the business having received a certificate in cosmetology herself. This allowed the company to grow and
prosper even more.

Preparing for the 21st Century

In an attempt to expand A-I's customer base and strengthen the company's marketing efforts,
Constance had a website created for the business circa 1996. She had already been using a computer to
manage A-I's operations including general record keeping as well as a customer tracking database that
logged patron's visits, the means that brought them to the salon (e.g., referral, yellow pages, etc.), and
more. Consequently, she recognized the benefits of having an Internet presence. At the time,
Boston.com was initiating a comprehensive online business directory and offering website development
assistance to local business owners. With their assistance, digital photographs were taken of the store
and associated copy was written, resulting in an informative website that included an overview of A-I's
services and philosophy (http://a-i-conceptsofhair.boston.swbd.net).
It was around that same time that Constance obtained a home computer and Internet service through America Online. So when the Camfield Estates-MIT project arrived she was one of the first to sign up for the program. Although Constance had been using computers and the Internet for a number of years, she had not previously enrolled in a computer course, which limited her use primarily to sending/receiving e-mail and browsing the web.

I had already purchased about three computers... but I had very limited skills on the computer.

I knew how to put my data in at the salon... What other kinds of things was I doing?

Personal. No work. Like my girlfriend lives in Connecticut. She was e-mailing me and stuff.

Yeah, that was about it. Susan would e-mail too and that was it. Then go on different websites when you see them on TV and go see what they have. You know... get information... I've been on AOL for a long time. Since I got my first computer at home.

In addition to the prospects of a new computer and high-speed Internet access, one of the attractive features of the project was the opportunity to augment her skills. She completed the ten-week course

*Creating Community Connections*
along with the other participants in Round I, and received her computer on November 15, 2000. However, what was perhaps of greater benefit than any specific skill she acquired during the course, was a completely new attitude toward learning. According to her, “I’m more confident now. I can do more. I didn’t know before, now I do now.”

Armed with a new set of competencies and a new perspective, in January 2001, Constance happened upon booklet in her mailbox from an independent distributor for the Herbalife company named Chris.

_Sometimes you look at stuff and it looks good to you [and] you read it. And sometimes you get stuff that doesn’t look good and you just throw it way, right? So this day I happened to look at the book, and I said, “Oh.” So I read it. I read the whole book… [and] being I had a computer I went and I pulled up the stuff… her website address and I read all the information and it sounded good to me._

It sounded so good, in fact, that Constance decided to contact her.

_Sewing the Seeds of Entreprenership Again_

Herbalife is an international, direct-sales company that offers weight-management, nutritional and personal-care products. Herbalife also supports a network of independent business owners, termed the “Home Business System International,” who distribute products from their place of residence through a multi-level marketing arrangement. Constance, intrigued by the product offering and the prospect of earning some additional money from home, purchased an initial information packet from Chris. And after a follow-up telephone conversation, Constance was sold on the opportunity. She then purchased a complete set of marketing materials and Herbalife products, making her an independent distributor for the company.
With the company's assistance, Constance then registered the domain “cyourdreams.com” and assembled a fully-functioning website (http://www.cyourdreams.com) complete with online marketing information, credit card billing, usage statistics, and a web-based request form that automatically notifies her of potentially interested customers via e-mail. She has also sought ways to integrate technology into other aspects of her business.

Since I’ve gotten the computer I have been able to print out my envelopes for my new business in the different formats. Also, I communicate everyday by email with the Herbalife system. I’m currently being mentored by the Herbalife system through email and faxes. This allows me to run my business from home.

I also communicate via touch phone (conference call). That’s how they talk to us. We get our reports as well as product reports, and if we need to find out some information on [anything]… [for example] if somebody has some kind of ailment, we put it out on touch phone and the people that are listening to us, whoever their clients are or customers are that have had positive results on this… talk to us back. And then we get our faxes from Herbalife through there. And my upline sends me faxes or things to help… [and] grow our business opportunities.

In addition to the items mentioned above, Constance expressed a strong interest in learning more about Microsoft Word, to design flyers and other marketing materials, and Microsoft Excel, to track inventory and expenses for her new business. In fact, her daughter and Paulette Ford routinely help her to learn more about these and other areas. She has also made use of the C3 system on the Camfield Estates website to seek advice and further her marketing efforts. For example, when searching for recommendations on a good book about Microsoft Word she posted her question to the “Help” discussion forum. Furthermore, her Herbalife business is listed in the resident directory and also on her resident profile. Lastly, shortly after completing the courses at NTC she and her daughter entered A-I into the business directory database.
Looking forward, she has a few ideas of how she can present her business to other residents at Camfield both online and offline.

I was thinking about doing a shake party or something like that at Camfield. A shake party... that's when you invite people... from the community and let them know about Herbalife. I would market it through e-mail to let people know. And I would use the website. I would use the calendar and talk to Donna [Fisher] and decide what day because it would probably have to be on a weekend to do that.

She explains that the only thing that has prevented her from doing more outreach to the community at Camfield and pursuing additional educational opportunities with respect to new software, etc., has been her busy schedule and juggling multiple responsibilities.

It is like, mentally, when I was younger... when you had to juggle all those things together I was able to do that. Now... I'm older now.

As a parent and grandmother who is regularly asked to take care of her grandchildren, business owner, church member, and CTA board member, Constance, in her 50's, says she is indeed stretched fairly thin. However, Constance is determined to continue pursuing her dreams and aspirations, just as she has done in the past.
A-1 Concepts of Hair Gallery, Inc., has been a profitable and rewarding endeavor for Constance and her family for more than fifteen years now. There is every reason to believe that this success will continue well into the future. On the other hand, relatively speaking, Constance’s Herbalife business is still in its infancy. To date, she hasn’t dedicated as much time as she would have liked to growing the business for reasons already discussed, and also due to a lack of financial resources needed to coordinate a sizeable marketing effort. Nevertheless, her current plan is to assemble the time and resources she needs to grow her second entrepreneurial venture into another viable and lucrative entity.

It is interesting to note that alongside Constance’s personal and professional evolution has existed a parallel and interrelated path toward greater technological fluency, or “computer skills and the ability to use computers to improve learning, productivity, and performance” (U.S. Department of Education, 1996). She has steadily moved from record keeping and data entry to e-mail and web browsing to strategic use of the Internet for business. While she has not taken an active role in building either of her entrepreneurial ventures, her technological fluency has been a valuable asset in running both businesses.
two websites, she has a very clear understanding of how to make productive use of these sites as well as other digital technologies (i.e. computer, fax, etc.).

This suggests that her trajectory is now in the direction of achieving greater technological fluency, or knowing how to construct things of significance with technological tools (Papert & Resnick, 1995; Resnick, Rusk & Cooke, 1998). The evidence for this claim is found in her articulated desire to create flyers and brochures and even birthday cards. Such creative activities lie at the very core of the notion of being an active creator and producer. First, they facilitate expression and require a "product" from the end-user. Second, they are social endeavors, meaning, there is an implicit audience for whom they are targeted such as family members, friends, or neighbors. I expect to see Constance engaged in a number of more fluent activities in the future.

Finally, what stands out from Constance's story is not the fact that she has started two business, although that is a laudable accomplishment in its own right. What is most impressive is the way she has leveraged local resources (family, friends, NTC staff, etc) and fashioned technology to achieve these goals while advancing a community-minded agenda. For Constance, perhaps more important than being fluent, she has demonstrated a capacity to get there. And at the point in time that achieving such fluency lies along the path to accomplishing her goals, she will get there.

**CASE STUDY #4 – DONNA FISHER: PERSPECTIVES ON CAMFIELD ESTATES**

Donna Fisher, Director of Community Relations at Camfield Estates, has a truly unique perspective on the housing development. While she is relatively new to this job, she is not new to the residents at Camfield.

Prior to accepting her current position, Donna worked for Cornu Management Company, the property management company at Camfield, as the resident social service coordinator. In this capacity, Donna
served two roles. First, she provided administrative support to the Camfield Tenants Association (CTA) including writing reports, bookkeeping, etc. Second, she provided clinical support and counseling to the families at Camfield by connecting them to appropriate services (e.g., mental illness, domestic issues, etc.). Donna first heard about the responsibilities of a resident social service coordinator from one of her professors at Simmons College, also a Vice-President at Cornu, while she was completing her masters degree in Clinical Social Work. Given her prior experience in housing with the Boston Housing Authority (BHA), the combination of social services and housing truly piqued her interest. Her professor eventually recommended her to another executive at Cornu who offered her a job that was just opening at Camfield. After mulling through this and other offers she decided the position at Camfield was indeed the best fit.

She started as the resident social service coordinator at Camfield beginning in June 2000. Six months later, CTA decided they were going to hire a director of community relations and offered Donna the first right of refusal. The position entailed liaising between CTA and other entities (e.g., lawyers, HUD, MHFA, etc.), and overseeing the day-to-day operations, programs and activities at the Camfield community center including the Neighborhood Technology Center (NTC). After careful consideration, she accepted the position and began working at Camfield in July 2001 as their first director of community relations.

**Community Relations and Community Technology**

With the Camfield Estates-MIT project just getting underway when Donna first arrived at Camfield, she was excited about participating and assisting with the project. Although she was not an actual resident she was clearly a member of the community. Everyone believed that a Camfield community project should include everyone in the Camfield community. Consequently, Donna formally participated in the courses alongside other residents (as did other members of the property management and security
staff). She was also instrumental in organizing project-related events, recruiting participants, scheduling interviews, interpreting survey results, and determining future strategies.

Throughout the life of the project, both as resident social service coordinator and director of community relations, Donna has been directly and indirectly involved in coordinating numerous social events and activities at Camfield including holiday parties, senior citizens lunches, field trips for youth, and more. She has also been active in promoting use of the Camfield Estates website and the C3 system. Like others at the development, Donna had to reorient her approach to community outreach to gradually incorporate the use of technology. She admits that there were times when my friendly reminders made a difference in making the transition.

As you know it took me a little time to get there... the use of the website. I forgot about using the website. I never really remembered it until you mentioned to me. You were always asking me, “Did you post it on the website?” And I said, “Oh.” I didn’t say it out loud to you, but I would say in my mind, “Oh yeah. I forgot all about that.”

I guess because I wasn’t used to it. I didn’t feel like I had a connection [to the website]. I thought that a lot of the stuff that I send out by [regular] mail like flyers would be delivered and useless, so I didn’t think that they were even going to look at my electronic mail. I think I just was not used to using the website, and I had to get used to it.

On one particular occasion, Donna was trying to organize a basketball team at Camfield. She used the computer in her office to design a flyer that included graphics, text and images. To spread the word she employed a variety of strategies, none of which included the Internet.

I had Mikey [member of the property management staff] deliver them to every mailbox and I also gave Garfield [member of the technology center staff] some to put in the computer center.
to hand out to whomever came in here. And I also posted it up on the bulletin board in the foyer.

And then you called me up and candidly mentioned that you had seen a flyer and asked if I had thought about using the website. And I thought to myself, “Oh shoot, no I didn’t.” And then I thought to myself that you must really think I don’t listen to you because you had mentioned that website about five-hundred times and I still wasn’t getting it. I wondered [to myself] what’s the problem Donna? And I think you mentioned it to me again because I still hadn’t posted it and in fact, I don’t remember posting it at all. I didn’t post it. Even though I had attended the course, I didn’t think that I knew how to get back into the system or I didn’t think I would post it properly or correctly, and it wouldn’t go through. I just assumed that my flyers would be just as good.

Donna’s self-reflection caused her to re-think her own conception of community technology and community building. As a result, she eventually made the shift toward incorporating the web into her daily practices. After her first contribution to the site she thought to herself, “Gee, did it really go through?” Since then, she has actively contributed to the calendar of events, the “News and Announcements” discussion forum, and the “residents@camfieldestates.net” e-mail list regarding upcoming activities, general notices and updates.

It was a lot easier than I thought and very convenient. If I think of something that I need to share with residents... for example my recent posting about a job opportunity, I thought of it at night and I thought, “Yeah. I should to post that.” And I posted it and I was done with it because I was at home.

Recognizing that she needed a little encouragement to make use of the Camfield Estates website and the C3 system, Donna now encourages others at the development in the same vein. Her efforts have made
a difference in heightening residents awareness of what is happening at the development and improving their communication amongst one another. For example, a selection committee was formed to review applications from prospective residents who would fill the approximately twenty vacant apartments at Camfield. One of the members of the selection committee, Malissia Evans, created an e-mail list, "selectioncommittee@camfieldestates.net" for everyone to maintain better communication. Donna soon noticed that committee members were sending e-mails to her individually rather than using the list, and proceeded to intervene.

One day I got an e-mail from Malissia stating that we had a selection committee address so we can communicate that way. It was her idea. But people weren't using it. They were still only interacting with me. Susan would e-mail, "Donna what time is the appointment?" The next thing you know, Malissia would e-mail me, "Donna, what time is that appointment? Where are we meeting at?" And the next thing you know, Marzella was calling, "I didn't know if we were meeting this evening. Are we meeting?" So it was like that for a minute until I said, "Please. Let's all start using the selection committee e-mail address. We all need to know what's going on at the same time." I also mentioned, "That's how information gets mixed up and you don't get the right information, so let's all try to remember to do that."

It wasn't successful in the beginning. I noticed people were still e-mailing me and what I would then do is forward their message to the selection committee [e-mail address] so they would get it back again. Now they've gotten into a habit of using the selection committee address. They're still active.

Her efforts have made a definite difference.

It's been useful because everyone gets the same information at the same time. No one's individually e-mailing each other. Everybody's clear about what's going on. And everyone
knows what they need to do. Nobody can say, “I didn’t receive it, or I didn’t get that message, or Donna, how come you didn’t e-mail me?” I’ll say, “Did you look at the selection committee address? Did you open your e-mail?” Now they’re much better about checking their e-mail because I told them, “Listen I’m sending you guys e-mail. I’m not calling you anymore. I’m sending it by e-mail. It’s easier for me to send it by e-mail then call each of you individually.” That saves about a half an hour to forty-five minutes and it’s just more convenient time-wise. I can just pop them the e-mail at the selection committee e-mail address and be done with it.

As a result of this experience and other similar experiences, Donna has been able to keep residents better informed, more involved, and improve her community outreach efforts.

Community Relations and Community Building

Donna sees her role at Camfield as a central one, but also recognizes that sustainable change can only take place with the active participation of residents in determining the future for their community.
result, she would like to see more resident involvement in the issues that affect their lives and the lives of their children.

I would like to see the Camfield community more involved. Not only at Camfield Estates but in the larger community. I would like to see them understand the history of this development and what it took for Paulette and all those people who got Camfield to where it is today... what it took to get that. I think community and community building are very important.

This is their community. When they get involved the result is community pride and not looking the other way when things are going on in the community. They are able to take a stand instead of depending on management or others to do what is best for them. Having everyone understand, even the kids, is important because this is where they live. It looks lovely now. If HUD and MHFA decide to leave and things aren’t being taken care of and if they’re not putting things in place, then it’s going to look like some of the other dilapidated housing developments in Boston all over again. So it’s about caring about where they live. It’s about caring about their community.

Donna also recognizes the role of computers and the Internet in this milieu. For the children and adults at Camfield she believes that these technologies can act as a conduit to better performance in school, better employment, and better access to programs and services. For the overall community at Camfield she sees e-mail and the website as tools to foster better communication and build relationships. However, she also believes that the true transformative power of technology lies in its ability to create and produce because, as she argues, such activities ultimately lead to empowerment. Although her concluding remarks below were made in reference to the Kinkos-like business that is currently being proposed at NTC, they are easily abstracted to other contexts.
It is using technology, but not just to play games. I'm looking at it more clinically and for more educational things. Producing flyers and signs and websites, and having entrepreneurial ideas and skills is also a mindset. Because it will not only help kids to do better in school and adults to do better interacting with each other, it will empower them. It will build upon their self-esteem [and] give them a purpose [and] help them to understand... help them to see that they are capable of doing just about anything if want to. If they really want to do whatever it is they are trying to do, they will be able to say to themselves, “I can do this.”

Donna's role as the director of community relations is indeed timely and important. Activities and events for youth, adults, and seniors have received considerable attention from the board of directors since residents settled back into their homes (second only, perhaps, to the impending ownership of the property). However, prior to hiring Donna, there was no single person who could dedicate their full-time energy to thinking about these issues and coordinating programs to address them. Furthermore, because Cornu is looking to fill her previous position of resident social service coordinator in the near future, and CTA is currently in the process of raising funds for a youth multimedia coordinator, there are additional human resources on the way. Under Donna's able leadership, their collective efforts will strengthen and expand the positive steps she has taken to improve the quality-of-life at Camfield.

**CASE STUDY #5 – NAHIA KEIZER: COMING OF AGE IN THE DIGITAL AGE**

Nakia Keizer's return to Camfield marked his own, personal coming of age. When he left the development in 1997 he had just completed his first year in college at the University of Massachusetts-Boston. He came home for the summer break to find Camfield Gardens practically deserted, as his family was one of the last families to be relocated. In fact, when he walked in the door of the apartment where he lived with his mother and older sister, he saw his belongings packed away in boxes.
Nakia and his family were temporarily relocated to nearby Dorchester. As someone who had lived all of his life in the South End/Roxbury, he knew very few people in this new neighborhood and found it difficult to make friends. To make matters worse, he soon found himself losing contact with his old friends back in the vicinity near Camfield. As time progressed, he longed for the day he would return to his former community.

Looking ahead to his anticipated return, Nakia had hopes of renting his own apartment in the new building, instead of continuing to live with his mother and sister. With this objective in mind, he attended all of the tenants association meetings during relocation, for two associated reasons. First, to voice his opinion regarding the future of the development, and second, to demonstrate that he was a responsible adult who was capable of becoming a head-of-household. When the time arrived for residents to prepare to move back to the property, Nakia's request was unfortunately met with resistance. “Are you sure you want to have your own place?” other residents inquired. “You’re not going to be partying here and making a lot of noise, are you?,” an employee of the property management company asked. Yet, Nakia remained determined.

Finally, in 1999 as he completed his junior year of college, an older and more mature Nakia returned to the renovated property as the proud occupant of his own one-bedroom apartment.

_Here I was back in the South End. I had my first apartment for the first time. I was really nervous and scared for the first couple of weeks because it was a lot of responsibility for me and I really wasn’t used to it. Here I was. I had to pay the rent. I had to take care of myself. And I started second-guessing myself for a couple of weeks there. But then I came to realize after awhile that it was the right move and I was feeling good about it._

He had barely unpacked his belongings when his mother, a member of the board for the Camfield Tenants Association (CTA), informed him that CTA was going to partner with researchers from MIT to offer computers and high-speed Internet connectivity to each family at the development with the goal of...
building community, empowerment, and self-sufficiency. She shared with him an overview of the project and said that a team of residents was being formed to oversee the initiative. According to Nakia, "My mom told me about the project because she thought I might be interested. I told her, 'Yeah! I would love to help out with this project!,' and I called right away."

_The Camfield Estates-MIT Creating Community Connections Project_

Nakia joined the project team along with two residents, Karie Rosa and Alex Rosa (a brother-sister pair), his younger cousin, Arthur Jones, whom he personally recruited to join the team, Richard O’Bryant, a Ph.D. candidate at MIT in Urban Studies and Planning and co-principal investigator of the research study, and me. Given his longstanding ties in the neighborhood and his prior experience with community-based projects (he successfully raised money to organize a local lacrosse program for urban youth), we easily reached consensus that Nakia should be assigned the role of project leader.

Under his leadership, the team was involved in a variety of activities throughout the summer 2000, including designing and administering the preliminary assessment survey, organizing an awareness campaign to solicit resident participation in the project, coordinating an asset-mapping initiative of local community resources (e.g., organizations, institutions such as libraries, schools and churches, businesses, etc.), and determining the user interface and functionality for the Camfield Estates website, which included the C3 system. To manage these tasks, team meetings were held once a week (at minimum) on-site at Camfield or on campus at MIT. A typical meeting included written and oral reports from each team member, project updates, strategy sessions, and weekly reading assignments and discussion.

Indubitably, the active participation of residents in each of these assignments was integral to the project’s successful launch. For Nakia, the interviews provided a natural mechanism to converse with neighbors and simultaneously learn about community issues.
Being involved in the interviews was very important to me because it gave me a chance to get up close and personal with the residents and talk to them on a more intimate basis... more so than just the casual conversation that I normally have with some of them. It allowed me to get some insights. A lot of times during the interviews they felt like they could be more candid with me in terms of their general feelings about the development, the buildings, the management, the board, security, and other issues, in between questions. They felt they could be comfortable and we generally had very good conversations. I feel like I learned just as much from the survey and the survey results as I did from the off-the-record conversations that I had with the residents. They were both equally as important to me and had a lasting effect.

Involving residents in marketing and recruitment activities also worked in the project’s favor. For example, prior to one of Nakia’s interviews, he encountered an elderly woman, Mrs. Cooper, who was having second thoughts about her participation.

There was another resident that I was able to get to sign up, Mrs. Cooper. Her name was on the list of people who signed up and I called her to see if she still wanted to participate. When I called her to set up an interview she expressed a change of heart. She seemed a little skeptical about what the entire thing was about and was trying to feel me out and get some idea of what was really going on. I told her that we could set up an interview and then I could come over and explain all the things to her before the actual interview happened. I told her if she doesn’t want to [sign up at that point], she doesn’t have to. I figured that I would rather talk to her face-to-face to give her a better feeling for what it is that we are trying to accomplish.

She accepted and we set the time for the interview. I brought over my paperwork and we sat and we talked for about half an hour or 45 minutes before the interview, but it wasn’t all about the project. We talked about her family and her sons, and how she has a son my age and he used to go to Cathedral [a local school]... and how she has a son that was older than me and
he used to go to a school in the area that I attended a long time after he did. And she was showing me pictures.

I was able to convince her of the benefits of having a computer and the things she would be able to do. I found out one of her sons is in Texas and she gets lonely sometimes. I told her she would be able to communicate with him via e-mail, through a chat room, through instant messaging, or it could be through [online] long-distance phone calls. Slowly but surely she came around, and after that we just went along with the interview.

My feeling is that she got to see what kind of person I am and developed a certain amount of trust in me and then subsequently, developed a little bit of trust in what it was that I was bringing to her in the form of the project. So through that trust in me, she trusted that this was something that was legitimate and was going to be beneficial and not harmful in any way to her. I feel that making that personal connection was the difference between her participating or her not participating in the project.

The asset-mapping initiative generated numerous benefits as well. First, residents were able to identify local resources of potential benefit to themselves and their neighbors. This included child care facilities, youth-serving organizations, nearby businesses, etc., that would later be available on the Camfield Estates website via the C3 system. Second, the information that was gathered provided an environmental scan of organizations with whom future partnerships could be forged, pending the results of the preliminary assessment. Third, and finally, the process itself heightened residents' appreciation of the assets located in their community.

The value of gathering all of this information was to provide it for residents in this area... residents in this development. We believed there were a lot of different social service agencies, organizations, community organizations, local businesses that provide various services that do
things that a lot of the residents here could benefit from but just didn't know about it. So exposure was key for a lot of this information. We wanted to be able to provide it so residents could have access to it right on the Camfield Estates website. And that way they could build from within... build from inside instead of outside their community.

I think it was important for us to go out and find that information ourselves because that, in itself, was an exercise in community building. We are the ones that live here and this is going to benefit us and these are things that we should know. Speaking for myself, it was really empowering to see all of the things that were in the community. I felt like I was doing something that was not only going to help myself, it was going to help people in the development and in the community. That in itself served as an empowering exercise. It wouldn't have had the same effect if you guys [Richard and I] just found it yourselves which you easily could have done.

Nakia’s participation, as well as the participation of the other resident team members, had a positive impact on the project, and each of them personally. Above all, their participation deepened their own levels of engagements as well as that of their neighbors.
A Social and Cultural Shift

At the end of the summer Nakia returned to the University of Massachusetts-Boston for his senior year, with his sights also set on applying to graduate school. During the academic year, he continued his role as project leader on a part-time basis. He was also selected as a “Reflective Practitioner Fellow” through the MIT Center for Reflective Community Practice (CRCP), a program that Richard, an alumnus of the program, and I had brought to his attention. The Reflective Practitioner Fellows program provides a unique opportunity for local leaders to spend a focused period of time introspecting on their work in their community. As a fellow, Nakia attended two retreats (fall and spring) as well as other activities designed to broaden his perspective on community work in general, and at Camfield specifically. Suffice it to say that the fall and spring semesters marked extremely busy times for Nakia as he moved between roles as an undergraduate student, would-be graduate student, MIT fellow, and project leader.

As the fall was ushered in, the Camfield Estates-MIT project moved from planning to implementation as Nakia and the other team members began to witness the fruits of their labor. The first cohort of families (Round I) were interviewed in August 2000 and began their courses at NTC one month later. Nakia would periodically check-in on their progress as the team waved his participation in the courses because of his prior experience with computers and his contributions to the project to-date. The Round I participants would receive their computers and Internet connections just prior to the Thanksgiving holiday (the process of interviews and courses ramped up again in January 2001 for a second cohort of families during Round II).

In December 2000, the Camfield Estates website and C3 system went “live” as residents who completed the program were able to access the system online. Interestingly, for the nine months immediately after the system’s launch, Nakia was noticeably absent as a contributor to the site he helped to design and implement. This was partly due to his busy schedule. However, there were other reasons to explain
why his online participation lagged behind his offline leadership. Understanding these issues also lends insight to the challenges of using technology to build community at Camfield.

There were times when there was information I thought about sharing. And although I was somewhat familiar with the technology, there may have been some kind of barrier there that didn't allow me to contribute anything. I wasn't sure what types of things to post and I wasn't sure that there was a lot that I could contribute that people weren't already aware of. I thought, OK now we have this site up and initially I was thinking, "Why aren't people really communicating on there?" and "Why aren't people using it as much as they should?" but I don't know if I necessarily saw myself as one of those people. And then I thought to myself, "We'll why aren't you contributing?" For some reason there was a disconnect. At first, I didn't see myself as someone who could help spearhead the online component even though I was in the position that I am. I'm now able to see it as a part of the learning process through the CRCP fellowship. I am now able to see that it has to start somewhere. It could be on a small scale, but if you get that small scale going then it can start to build into something larger. I'm now able to understand and see that in terms of my studies with the center [CRCP] and some of my own personal reflection.

Nakia's comments also describe the social transformation that must take place within the community at-large. As mentioned previously, this dilemma is essentially a "chicken-and-egg" phenomenon. He was hesitant to post or submit anything to the site until others contributed, while others were reluctant to do so for exactly the same reason. However, this only partially describes his own social and cultural shift from being a passive producer to an active one. Pursuant to that transformation was also a paradigmatic shift toward technology and its relation to community building, which he abstracts to others at Camfield.
For some [residents], I just don’t think that when they’re thinking of “Internet,” they are connecting it with next door. They don’t connect Internet with around the corner. They’re thinking the Internet is the World-Wide-Web. So the first thing people want to do is look around the World-wide. So that may be why people can have a random conversation with a stranger in Germany, because they’re not thinking of its capabilities on a small, small scale. It just doesn’t dawn on them. It didn’t dawn on me on how it could be used as a tool to galvanize a community. I didn’t think of it as helping on a small scale because you think of it as the Internet and the World-Wide-Web being so all encompassing, you don’t think of it on this level right here. You don’t think of it making connections with people on this level. You just don’t think of it like that. I didn’t for awhile. Now I see it. I can see it. I can clearly see it.

The above comments reflect Nakia’s ongoing personal introspection and meta-cognition. Interestingly, one factor that accelerated his transition in this regard was his fundamental belief in the value of producing information and content in the digital age. Although his initial conceptualization of such activities was centered on global, rather than local contributions, the project has shaped and molded his thinking. Now, he has a markedly different relationship to computers and the Internet, and a noticeably different way of thinking about himself in relation to these technologies.

I think it is important for residents to be producers of information and content on the Internet using computer technology. Any tool you have to make work for you. So, in order to get the most value out of it, particularly with the Internet and the computer as a tool... I mean, it's so easy, it's so powerful and so wide-ranging that you could easily be quasi-productive without really contributing or producing for yourself. And you can get caught up in that just like with anything else in life. But to really leave your mark and make your contribution you have to be able to produce and create something using that tool whether that is creating a website or contributing a line [or] a message on a chat room or a message board or whatever it is.
The shift that has taken place within Nakia is one that has involved varying degrees of active engagement at varying times along varying dimensions. Since the project's inception, he has been integrally involved in the process of building community at Camfield. For example, his ongoing participation in the interviews, recruiting, asset-mapping, website design, and other activities, have been key to the project's success. Furthermore, his participation and contributions to the virtual space at Camfield are now beginning to come to fruition.

Presently, Nakia is spearheading a number of initiatives that are heavily informed by the results of the preliminary assessment, which identified issues such as a lack of activities for youth, and the need for improved community information flow and communication, heightened safety/security measures, and expanded employment opportunities for residents.

The summary of the surveys was very insightful. It showed me that I didn't know a lot of the top concerns because I had different concerns. I had no idea that safety was a major concern. I had no idea that residents were that concerned about a place for their children to play. But again, a lot of the valuable information that I got was from the off-the-record statements that happened during the interviews. I use that, in conjunction with the survey results, to base my ideas and thoughts about the direction we should go from here.

Some of the online and offline activities he is involved with include a discussion forum for “Tenants Association Notices and Announcements” on the Camfield Estates website, a forum created by Paulette Ford, CTA President, after a meeting with Nakia, a partnership with the Boston Empowerment Zone to conduct job training and placement for Camfield residents that may be partially mediated online, and the return of the Camfield Estates newsletter that was regularly distributed prior to renovation. Nakia will help design the newsletter in paper-based and electronic formats by working with Paulette, Donna Fisher, Director of Community Relations at Camfield Estates, and others.
**Having Come of Age**

Nakia has a very bright future. After completing his fellowship at CRCP, he subsequently enrolled in the prerequisite course for the Cisco Networking Academy being offered at NTC (along with his mother and sister), a program that teaches students how to design, build, and maintain Cisco network systems. After completing his bachelors degree in sociology and education at the University of Massachusetts-Boston he was accepted into the masters program in urban education at Tufts University on a full academic scholarship. His plans after graduation are to teach in a local school system for one to two years with a focus on inner-city and minority youth, and then pursue a Ph.D. in urban principalship at Harvard University. Thereafter, he would like to establish a middle school in the same Roxbury community where he has spent almost his entire life.

Nakia believes the Camfield Estates-MIT project has benefited him as much personally as it has benefited the community. He has a repertoire of positive, memorable experiences when his hard work and dedication were put in perspective. One example is the day Mrs. Cooper received her computer.
To see the look on her face the day that she completed the class and was handed her certificate, it just warmed my heart. We're walking to her home, and as I'm carrying her computer to her house she's talking to her neighbors, “Hey look! There's my computer! I got my computer! I finished the class! I got my computer!” As I'm walking up the stairs with her computer it felt so rewarding.

Furthermore, as a result of his active role in the project, Nakia feels more connected to the community than ever before.

I feel like participating in the project has made me a lot more connected with the community. A lot of that has to do with me having such a hands-on role in a lot of the interviews, the data gathering, the recruiting participants and so forth. It's made me more visible in the community. People are pretty willing to talk to me and have a conversation with them. I feel like just being in the project has definitely brought me a lot closer to people here and the community. I feel like I'm a trusted and respected figure.

The young man who once felt he had to prove himself to the adults at Camfield now feels as if he is among their most trusted and respected ranks. The Nakia Keizer who left Camfield Gardens years ago has returned to Camfield Estates having come of age.
CHAPTER 10

CHALLENGES AND OPPORTUNITIES

This chapter presents the challenges and opportunities of the Camfield Estates-MIT Creating Community Connections Project that were specific to Camfield Estates, as well as the challenges and opportunities that are more general to a sociocultural constructionist and asset-based approach to community technology and community building.

One of the difficulties in explicating my insight to integrating community technology and community building is the need to disentangle it from the specific context at Camfield as well as our methodological approach to the Camfield Estates-MIT project. Any discussion of what has increased along the lines of community social capital or what has been activated along the lines of community cultural capital (and what has not), must be coupled with an attendant discussion of how the milieu at Camfield may have influenced these outcomes, as well as the challenges and opportunities we experienced toward achieving them.

My thinking has continually evolved and matured with respect to the sociocultural constructionist and asset-based theoretical framework, community technology, and community building. Therefore, not surprisingly, even our own approach to community technology and community building wasn’t socioculturally constructionist and asset-based in a holistic sense. However, it did incorporate various elements of the theoretical framework and its underlying ideas and principles. Perhaps more importantly, the sociocultural constructionist and asset-based framing provides an extremely useful lens through which the early results can be interpreted. This naturally leads to my research sub-question, which was: What are the challenges and opportunities of conceptualizing and implementing an initiative that is
guided by the theoretical framework of sociocultural constructionism and an asset-based approach to community technology and community building. While my research question speaks to what was done at Camfield looking back, my research sub-question speaks to what could be done at Camfield, and in other contexts looking forward. Interestingly, I believe some of my most valuable insights can be found in the debate surrounding my research sub-question, because it focuses my attention on the successes and failures I have witnessed throughout my experience with the Camfield Estates-MIT project.

Below, I provide a descriptive account of the challenges and opportunities that were specific to Camfield Estates. This is followed by a more general, proscriptive analysis of the challenges and opportunities of a sociocultural constructionist and asset-based approach to community technology and community building.

**Challenges and Opportunities of the Camfield Estates-MIT Creating Community Connections Project**

The preliminary assessment, post-assessment, and case studies provide tremendous insight to the milieu at Camfield and its relationship to the Camfield Estates-MIT project. Here, I group the challenges and opportunities of the project that were particular to Camfield into three interrelated categories: technological, social, and cultural.

**Technological**

The technological challenges and opportunities at Camfield have been primarily centered on skill development, continuous learning, and cultivating technological fluency. The question is not whether participants have the requisite ability to become technologically fluent, as they most certainly do. The question is how to establish a convenient means to develop their skills and perspective on an ongoing
basis. As evidenced during the post-assessment, participants expressed a strong desire to use technology in creative and productive ways such as building a website and designing a flyer or newsletter, but were often too busy to engage in these activities or their schedule was not amenable to attending follow-up courses. For example, it is interesting, but not surprising, to note that the resident who spent the largest amount of time using her computer and Internet access, Diane Atkins, was also someone who had significant amounts of time available. Furthermore, participants’ making the greatest strides toward technological fluency, were those receiving some form of ongoing support for continuous learning from family members, friends, or NTC staff. For those who did not have a readily accessible or convenient means of support, they made only moderate progress toward becoming more technologically fluent since completing the introductory course, despite their desire to do so (ironically, residents have not turned to other residents en masse for such support, which is an issue I will revisit in the context of the cultural challenges). Constance Terrell’s experience as a mother, grandmother, CTA board member, and entrepreneur showed that she was able to move closer toward technological fluency, but also received outside support to incorporate technology into her two businesses.

Nonetheless, through the lens of sociocultural constructionism and an asset-based approach to community technology and community development, participants’ motivation to become more active as creators and producers of content is a positive sign for the future, and strategies are being developed to tap into this interest. While the Camfield Estates website and the C3 system have played a role in promoting this type of engagement there is still room for improvement toward providing a broader range of ways for residents to express themselves. Many of the existing mechanisms available via C3 are text-based or form-based, which does not exploit the expressive power of images, audio, and video. Fortunately, and in response to the preliminary and post-assessment results, a website design course will be offered during the fall 2001 for participants from Round I and Round II. This course will further advance sociocultural constructionist and asset-based principles by providing an excellent opportunity for residents to create content and share ideas with one another, while also providing an avenue for expression that leverages the multimedia affordances of web technology.
The social challenges and opportunities offline at Camfield are informed by the fact that although the number of residents recognizable by name and contacted via telephone and e-mail increased, the baseline numbers for these measures and related measures were relatively low to begin with. In August 2000, participants could recognize 30 out of a possible 137 adults (22%), but only talked to 10 on a regular basis, visited 4 in the past six months, were visited by 3 in the past six months, and telephoned 2 in the past six months (see Chapter 8 – Table 8). Furthermore, these numbers were drawn from a Round I cohort of participants that included every member of the CTA board of directors who are very well “connected” when compared to other residents at the development. While almost every participant expressed the fact that they knew several residents “by face,” such accounts are still indicative of a cursory rather than deeply personal relationship.

Now that residents have settled back into their homes, the number and nature of social activities and events at Camfield continues to rise. The latest newsletter announced a planned Unity Day and a new “Internet Café” (an extension of the “Senior Internet Café) which will open NTC’s doors to residents of all ages for social and technical purposes. Furthermore, at a recent CTA meeting residents discussed holiday parties for Halloween and Christmas as well as other social events, in addition to the security committee and welcoming committees that are now being formed. Ongoing efforts such as these hold the greatest promise to foster deeper and more meaningful relationships among residents that transcend the superficial and can potentially be translated into action. Furthermore, one of the areas we unfortunately have not yet capitalized on is the large number of surveyed residents who expressed an interest in contributing to this project (81%) with whom we have not followed up with in any formal manner. Thus far, the project’s implementation has been guided by Camfield leadership and the project team. Clearly, this is extremely fertile ground for soliciting more widespread involvement from the community. I elaborate on some of the reasons why this was somewhat difficult during my discussion of
the challenges and opportunities of a sociocultural constructionist and asset-based approach, within the context of coordinating multiple, interrelated activities.

Any discussion of the social challenges and opportunities online at Camfield must be tempered by the reality that only one-third of the families at Camfield (26 out of 80) have completed the introductory courses and received a computer and high-speed Internet connection. In order to use technology for communication and other social purposes, users must have an audience or critical mass of community members to connect with. For example, in order to send an e-mail, you have to know someone who has access to e-mail. Similarly, to build community online there has to be a community online to build.

From a slightly different angle, although Camfield's size was one of its attractive features from a fundraising and project management perspective, it has also worked to our detriment from a sociocultural constructionist and asset-based perspective. First, it has constrained the project's ability to tap into a larger constituency base. For example, it was never likely that the Camfield Estates website and the C3 system would be used to organize against the planned demolition of a nearby park. Such an effort would likely involve a resident-base located outside of Camfield that not only outnumbered those potential participants located within the development, but who also lacked access to the system. Second, as a result of the project's inability to tap into a larger constituency base, there was also a diminished probability that subgroups of Camfield residents would coalesce around shared interests. This was purely a numbers game. While I am confident that there are a number of shared interests among the members of the 32 families who completed Round I, I also acknowledge that the likelihood they will connect with someone around those interests, particularly online, increases as the number of families who have completed the courses increases.

While the levels of participation in Round I were an excellent starting point, the community building efforts at Camfield will undoubtedly be enhanced by the families completing Round II and the families scheduled to begin Round III.
What is essentially taking place at Camfield is a cultural shift, or re-orientation toward community and technology as a result of their return to the renovated property and the associated infrastructure that has been set in place. Nakia Keizer's and Donna Fishers' case study portrayed the ways this transformation is beginning to unfold. Their stories demonstrated how initial reticence can preclude engagement and how a little encouragement can make a big difference. If their experience is representative of other residents and staff then we can expect to see more people engaged as active producers at some point in the future. However, in order to achieve greater use of technology for the purpose of community building, Camfield leadership is going to have to take a more active role in promoting its use in this capacity. CTA board members, NTC representatives, Camfield staff members, and Cornu employees will have to set in place policies and procedures that mandate certain behaviors in order to facilitate and accelerate this shift. Donna's experience with the selection committee e-mail list is a good example of the kind of efforts that will be required.

Paulette Ford's case study highlighted how the history of Garfield Gardens has shaped the culture at Camfield Estates. Based on her account, it is clear that in the absence of a rallying cause or "issue" in the hearts and minds of residents, community technology and community building may be relegated to the status of a "vitamin" not an "aspirin." Vitamins enhance. They are used to improve upon the status quo, but without them the status quo remains. Aspirin alleviate discomfort. They are used to restore the status quo, and without them a problem still persists. Similarly, community building for the sake of community building will never be enough (much like access for the sake of access is never enough). In the same spirit that residents once organized to convince HUD not to sell Camfield Gardens it remains to be seen what the analogous, convening ethos will be for Camfield Estates. It is very possible that one of the issues such as youth, seniors, community, safety/security or employment may emerge as "the issue," or perhaps the threat of gentrification in the post-disposition age. Regardless, the absence of a well understood and clearly defined set of goals and objectives upon which technology could be brought
to bear, slightly diminished the richness of the early results. The importance of this realization as a critical factor to the sustainability of a community technology and community building initiative is discussed in the next section.

It would be an interesting exercise to re-attempt this project in a housing development that was already engaged in an explicit community building activity that could be enhanced, almost immediately, through the use of technology (e.g., a bartering or exchange network or a job matching initiative), in order to see the effects of a similar technological infrastructure along with relevant courses and tools. In this case, technology would simply augment existing behaviors, as opposed to the situation at Camfield which, conceptually, called for the initiation of certain behaviors and subsequent augmentation of said behaviors. Clearly, the former is not only preferred but also expected to be a more effective strategy than latter. Technology is best used as a tool — one that enhances, rather than replaces existing activity — but tools do not spawn action, people spawn action. It would have also been an interesting exercise to introduce this project at the time Camfield residents were beginning to organize themselves in the early 90's. Would the immediate and pressing need to communicate result in more widespread use of the technological infrastructure? Or would the immediate and pressing demands on residents' attention and time prevent them from exploring such possibilities? Regardless, at the point in time that residents once again decide to take concerted action, their heightened awareness of community resources and the information and communications infrastructure at their disposal will be brought to bear in a way that reflects their further engagement as active agents of change.

Camfield was an excellent site to conduct my inquiry along a number of lines. In addition to CTA's organizational strength, the property's readiness for high-speed Internet access, and the manageable size of the development, there was also a high degree of social capital already in place as a result of the ties that were established at the former Camfield Gardens. These relationships undoubtedly contributed to the project's success, relatively speaking, by creating a foundational social fabric, upon which the project could then build. On the contrary, Paulette Ford's case study points to the cultural barriers that have
been transmitted alongside this history, with her reference to losing some of the old families and acquiring some new families “who do not share the same ideals or principles as before.” Because a community technology and community building initiative cannot be disentangled from the context surrounding its locus, the influence of Camfield’s past on its present activities, including the project’s outcomes, may never be crystal clear. Similarly, CTA’s central role in this project begs the question of how much the impending ownership of the property has and will influence their use of the technological infrastructure? It is safe to say that although it was not identified as an “issue” during the preliminary assessment, the imminent responsibility of managing a multi-million dollar housing development is certainly in the forefront of CTA board members’ minds, all of whom were participants in Round I.

On the technological, social, and cultural opportunities at Camfield, Nakia offers his thoughts and observations on the project looking forward:

I feel like we’re right there... that the future’s really bright in terms of community building and the residents here using this as a tool to build community from within the community. I feel like there definitely are some steps that have to be taken to get there, but I feel like we’re on our way there. And I feel like there are a lot of social and cultural issues that need to be addressed individually and maybe as a whole that need to be undone before we can get to that point and I think they’re slowly being scratched at.

I feel like efforts to build community at Camfield have increased ten-fold. We now have a director of community outreach and she has been very active and it’s the first time we’ve had someone in that position. I think it is a positive reflection of the project. Furthermore, I think the fact that these things are being made an issue and the fact that they generate conversation is a very important element of community building. The fact that [community technology and community building] is even an issue is a step in the right direction. Conversations about technology and building community never came out of people’s mouths before. The biggest
issue isn’t why they aren’t contributing to the site, or what they haven’t done, the fact is that they feel like they should. I think that’s almost as important. That we’re talking about community building is very key. So in that sense I feel like the project is already a success.

People are thinking… and that is a crucial, crucial element.

As indicated by Nakia’s comments, at the core of these opportunities is not only residents’ reorientation toward integrating technology into their daily lives, but rather, residents’ reorientation toward integrating technology and community building into their daily lives. Such a paradigm shift is fundamental to the arguments put forward by sociocultural constructionism and an asset-based approach to community technology and community building. It is anticipated that as the technological and social challenges are hopefully addressed via continuous learning and greater levels of engagement amongst the families at Camfield, this cultural shift will similarly be advanced as residents gradually adjust their habits and expand their vision of the possibilities.

Challenges and Opportunities of a Sociocultural Constructionist and Asset-Based Approach

In the previous section, I discussed several of the challenges and opportunities experienced by the Camfield Estates-MIT project that were particular to Camfield Estates. Here, I present my thoughts on what I believe to be the universal challenges and opportunities of a sociocultural constructionist and asset-based approach to community technology and community building, while still drawing on my observations thus far. Furthermore, while in the process of highlighting these issues, on certain occasions, I also draw attention to those items that are even more broadly applicable to community technology and community building initiatives in general.
Balancing Time and Resources

The sociocultural constructionist and asset-based theoretical framework places considerable emphasis on engaging participants as active agents of change and active producers of information and content – two notions that are perhaps best envisioned as lying along a continuum, with varying degrees of “activeness” at each point along the continuum.

Generally speaking, one of the more accurate measures of residents’ involvement as active participants in an initiative is the amount of time they spend performing activities that are related to the initiative. This includes formal activities such as time spent in courses, planning sessions, meetings, etc., and informal activities such as time spent practicing new computer skills, contributing information and content online, thinking about associated issues, etc. In the context of resident involvement and participation, there are three ways an initiative can benefit from their time. First, by residents volunteering their time (e.g., all of the seats on the CTA board of directors are unpaid positions), second, by paying residents for their time (e.g., we hired four residents as summer project coordinators and one resident as a part-time project leader thereafter), and third, by placing mandatory demands on residents’ time (e.g., we required completion of the introductory and specialized courses in order to receive the computer and Internet access). Notice that the latter two ways of soliciting participation require some form of resources either financial (e.g., money for salaries) or material (i.e., computers, Internet access, etc.). The challenge and the opportunity lie in balancing the available resources (if any) to maximize their utility, such that residents would be willing to contribute their time by way of the former. Some would argue that volunteered time is the only meaningful reflection of residents’ active involvement because it is neither compulsory nor contrived, but I believe there is value inherent in all three means, especially when treated properly.

With respect to compensating residents for their time, too often initiatives are unwilling to do so as if to subtly suggest that community work is not valued work or necessarily synonymous with volunteer work.
Without question, some of our best uses of funds have been earmarked toward paying residents' wages in return for their participation. The time spent during the summer 2000 conceptualizing and planning the Camfield Estates-MIT project, ensuring that our approach was sensitive to residents' concerns, heightening awareness of the program, mapping local community assets, strategizing on ways to engage other residents, and more, all made significant, positive contributions to the initiative. For example, after lengthy discussions, a decision was made to remove a number of questions from the preliminary assessment survey instrument. Residents involved with the summer team believed that the benefits of obtaining this information for formative or research purposes did not outweigh the cost of exacerbating the anticipated reluctance of some residents to participate due to concerns about the data being collected (and how it could be used to their detriment), or intensifying their anticipated perception that the technological infrastructure might be used to monitor their day-to-day lives. For similar reasons, we also reworded several questions on the survey and paid careful attention to the introductory wording for each section. These and other valuable insights would have been prohibitively difficult to bear on the project were it not for the fact that funds were dedicated to support residents' time to discuss these issues. While residents' time can always be "bought," the fact that they are paid does not diminish the sanctity of their efforts, but instead legitimizes the importance of their contributions. There was overwhelming enthusiasm from the residents on the summer project team about having the opportunity to make money and contribute to their community.

At the same time, not all projects have the luxury of available funds to spend on these and other activities. Under such circumstances, there are more creative ways to enlist the participation of residents that leverage the areas where monies have been allocated, such as placing mandatory demands on residents' time. For example, we made the decision to require at least one adult from each household to participate in the project in order to receive the new computer and high-speed Internet access, recognizing that it would have been easy to solicit the involvement of youth. Anecdotally speaking, I would estimate that roughly one-third of the adult participants in Round I would not have participated otherwise, all of whom, now, would not hesitate to sign-up if given the opportunity again.
(100% of participants in the courses rated their experience positively). Alternatively, dollars spent on training and infrastructure such as subsidized courses or computers, can also be leveraged by requiring volunteer time of participants for future program-related activities in exchange for these items. For example, some community-based recycling programs require that participants rebuild two computers, one for themselves and one for another member of the community (YouthBuild, 2001), while others require that participants provide technical assistance to other participants after completing training, which serves as a community building mechanism in its own right (Bishop et al., 1999).

Time is constantly an issue, particularly under the aegis of a sociocultural constructionist and asset-based initiative that seeks to address issues related not only to community technology but also community building. Such time pressures are further exacerbated by some of the realities of low- to moderate-income communities, including the multiple, competing demands on residents’ time. For example, Saegart and Thompson’s (1994) study of 162 mothers of school age children in eight housing developments found that although these mothers had immediate access to social capital they were too busy to leverage it as a result of their responsibilities at home and/or work. They write, “The problem for most of these women was not the absence of social capital, but the presence of too many demands that required its use” (Ibid.). The results of the preliminary assessment and post-assessment at Camfield provide corroborating evidence. The preliminary assessment identified “not enough time” as the most commonly cited reason for residents’ lack of involvement in the community, while the post-assessment found that although participants wanted to use technology in creative ways they were often too busy to do so or their schedule was not amenable to attending follow-up courses.

Another closely related issue that we wrestled with at the beginning of the project was whether to provide the computers and Internet access free-of-charge. The argument for doing so was to lower this barrier to participation for residents who were reticent and/or could not afford to contribute their personal funds. The argument against doing so was to foster a sense of ownership and responsibility, as opposed to entitlement. In the end, we concluded that there was a “cost” associated with these items
in the form of residents' time (time to complete the preliminary and post-assessment interviews, time to complete the courses, time to participate in follow-up visits, etc.) and provided the items without a monetary cost. However, in the process of doing so we also gained additional insight to the tradeoffs between the aforementioned arguments. On one hand, there were some residents who felt no obligation to the project or their neighbors as a result of this opportunity, and from the community's perspective, nothing was gained from their participation. On the other hand, there were also some residents who not only felt an obligation to contribute something back to the community, but would have never participated were it not for the absence of a financial burden. To better understand this tradeoff, we can compare and contrast the case studies of Paulette Ford and Diane Atkins. For the early adopters, such as Paulette, who had a strong background with computers, it is conceivable that we could have charged money and even required volunteer time in return for the hardware, software and connectivity she received. For late adopters, such as Diane, an elderly woman with no background with computers, it is also clear that her story would have never emerged, and she would have never been convinced to participate if we had charged even a nominal fee. For research purposes, this enabled us to learn from her experience. For practical purposes, I would err on the side of charging participants with the expectation that if relevance is demonstrated very clearly, then that will be a strong enough incentive to motivate their use of personal funds.

With respect to placing mandatory demands on residents' time, we have found it to be most effective when it is done strategically to engage residents that may not have been engaged otherwise, or to multiply the effectiveness of investments in other areas, both in the hopes of more sustainable involvement (i.e., independent of funding). The case study of Nakia Keizer also lends credence to this final point. While he has been paid part-time as the project leader, and has truly appreciated the opportunity to supplement his income by working in his community, according to him, he will continue to be integrally involved with the project after the funds has been expended. In summary, whether participants are being paid for their time or their time is required to fulfill the requirements of a
program, these strategies can act as a catalyst toward galvanizing residents to see the importance of dedicating some portion their time, whether they are paid (preferably) or not.

**Coordinating Multiple, Interrelated Activities**

A sociocultural constructionist and asset-based approach to community technology and community building can potentially involve residents and non-residents in a broad range of activities including curriculum design, instruction, application and database development, content aggregation, organizational development, asset-mapping, asset-mobilization, event planning, project management, and community outreach, just to name a few. Essentially, each of these areas is a domain unto itself, requiring a certain level of aptitude and proficiency to do them well.

Through the collective efforts of CTA, WCS, and MIT, we have been fortunate to have expertise, or access to experts, in these and other areas. However, it has been incredibly difficult to coordinate our collective strengths in light of the fact that everyone cannot be involved in everything at every time. Some hard decisions had to be made consciously, but more often subconsciously, about whom should be focused on what and when. Naturally, each organization took the lead in those areas where they had traditionally worked in the past or where they felt they could make the greatest contribution. For example, CTA took primary responsibility for activities such as event planning and asset-mobilization. WCS was integrally involved with tasks such as curriculum design, teaching courses, and organizational development. MIT provided technical assistance in areas such as application and database development, and asset-mapping. While each organization has been competent and capable in orchestrating the activities within their respective domains (along with input from the other organizations), all would have benefited from a tighter coordination of these multiple, interrelated activities.

Because each of these areas were so time intensive, it was a constant struggle for each organization to fulfill its own responsibilities, while at the same time contribute time and energy to the activities of
others. Although the project team consisted of representatives from each organization, as well as MHFA, we met far too infrequently to discuss issues proactively and far too frequently to address issues reactively. In fact, I recall one meeting that took place after Round I, as we were preparing for Round II. We covered a tremendous amount of ground in a relatively short period of time, and at the end of the meeting someone commented, “This needs to happen more often,” and all of the heads at the table smiled in overwhelming agreement. An example when our collective efforts were coordinated successfully was the marketing and awareness campaign for Round II. WCS identified graduates from Round I to share their experiences with residents at a general meeting in the community center. CTA organized a series of social events during the holidays where Round I participants were asked to give testimonials of their experience to encourage other residents to sign-up. The project committee organized a door-to-door outreach campaign by going through the list of non-participants and asking someone who had a relationship with them (e.g., other residents, the Resident Social Services Coordinator, etc.) to contact them personally. As a result, we were able to dramatically increase the number of participants during Round II. An example when our collective efforts fell short was the subsequent introductory and specialized courses for Round II participants. As a result of miscommunication between WCS, CTA, and MIT, it was not brought to our attention that a few families were no longer attending the courses until we were practically near completion. As a result, the number of participants who completed Round II was somewhat lower than those who started.

One could easily argue that we should have spent more time upfront to avoid these problems. The truth of the matter is that we did invest a considerable amount of effort in holding meetings during the summer planning months, however, once the training was underway during the fall, we generally only came out of our figurative silos to address problems resulting from miscommunication or misunderstanding. While it would have been difficult to do – particularly in light of the fact that legal and regulatory discussions surrounding CTA’s impending ownership of the property were intensifying – we should have disciplined ourselves not only to discuss present issues, but also brainstorm potential future issues to avoid inevitable problems.
The challenge for us (and the opportunity for others) was that we didn’t have a clear sense for how we should have been spending our time during the planning phase, that is, not only was it not clear what we should have been planning for, it also wasn’t clear which tasks were high-leverage and which tasks were not. Now it is clear that we should have placed particular emphasis on the following activities: survey design and marketing (Phase I—Assessment and Awareness), curriculum design and teaching (Phase II—Community Technology: Introductory and Specialized Courses), asset-mapping (Phase III—Community Building: General and Specific Asset-Mapping), and sociocultural constructions and asset-mobilization (Phase IV—Sociocultural Constructions and Asset Mobilization). During Round I, I think we did a good job with respect to the survey design and asset-mapping activities. When compared to Round I, I believe we did a better job marketing the project during Round II. Sociocultural constructions and asset-mobilization is an ongoing endeavor and will continue beyond the official life of this project. However, it is in the area of curriculum design and teaching where I believe we under-invested our time. I discuss these challenges and opportunities next.

Developing a “Curriculum” that Supports Sociocultural Constructionist and Asset-Based Outcomes

My use of the term “curriculum” is akin to a series of projects and challenges, as opposed to a lesson plan or step-by-step arrangement of tasks, per se. What I am advocating here is, in fact, a reconceptualization of our own approach to the courses thus far. Here, I am referring to a set of experiences that integrate community technology and community building, and promote outcomes in the areas of community social capital and community cultural capital. In this context, I see a sociocultural constructionist and asset-based “curriculum” achieving four objectives.

- To impart technological literacy. This would involve teaching students “computer skills and the ability to use computers to improve learning, productivity, and performance” (U.S. Department of Education, 1996). Technological literacy has traditionally been the focus of community technology
training initiatives. At minimum, participants who have completed the courses should be technologically literate, which includes being proficient in general areas such as installation and configuration, the operating system, using a browser, e-mail, and office application(s).

- **To promote technological fluency.** This would involve empowering students with the fundamentals of how to “construct things of significance with technological tools” (Papert & Resnick, 1995; Resnick, Rusk & Cooke, 1998) through various projects and activities. This component of the courses would speak directly to the sociocultural constructionist ideology underlying its design.

- **To introduce and implement basic asset-mapping techniques.** This would cover topics such as defining the boundaries of the community, selecting an inventory method, developing a comprehensive list of resources, and compiling, organizing, and analyzing the information gathered. This component of the courses would be based on the methodologies of asset-based community development.

- **To overview and enact basic asset-mobilization methods.** This would cover areas such as visioning, consensus-building, planning, relationship-building, and more, which has typically been the focus of traditional community development courses. Here, I would place a particular emphasis on the role of technology in these activities.

In retrospect, our overall methodology was strong in the first and third areas, and weak in the second and fourth areas. The introductory courses adequately addressed the area of technological literacy, and during the summer months the project team spent considerable time discussing and implementing asset-mapping techniques (which could have also been incorporated into the courses but was not). Essentially, we established the building blocks for technological fluency and asset-mobilization without addressing these topics directly. This is not to suggest that residents, CTA in particular, were not well versed in community development practices. Several members of the board had participated in a series of organizational development workshops during the period leading up to renovation as well as
relocation. However, it is safe to say that these sessions underexplored the role of technology in community development, given the very recent advent of the technological infrastructure at Camfield.

I should also mention that after the courses were completed there were attempts to remediate the shortcomings of our methodology. Toward technological fluency, a course on web design was slated for the summer 2001, which was unfortunately postponed due to delays with the Round II courses. Also, when the Round II courses were being delayed as a result of challenges related to the literacy and language abilities of Round II participants, we made the decision to distribute the computers during the courses, rather than at the end of the courses, to give them the opportunity to reinforce what they were learning at NTC in their homes (in retrospect, because we now realize that this strategy would have benefited the Round I participants as well, we expect Round III participants to receive their computers at some point early in their participation). Toward asset-mobilization, time was set aside at a CTA board meeting to discuss the results of the preliminary assessment. I also made personal visits to the homes of each board member to review the Camfield Estates website and C3 system, and briefly highlight the local resources at their disposal. Meanwhile, our thinking continued to evolve in an iterative fashion as the project matured. For example, during Round II we dedicated more time to learning the C3 modules, explored how the various modules could improve communication at the development inside the actual class sessions, and encouraged more resident interaction during classes such as peer mentoring. Despite these efforts, it is now clear that what was truly warranted was a reorientation to teaching and learning, and one that was fundamentally, and comprehensively, socioculturally constructionist and asset-based.

Prior attempts to foster constructionist learning environments have been organized around projects (Hooper, 1998; Kafai & Resnick, 1996; Papert, 1983; Shaw, 1995) and challenges (Colella, Klopfer & Resnick, 2001), while several approaches to community revitalization training have incorporated a strong experiential component (CDEP, 2001; CRCP, 2001; Flora, 1997; Dobbs, 2000; Manning, 1999). This would have involved dedicating considerably more time during the planning phases — most likely an
additional two to three months – to move away for our activity-based curriculum and orchestrate a set of projects, challenges, and experiences that drew upon the findings from the preliminary assessment. For example, the preliminary assessment revealed that employment was an important issue among residents. Given this information, we could have organized a segment of the curriculum around discussing, strategizing, designing and implementing a job opportunity postings module for C3. General asset-mapping would have enabled us to obtain detailed information on the job training programs and employment agencies in the neighborhood, while specific asset-mapping would have allowed us to catalog the employable skills of residents (asset-mapping). The introductory courses could have introduced the basics of website and database design (technological literacy), and the specialized courses could have allowed participants to build the system collaboratively (technological fluency). Thereafter, the courses could have ended by establishing a plan to populate and maintain the database (asset-mobilization). This could have also involved partnering with local organizations to design a follow-up training curriculum that met the demands of the job market, filtering job opportunity postings through C3, and even matching these postings against the skill and interest profiles of residents.

Clearly, there are a number of items that would have had to have been completed prior to the beginning of the courses in order for these and similar scenarios to play themselves out. This includes compilation and analysis of the preliminary assessment, design and implementation of the Camfield Estates website/C3 system, development of new, supporting course materials, training-the-trainers, and more. This would have made it prohibitively difficult for us to do given our timetable and available resources. However, even without these items in place one could imagine a scaled-down version of the above scenario that did a better job of meeting the aforementioned objectives than did our past efforts. In the following chapter, I present a recommended project methodology that synthesizes these observations.
Conducting Assessment and Evaluation

As is the case with most community-based initiatives, assessing and evaluating a community technology and community building initiative is wrought with a number of difficulties. On a basic level, any attempt to foster widespread change is inconsistent with traditional, "scientific" methods of research, which seek to isolate interventions and their associated measures. In *A Guide to Evaluating Asset-Based Community Development: Lessons, Challenges and Opportunities*, Dewar elaborates on this point.

Twenty-five years ago, the idea of appropriate technology began to influence the way we think about the introduction and consequences of various tools. Some enable more effective use of local resources and talent, while others create dependence on outside expertise and production... In essence there are two very different approaches to doing evaluation. One draws heavily on scientific models, while the other seeks to describe and learn from what is being done. The scientific approach seeks to establish cause and effect relationships and relies on evidence that ideally can "prove" particular results. If applied to community building and other fluid or dynamic processes, it usually finds results that are inconclusive. The other approach – what we're calling “appropriate” evaluation – isn't really trying to prove anything, or even to establish final judgements. Rather, it seeks to understand how things work, what is changing, and what might be done next. (Dewar, 1997, p. 5)

Interestingly, in his chapter *Instructionism vs. Constructionism*, Papert makes a similar observation with respect to computers in classroom settings, which could be easily abstracted and applied to community settings.

A simple example is seen in the formulation of research questions... all such questions depend on the use of what is often called “scientific method,” in the form of experiments designed to study the effects of one factor which is varied while taking great pains to be sure that nothing
else is different. But nothing could be more absurd than an experiment in which computers are placed in the classroom where nothing else is changed. The entire point of the examples I have given is that the computers serve best when they allow everything to change. (Papert, 1993, p. 149)

On a more detailed level, the difficulties associated with evaluation stem from the fact that successful community initiatives often endeavor to be comprehensive, that is, they seek to positively affect as many people in as many ways as possible. In New Approaches to Evaluating Community Initiatives: Volume I—Concepts, Methods and Contexts, Connell et. al (1999, pp. 18-20), of the Aspen Roundtable on Comprehensive Community Initiatives (CCIs) for Children and Families, discuss the features of community initiatives that cause problems to arise during evaluation as a consequence of comprehensiveness:

- **Horizontal Complexity** resulting from attempts to effect change within and across multiple domains, and understand these inextricably bound changes.

- **Vertical Complexity** resulting from attempts to effect changes at the individual, family, and community level, and understand the bi-directional relationships between these levels.

- **Contextual Issues** resulting from a broader set of circumstances that have a direct and indirect impact on the initiative but are well beyond the ability to control, such as the social, cultural, economic, political, and racial climate surrounding the community.

- **Flexible and Evolving Intervention**, or the tendency of CCIs to adapt over time making it difficult to evaluate their progress against initial goals, objectives, strategies, and measures.
• *Broad Range of Outcomes* that reflect “a range of less concrete domains for which there are few agreed-upon definitions, much less agreed-upon measures” (Ibid., p. 19).

• *Absence of a Comparison Community or Control Group*, which limits the ability to interpret results, draw conclusions, and generalize findings.

Clearly, the challenge of evaluation lies in resolving the difficulties referenced above. Conversely, the previous discussion also suggests that tremendous opportunities can arise from a better understanding of what works and what doesn’t work, as such information can only contribute to a project’s success. What has emerged as a strategy to achieve this understanding is an approach to evaluation known as “theory-based” or “theory of change” evaluation (Weiss, 1995; Fulbright-Anderson et. al, 1999). It is described by Weiss (1995, p. 57) as an approach to evaluation that surfaces “explicit and implicit theories about how and why the program will work,” and further defined as “a systematic and cumulative study of the links between activities, outcomes, and contexts of the initiative” by Fulbright-Anderson et. al (1999, p. 2), in *New Approaches to Evaluating Community Initiatives: Volume 2—Theory, Measurement, and Analysis*, a follow-up to the earlier volume. While the study described herein is in some ways congruent with this methodology, one characteristic it definitely shares with such an approach is the theory-based lens through which I have interpreted the early results (which is subtly different than the theory-based nature of my interactions with residents).

An initiative that is guided by the theoretical framework of sociocultural constructionism and an asset-based approach to community technology and community building endeavors to foster positive changes in community social capital and community cultural capital. These concepts encompass a broad range of indicators that have been informative to me from a research perspective and useful to the initiative from a practical perspective.
I have attempted to explicate the community social capital construct by aggregating individual indicators of social capital drawn primarily from other survey instruments (Hampton & Wellman, 1998 & 1999; Saegart & Thompson, 1994; Minicucci, 2000; Resnick, 2000; Rothenbuhler, 1991; Stamm, 1985; Mueller, Briggs & Sullivan, 1997), in addition to conducting case studies. These individual indicators were principally quantitative in nature and included measures of social networks, obligations and expectations of trustworthiness, norms and effective sanctions, and access to information, which are fairly consistent with traditional notions of social capital. Conceptually, I believe my definition of the concept captures the essence of a community's social capacity based on a sociocultural constructionist and asset-based paradigm. And while the aggregation of individual indicators worked well for certain measures such as community involvement, attachment, and neighboring, there is still room to incorporate truly community-level indicators such as measures of organizational effectiveness, efficiency, etc., as well as more in-depth social network analysis. Furthermore, there were a number of measures that were self-reported by participants, including a few questions related to the utilization of community resources. These measures could be strengthened through the use of more objective methods that actually trace the outcome that was associated with utilization of the resource (i.e., Did they enroll in the program? Did they join the organization? Did they participate in the activity?).

I have attempted to explicate the community cultural capital construct through the use of triangulation and reliance on a variety of data collection techniques including direct observation, proxy server logs, web server logs, and quantitative measures drawn from related initiatives (Bishop et al., 1999; Kavanaugh & Patterson, 1999). However, my primary sources of data have been qualitative responses from the preliminary and post-assessment surveys and case studies, whereas I had to develop these protocols myself. Together, I have found these sources to be useful in providing a rich, contextual viewpoint on how the project has shaped the lives of participants and the community. I have chosen to operationalize the community cultural capital construct as knowledge and resources, shared interests, technological fluency, and attitude and perception, which represents my own conceptualization of the concept. Again, I believe this definition captures the essence of a community's cultural capacity from a sociocultural
constructionist and asset-based perspective. However, in the absence of a diverse array of sociocultural constructions on the part of the participants in this study (for reasons that have already been articulated), my subsequent discussions of community cultural capital somewhat lacked a more probing analysis of what people are producing, the impetus underlying their efforts, and how these artifacts have contributed to their community.

Finally, because community social capital and community cultural capital are process-oriented indicators, the Camfield Estates-MIT project overall would benefit from a series of follow-up evaluations that are solely focused on product-related indicators, or tangible outcomes such as changes in employment, reductions in crime, improvements in school, and the like.

Sustaining the Initiative

In the context of a community technology and community building initiative, I define sustainability to include maintenance and support of an established technological infrastructure (community technology), and more importantly, residents' continued engagement as active participants in the process of building community online and offline (community building). To begin, I discuss the former as it is more generally relevant to any community technology and community building initiative. Then, I discuss the latter as it is directly relevant to sustaining a sociocultural constructionist and asset-based approach to a community technology and community building initiative.

Sustaining Community Technology (Established Technological Infrastructure)

With respect to sustaining an established technological infrastructure (computers, software, Internet access, courses, and associated programs), first and foremost, I see the clear and present need to foster multi-sector collaborations (Robinson, 2000), as each sector has a role to play in this regard. CTA (nonprofit) has established relationships with universities, government agencies, corporations,
foundations, other nonprofit organizations, and neighboring tenants associations, to sustain its' efforts thus far. HUD (public) and MHFA (quasi-public) have played a critical role with respect to their participation in the demo-dispo program, the establishment of NTC along with WCS (non-profit), and ensuring that the technology center remains operational. Support from W.K. Kellogg (foundation), Hewlett-Packard (private), Microsoft (private), RCN (private), and others, has been instrumental in providing state-of-the-art computers, software, and high-speed Internet access. MIT's (academic) strength in areas such as research, education, urban studies, planning, and technology positioned the institute to provide useful technical assistance, assessment, evaluation, software development, and more. Similarly, each of the remaining entities that have partnered with CTA such as Cornu Management, Roxse Homes, CISCO, and others, which span the public, private, academic, foundation, and nonprofit sectors, has contributed something different, yet valuable to sustaining this initiative.

Therefore, the three critical factors to sustaining a technological infrastructure are: 1) an initial infusion of resources, or "start-up resources", vis-à-vis, the hardware, software, grant monies, and other resources that have been secured at Camfield, 2) ownership and control of a sustained revenue stream, vis-à-vis, CTA's impending ownership of the development which will transfer control of the property's budget to them, and 3) organizational capacity, vis-à-vis, CTA's demonstrated commitment to internal capacity-building, which is strengthened by their ability to cultivate and leverage the aforementioned relationships. It is these three elements that ultimately bode well for efforts to be sustained. And notice that if you remove any of the aforementioned partners, in particular HUD and MHFA, sustainability is once again a major issue. This is not to suggest that Camfield's future sustainability is guaranteed, but rather, that these elements are quite central in their efforts to get there.

In the absence of such a rare plethora of partners, other technology initiatives looking to reduce their reliance on outside dollars, in particular CTCs, have turned to revenue-generating activities such as the Kinko's-like operation under consideration at NTC, youth-oriented web design businesses, renting their computer labs and facilities to other organizations, and charging fees for technology courses.
I believe the critical factors to sustaining residents' engagement in the process of building community online and offline are: 1) the need to assign or create a representative organization with the capacity to lead the initiative, 2) the need for focus and a recognized issue(s) with clearly defined goals and objectives, 3) the need for a community technology and community building facilitator(s) who is actively concerned about residents' involvement online and offline, 4) the need to provide an ongoing mechanism for technical support for participants, and 5) the need to cultivate attitudinal changes among participants in the meta-cognitive realm. Note that an excellent resource for most of these topics is *Community Building in Public Housing*, by Naparstek, Dooley, and Smith (1997).

First, it is much easier to coordinate a community technology and community building initiative with a representative organization in place, that has the capacity to play a leading role. We have benefited tremendously from the organizational strength at Camfield by way of CTA. With an impressive track record of successful community organizing and activism, CTA has itself themselves as one of the leading tenants associations in the greater Boston area since it was founded in 1993. As a result, we have been able to take for granted a variety of essential elements such as a governing board, by-laws, regular meetings, etc., and instead focus our energy on establishing the technological infrastructure and building the community. For this reason, any community seeking to conduct a similar effort should either partner with an existing organization or establish a new one.

Second, without focus and a recognized issue or set of issues to galvanize residents, and clearly defined goals and objectives, community building becomes community building for the sake of community building. At Camfield, the issues of youth, community, safety/security, and employment were identified as issues but, as mentioned earlier, none emerged as “the” issue. In the absence of a cause to which residents are willing to dedicate their time and energy, community technology and community building efforts can only advance but so far.
Third, successful community building online and offline can benefit tremendously from the services of a facilitator, or someone who plays a central role in monitoring the activities of the community, keeping community members informed, and promoting their engagement (Naparstek, Dooley & Smith, 1997). Offline, Paulette Ford, Donna Fisher, and a few others have served in this capacity at Camfield. In fact, their efforts were reflected throughout my discussion of strategies undertaken as informed by the preliminary assessment, including the recruitment of Diane Atkins to the project, the involvement of seniors with the Senior Internet Café, regular postings and updates to the Camfield Estates website and the C3 system, and other technical/non-technical support provided for residents. Online, I have served in this capacity at Camfield by promoting the Camfield website and the C3 system, providing “friendly” reminders to residents and staff about making use of these tools during their day-to-day activities, and arranging one-on-one visits with selected families and all of the CTA board members. While certain individuals have stepped into this role on various occasions (e.g., Donna’s involvement with the selection committee e-mail list), I have yet to see someone mount a sustained effort in this regard. Residents’ engagement, particularly online, will continue to lag behind their relatively stronger offline engagement until someone fulfills this role. Ideally, whomever assumes this role should be concerned with matters both online and offline. This would allow them not only to leverage the synergies that exist between both realms, but also play a role in connecting residents to potentially useful resources.

Fourth, another critical factor to sustaining residents’ engagement is to provide an ongoing means of technical support. If this support is not in place there is a definite risk that residents’ progress toward achieving technological fluency could be hindered if there are no informal channels for obtaining technical assistance at their disposal. Generally speaking, the early results revealed that only those participants who received some form of ongoing technical assistance for continuous learning made progressive strides toward technological fluency. To obtain this support, Camfield residents have indeed benefited from the presence of NTC, which is conveniently located on the premises and also staffed by full-time employees of WCS. Interestingly, given the home-based computing strategy of the Camfield Estates-MIT project, this points to the ongoing importance of CTCs in low- to moderate-
income communities. To support participants who are not within reasonable proximity to a CTC, potential strategies to provide reliable support could include a telephone help desk, online bulletin board or discussion forum, and perhaps videoconferencing, to name a few.

Fifth and finally, perhaps the greatest testament to the sustainability of a community technology and community building initiative is the extent to which an attitudinal shift has taken place among residents in the meta-cognitive realm. Stated differently, if residents are able to change their thinking about their thinking – their vision of their role, their vision of community technology and community building, and their vision of the possibilities – then regardless of whether the aforementioned elements are in place, they will be forever empowered to ensure that existing momentum is not lost. At Camfield, we have witnessed a change in participants' perceptions of themselves as continuous learners, but that is subtly different than a concomitant shift in their vision of the possibilities for their community. Fortunately, there are seeds of evidence in the early results and the case studies that this shift is taking place. This is, by far, the strongest argument for the project's continued sustainability, and provides a clear directive for initiatives that are pursued in the future.
CHAPTER II

CONCLUSION

This chapter presents my final analysis of the Camfield Estates-MIT Creating Community Connections Project, including lessons learned, recommendations for similar initiatives, and my concluding remarks.

My research question for this study was: In what ways can community social capital be increased and community cultural capital activated through an integrated community technology and community building initiative in a low- to moderate-income housing development and its surrounding environs. My hypothesis was that a sociocultural constructionist and asset-based approach to community technology and community building, could positively contribute to increasing community social capital and activating community cultural capital, as a result of residents' involvement as active, rather than passive, participants in the process. My experience with the Camfield Estates-MIT Creating Community Connections Project thus far has given me greater insight to certain areas of this question and less in others. Essentially, the results thus far represent a "snap-shot" along the developmental curve for the project. They provide insight to the ways that life has changed at Camfield since the initiative began, while recognizing there are inevitably more changes to come in the future.

INCREASING COMMUNITY SOCIAL CAPITAL

Along the lines of community social capital, we observed measurable differences in participants' social networks and access to information, yet there were no marked changes in their behavior surrounding obligations and expectations of trustworthiness or norms and effective sanctions. In the previous chapter, I discussed of the social and cultural factors at Camfield that may have influenced these outcomes.
The early results revealed that residents' social networks were reinforced as well as expanded. Computers and the Internet opened another avenue to connect with family and friends, and more interestingly, the combination of online activity (e.g., browsing residents' profile, posting to the discussion forums, etc.) and offline interaction (face-to-face interactions in the courses, social events, etc.) resulted in a 33% increase in name recognition, and a 100% increase in telephone and e-mail communication. Not surprisingly, but in accordance with my hypothesis, Nakia Keizer, who was by far the most active participant with the project, also experienced the most significant changes to his social network at Camfield between August 2000 and August 2001, including an increase from 38 to 142 people he recognized by name, 11 to 24 people he talked to on a regular basis, 5 to 20 people he invited into his home in the past six months, 4 to 20 people who invited him into their home in the past six months, 4 to 29 people he contacted via telephone in the past six months, and 1 to 17 people he e-mailed in the past six months. Through his case study, we can clearly see how his involvement in asset-mapping, interviewing, sociocultural constructions, asset-mobilization, and the like, undoubtedly contributed to these numbers.

The early results also found measurable increases in residents' awareness of neighborhood assets. This included statistically significant changes in 6 out of 10 categories for community resources, whereas the Camfield Estates website and C3 system were most commonly cited in this regard. On one hand, a heightened awareness of community resources is not the same as a heightened utilization of community resources. On the other hand, not only does it speak to a strengthened capacity, but the strategies undertaken at Camfield as informed by the preliminary assessment plainly demonstrate that residents are making use of local assets, whereas the causal relationship between these activities and the advent of the project is at times unclear.

Again, with respect to my hypothesis, it stands to reason that residents who were directly involved in the processes of sociocultural constructions and asset-mobilization stand to benefit the most as a result of their active participation. For example, looking to the case study of Nakia Keizer once more we see
that he now possesses a vast understanding of the assets and resources in his community. Is he well-positioned to leverage this knowledge? Absolutely. Has he taken steps to actually do so? To a certain extent, yes, as evidenced, for example, by his planned efforts to coordinate a partnership with the Boston Empowerment Zone. Undoubtedly, a more longitudinal investigation would lend even greater insight to these questions.

There is an argument to be made that as a result of residents’ expanded local ties and heightened awareness of community resources that their capacity has been strengthened. What is not clear is the extent to which this enhanced capacity has translated into a reconfiguration of participants’ local activities, or transformation of their interactions. Contractor and Bishop (1999) argue that the majority of successful applications to date tend to use technologies to substitute for and/or enlarge existing community interactions and transactions, and that to improve conditions for low-income residents, there is a need to deploy tools that help reconfigure community interactions. The early results of Camfield residents’ most popular uses of their computer and Internet access, as well as the case study of Diane Atkins, suggests that this has indeed taken place, but on a global, not local basis thus far.

In the areas of obligations and expectations of trustworthiness and norms and effective sanctions, we have not been able to effect change, but at the same time recognize that these indicators have very strong connections to pre-existing patterns of behavior and the social and cultural environment at Camfield. As mentioned earlier, it is certainly plausible not only that sufficient time has not elapsed to observe measurable changes in these categories, but that changes could have taken place among other demographic groups at the development such as youth and seniors. While we were not so naive as to expect that technology alone would act as a catalyst in this regard, it still remains an unanswered question as to how community technology can support community building in these areas.

In summary, along the lines of community social capital, from a micro perspective, there are individual success stories such as that of Diane Atkins, who has benefited from a global standpoint, and Nakia
Keizer, who has benefited from a local point of view. From a macro perspective, we have been able to
effect change on the "surface" thus far – new acquaintances that can be translated into meaningful
relationships, and a better awareness of community assets and resources that can be translated into
meaningful utilization thereof.

**Activating Community Cultural Capital**

With respect to activating community cultural capital, the post-assessment and case studies uncovered
observable differences in communication and information flow at the development, as well as a shift in
participants' attitudes and perceptions of themselves as learners. These early results fall under the
categories of knowledge and resources and attitude and perception, respectively. While significant progress
was not achieved under the categories of technological fluency and shared interests, I provided an in-depth
discussion of the challenges and opportunities within these areas in the previous chapter.

The technological infrastructure at Camfield – the Camfield Estates website and C3 system in particular
– is indeed being used for the purposes of communication and information exchange at the local level.
Residents reported that they are more informed about what is happening at the development.
Furthermore, when measured in terms of the proxy server logs and web server logs, their use of the
Camfield Estates website has increased steadily, with the resident profiles, calendar, and discussion
forums being the most popular modules. This is primarily due to the efforts of a core group of residents
and staff, several of whom were profiled as case studies. Paulette Ford has made extensive use of the
C3 tools to share notices, events, and updates concerning the development. Constance Terrell now has
at her disposal a range of locally oriented channels she can use to market her new venture to neighbors.
Donna Fisher has strengthened her ability to do community outreach by sharing job opportunities,
posting activities, and facilitating a more efficient flow of information. Nakia Keizer is spearheading the
rebirth of the Camfield Estates newsletter to improve communication among residents, CTA, NTC, and
Cornu. To a greater or lesser extent, all of these individuals are taking steps to activate information that is of value, or potential value to the community.

As a result of the courses, the availability of the C3 system, and the establishment of the associated infrastructure, we have activated this subset of what constitutes community cultural capital, all of which lies under the heading of knowledge and resources. First, by browsing through the resident profiles, participants are getting a cursory understanding of the skills and abilities of their neighbors. Second, through the "News and Announcements" discussion forum and calendar of events, residents are sharing information concerning what is happening, when and where. Third, in the "Help" discussion forum residents are sharing and exchanging technical know-how. However, these activities still leave as fertile ground a whole host of opportunities to exchange knowledge and resources that largely remain untapped. This includes recommendations and referrals (e.g., "Does anyone know where can I obtain good daycare?"), informal or formal bartering (e.g., "Can anyone fix my faulty modem?") and advice (e.g., "Do you think my children would benefit from that program too?"). Similarly, as there was no noticeable activity with respect to participants' coalescing around shared interests (e.g., a group of adults forming a book club), this too remains as fertile ground.

Therefore, in the area of knowledge and resources we have been able to effect modest change while in the area of coalescing around shared interests we have not. Once again, we must also recognize that these areas have a very strong connection to pre-existing patterns of behaviors, and also require sufficient time to manifest themselves. However, for the purposes of this study, the questions related to the role of community technology in supporting community building activities such as these, are still unanswered.

The introductory/specialized courses and their underlying curriculum enabled participants to move closer toward activating another heading under community cultural capital, technological fluency. Qualitative responses from the early results found that a few participants were using technology in
fluent ways such as designing web pages, online photo albums, flyers, and picture calendars, while several others desired to do so. From the case studies we can see that Paulette Ford already possessed a high degree of fluency going into the project and, thus, has become the most avid user of the Camfield Estates website and the C3 system. Constance Terrell’s story was one that portrayed her emerging transition from technological literacy toward technological fluency as a result of the project. Similarly, Nakia Keizer articulated himself the importance of active production of information and content and, since moving beyond a certain level of reticence, is now contributing content to the Camfield Estates website and the C3 system. He is also helping to produce the Camfield Estates newsletter, with plans to do even more underway. Donna Fisher’s case study shared her efforts to recruit residents through a combination of offline (flyers she produced) and online (postings to the calendar and discussion forum) strategies. And even Diane Atkins’ first experience of posting a response to a chat room is an encouraging sign that progress is being made.

Therefore, it was participants’ prior experience with computers, the courses, the curriculum, the extent to which they engaged in follow-up activities (e.g., courses, experimentation at home, etc.) and the degree to which they were able to obtain some means of ongoing technical support for learning (e.g., family member, friend, NTC staff member) that were the determining factors of how far they moved in this regard, with the curriculum itself predominating, as mentioned in the previous chapter. In summary, we have been able to activate this component of community cultural capital through examples such as the newsletter, the proposed business venture at NTC, and the activities surrounding the youth bake sale, but not yet fully. Undoubtedly, the anticipated follow-up course on web design will advance our efforts even further in this regard. What remains unanswered is the extent to which more participants will continue along this path, and more importantly, referring back to my hypothesis, translate their creative and productive endeavors into socioculturally constructionist and asset-based endeavors. This can be achieved by continuing to produce and leverage various sociocultural constructions in a way that positively contributes to the community, as it is partially through the creation and production of information and content that residents can engage in a reciprocal cycle of community growth. For this
reason, technological fluency holds tremendous promise for residents to expand their use of technology as a means to mobilize assets and build community.

Finally, the most promising activation of community cultural capital falls under the heading of attitude and perception at the attitudinal, and to some extent, meta-cognitive level. At the attitudinal level, qualitative responses from the early results showed that participants' perceptions of themselves as learners has moved in a positive direction. We also saw strong supporting evidence for this claim in the case studies of Diane Atkins and Constance Terrell, both of whom expressed a renewed confidence in their abilities. At the meta-cognitive level, there are also seeds of evidence that for some participants, their thinking about their thinking has also changed – a phenomenon I also referred to as a “social and cultural shift” during my discussion of several case studies. The experience of Diane Atkins, Nakia Keizer, and Donna Fisher, all involved introspective reflection of their own cognition, and a transformation of their thinking about themselves in relation to technology. Nakia analyzed his own ways of thinking and how they contributed to the lag between his online and offline leadership. As a result of her own self-awareness, Donna eventually came to grips with her repeated disinclination to couple her traditional outreach efforts with the web. Diane Aktins underwent, quite possibly, the most significant metamorphosis as she evolved from a position of adamant reluctance to impassioned resonance.

In summary, we have been able to activate community cultural capital in two ways. First, we have helped facilitate an improved communications and information flow. Second, we have empowered participants to see even greater possibilities for themselves and their community, and I believe it is here that our efforts have made the greatest contribution.
LESSONS LEARNED AND RECOMMENDATIONS

The following are lessons learned from the Camfield Estates-MIT project and recommendations presented to community technology and community building practitioners, researchers, funders, government agencies, and public policy makers.

Seek to Understand the Social and Cultural Environment

To achieve a social and cultural resonance one must understand the social and cultural milieu. The integral involvement of residents and the results of the preliminary assessment have been invaluable in this regard. For the project team, they both provided tremendous insight to the social and cultural environment at Camfield and the issues deemed important by residents. While some of things we have learned are clearly specific to Camfield, such as the problems faced by residents and the ideas they have for improving the neighborhood, others can easily be abstracted to other contexts, such as residents’ desire to obtain and share local knowledge and their interest in obtaining more information about employment opportunities. Any group seeking to conduct a similar initiative, would benefit from understanding the community-specific issues. Our survey instrument included more than 250 questions for research and benchmarking purposes, however, we have found the following eight questions to be of the greatest value toward understanding the nuances particular to Camfield:

- What is the best thing about living in Camfield Estates?
- What are the challenges facing the Camfield Estates community?
- What ideas do you have for making Camfield Estates a better place to live?
- What are the community issues that are most important to you (e.g., employment, safety, education, etc.)?
- Would you like to participate on a committee to oversee this project?
- What would you like to see made available on the Camfield website?
- What topics would you like to see addressed through training?
• Is there any information you would like to share with others by using computers and the Internet? If so, what?

These questions have been the most helpful in guiding our integrated community technology and community building initiative. They cover important community-related areas such as the issues deemed important, ideas for addressing them, and active participation, and they cover important technology-related areas such as training, content, and active production. Short of conducting a very elaborate assessment, which can be costly and time consuming, these few questions would require considerably less effort, while delivering worthwhile results to help in understanding a particular social and cultural environment.

Seek to Understand Individuals, Families and the Community

The preliminary assessment collected a range of formative data to guide the project moving forward at the individual, family, and community level. At the community-level, the preliminary assessment revealed the issues of youth, community, safety/security, and employment. Consequently, strategies were undertaken to address these areas as informed by the results of the assessment. While there were a series of questions on the preliminary assessment centered on the needs of each household (individuals or families), the compilation and analysis of this data still remains incomplete for a variety of reasons logistically.

Naturally, the yet-to-be-generated recommendations resulting from this data could have provided Camfield leadership with additional insight to the initiative, and possibly reshaped the strategies undertaken thus far. For example, an assessment of the families may have revealed that one of the challenges to attending the training was the need for childcare. Alternatively, the individual assessment could have revealed that participants required a more flexible training schedule due to employment obligations. Lastly, it is conceivable that the assessment of individuals and families could have revealed
the desire for specific training themes, such as online investing or advanced web searching techniques, which were not revealed from the assessment of the community. These and other findings could have focused our energies to an even greater extent, served as a catalyst to further involve relevant parties (e.g., the resident social services coordinator to assist with certain issues), and in some cases, foreshadowed some of the hurdles we had to overcome during the awareness campaign for Round II, and now Round III.

**Leverage Assets Through Coordinated Effort**

The day-to-day organizers of the Camfield Estates-MIT project included CTA, resident members of the implementation team, and representatives from MIT, WCS, and MHFA. As discussed in the previous chapter, each of these partners brought a different strength to the table and assumed primary responsibility for a different aspect of the project. CTA maintained a leadership role in organizing events and managing the development's operations. Resident members of the implementation team served as project leaders and coordinated various aspects of the asset-mapping and asset-mobilization initiatives. MIT took the lead on project management, research and evaluation, and system design and implementation. WCS handled curriculum development and course facilitation. MHFA provided oversight for NTC as well as strategic input to the project overall.

As a result of these related, yet distinct assignments, each organization gained a different, yet valuable perspective on the initiative. Leveraging assets through coordinated effort means maintaining constant communication among all interested parties. Unfortunately, there were times when our collective insight remained largely untapped due to breakdowns in communication as a result of our own fragmented efforts and the associated demands on our time. Additional meetings up-stream could have saved us considerable time and effort downstream. Leveraging assets through coordinated efforts also means enlisting the participation of a range of community members. Two constituencies who were somewhat underutilized for this project were both the youth and senior populations at Camfield.
Recent efforts such as the now expanded Internet Café (for youth, adults, and seniors) represent a step in the right direction. Ongoing efforts to reach out to these and other groups could have only strengthened the initiative by making it relevant and responsive to a larger audience. Also, as mentioned previously, we have not yet followed-up with residents who expressed an interest in contributing to the project. In summary, for CTA, MIT, WCS, and MHFA, it was during those times when our efforts were coordinated in unity, thus leveraging our combined strengths, that the benefits to the project were readily apparent and synergistic.

**Demonstrate Relevance Clearly**

At times, it has required nothing short of going door-to-door to demonstrate the relevance of technology, as evidenced by the grassroots mobilization required to solicit Round II participants. We have endeavored to demonstrate relevance in two particular ways. First, by providing a curriculum that is activity-based and combines a variety of learning objectives, rather than focusing on narrow skill development such as how to use a mouse or a keyboard. For example, to teach participants how to use a browser and the printer, they were instructed to use a search engine to locate information on a topic of interest to them, print out each of their results, and summarize which search terms and associated results they found to be useful. Second, by emphasizing outcomes instead of access. Diane Atkins' case study is a perfect example here. Rather than focusing on the computer and Internet service (access) as a selling point, community members opened her world to the health-related information she could obtain online and the people with similar experiences to hers with whom she could communicate to improve her quality-of-life (outcomes). A few weeks later, she commented, "This computer is better than all of my medication combined!" Other initiatives have expressed a similar observation (Cohill & Kavanaugh, 1997).

As mentioned previously, one of the areas we improved upon between the Round I courses and the Round II courses, was linking the curriculum to our desired outcomes. The Round I curriculum was
more generic when compared to the Round II curriculum, which achieved greater depth with respect to how technology could support community building. We dedicated more time to learning the C3 modules, and exploring how these modules could improve communication at the development. Furthermore, once the results of the pre-assessment were compiled, we were able to follow-up the activity-based curriculum, and couple it with a theme-based curriculum. These thematic workshops (e.g., using online educational resources) were designed around the areas deemed important by residents, as articulated during the preliminary interviews. In the future, we would like to move the “curriculum” towards a series of projects, challenges, and experiences. This would allow for a more comprehensive and personally meaningful set of activities to take place, and sociocultural constructions to be produced, during the courses as opposed to after. These experiences, such as building a new space on the Camfield Estates website for the art, graphics, and animation being created by youth, could also contribute to the community directly and further promote the notion of active production.

**Spread Technology Costs**

A few aspects of the technology development and infrastructure costs at Camfield have been organized in a manner so as to minimize their overall cost. C3 is built using the ArsDigita Community System (ACS), a freely-available, open-source software platform. Open-source and open-license software can dramatically reduce the costs associated with software development and technical support, as there are typically online repositories where the latest releases, updates, and technical assistance can be obtained free-of-charge. Conversely, one of the challenges of using an open-source and open-license software package is that there is no “official” vendor who assumes responsibility for bugs or other related problems. Nonetheless, open-source and open-license software hold tremendous promise (Lampe, 2001) as systems like C3 continue to be deployed in other low-income and underserved communities (Contractor & Bishop, 1999; Shaw, 1995; Shaw & Shaw, 1998).
C3 is delivered to Camfield by MIT using an application service provider (ASP) model – Camfield residents create and maintain the content, while MIT administers and maintains the associated hardware and software. An ASP is a third party that offers individuals or organizations access to applications (such as software) and related services via the Internet. ASP's can almost eliminate the need for full-time technical staff and lower the total cost of ownership for technology. One of the challenges of identifying an appropriate ASP has to do with data ownership and scalability. End-users must ensure that they retain ownership of their data in the event they have to switch providers. Furthermore, they must also ensure that the underlying architecture that powers their ASP's platform is scalable and amenable to growth and expanding features. The relatively low marginal cost to provide Internet hosting and maintenance, makes IT-related departments at universities an attractive community partner as an ASP. In summary, the combination of open-source software and the ASP approach has enabled to us to minimize the design, development, implementation, and maintenance costs associated with C3.

*Strategically Build Community Offline: Emphasize Outcomes Instead of Access*

The praxis of sociocultural constructionism and an asset-based approach to community technology and community building calls for community-driven strategies to be applied to community-defined issues. The issues at Camfield were identified as youth, seniors, community, safety/security, and employment. Again, the efforts to address these issues by residents have been focused on these outcomes as opposed to access. In *From Access to Outcomes: Raising the Aspirations for Technology Initiatives in Low-Income Communities*, the Morino Institute (2001) emphasizes the importance of placing technology in this appropriate content. They write, “Focusing on outcomes is easiest when the application of technology represents just one component of a comprehensive solution to a need. It is much harder to focus on outcomes when launching a stand-alone technology project, such as providing wiring for a school or community center” (Ibid., p. 8).
In a number of cases, residents' focus has been on improving the lives of the people in the community, using technology as a tool for doing so. Examples include Thaddeus' and Paulette's efforts to establish NTC as something positive for neighborhood youth, Wayne's involvement, along with staff, of the seniors in the "Senior Internet Café" to foster their social interaction, Donna's work to organize social events and activities at the development, and market them via the Internet to foster better relationships among neighbors, and Nakia's decision to re-establish the Camfield newsletter in paper-based and electronic formats to improve communication and information flow at the development, just to name a few. These initiatives and others have helped the community make progress toward building community offline.

**Strategically Build Community Online: Orchestrate System Development and Deployment**

One of the challenges associated with building community online is jump-starting the online interaction. At times, it is a "chicken-and-egg" phenomenon. Community members won't join if there isn't a critical mass online, and there won't be a critical mass online until community members join. It is not something that will necessarily happen on its own or without strategic effort to help facilitate the process. We employed a number of strategies in this regard. First, we involved residents in the design and implementation of the user interface, selection of features, and aggregation of content. This occurred directly through resident involvement during the summer 2000 and indirectly through the results of the preliminary assessment. These efforts ensured that the Camfield Estates website and C3 modules were tailored to the interests of the end-users. Second, we had participants register for the Camfield Estates website and the C3 system as part of the introductory course. This guaranteed that once participants received their computer and high-speed Internet access that they were familiar with the system, along with other community members. Third, we limited the number of available features in order to concentrate activity on a focused range of options. For example, when we first introduced the Camfield Estates website and the C3 system at Camfield, there were only two areas where residents could submit postings, the "Help" forum for technical questions and answers, and the "News and
Announcements" forum for general commentary. As users grew more comfortable with the tools and gradually increased their use, additional forums were added by residents and staff for "Jobs," "Software and Virus Updates," and more. Fourth, I personally tried to identify and designate a group of lead users who could encourage and engage other community members to contribute. I worked closely with the members of the CTA board in particular by making personal visits to their homes, as well as visits to CTA board and general body meetings to offer my thoughts and observations. Finally, once the system was up-and-running, another strategy we employed to promote use was to cross-reference all of the discussion forum postings with the residents' e-mail list. In other words, all of the postings to the discussion forums were automatically sent to the residents' e-mail lists. These strategies were helpful in building community online.

*Integrate Online with Offline*

Sociocultural constructionism and an asset-based approach to community technology and community building uphold the true power of building community online as enhancing, rather than supplanting face-to-face, or offline community interaction. Therefore, perhaps the most effective strategy for building community online is building community offline. A good example of integrating online and offline was the Black Family Technology Week celebration at Camfield. Before the week, a Black History contest was conducted online. During the week, a day was designated for seniors and youth to work together face-to-face at NTC searching the web for additional Black History facts. At the end of the week, a dinner was organized to recognize participants. After the week, pictures were posted to the Camfield website to capture the event.

Other examples included the youth bake sale and trip to Six Flags amusement that was organized via flyers, e-mails, and postings to the Camfield Estates website, the new resident selection committee that used physical and virtual modes of communication to coordinate their activities, and the "Senior Internet Café" that allowed seniors to explore the Internet within a relaxed, social atmosphere. In summary, the
integration of online strategies with offline strategies brings together the best that both worlds have to offer.

**Encourage Bottom-Up, Inside-Out Revitalization**

Our work at Camfield has drawn upon the ideas of a capacity-oriented approach that focuses on assets, instead of a deficiency-oriented approach that focuses on needs. In *Building Communities from the Inside Out*, Kretzmann and McKnight (1993, p. 356) identify five guidelines for “capacity-oriented funding” when designing and evaluating proposals, which includes: 1) solicit proposals that clearly identify the skills, abilities, capacities and assets which local residents have contributed, 2) solicit proposals that clearly identify the capacities of the community’s citizens associations, and indicate how they will be involved in both governance and problem-solving, 3) solicit proposals that clearly identify how the initiative will mobilize, utilize, enhance and expand these local capacities, 4) solicit proposals that clearly identify how the initiative will contribute to building the local economy by, for example, employing community residents, enhancing local purchasing, capturing public budgets for local use, etc., and 5) solicit proposals that show clear evidence of significant investments of resources and time by local residents and organizations before funding is initiated. The stories that have emerged at Camfield hopefully demonstrate the value of such an approach to philanthropy. By funding community technology and community building initiatives in this manner, foundations and other grant makers can take better steps to ensure that their dollars are being used effectively, and in a way that is consistent with the voice and the pulse of the community.

**Acknowledge and Support Both Process and Product**

Funding agencies in particular must acknowledge process-related activities as being supportive of, rather than subordinated to, product-related outcomes. First, when awarding grants, monies should be allocated for capacity-building, outreach, staff salaries, human development, and organizational
development (e.g., meetings, retreats, courses, etc.) in addition to the funds provided for hardware, software, system development, and infrastructure. Just as Corporate America has learned the value of investments in training, more often to a greater extent than investments in systems, the community technology and community building movements must recognize the importance of supporting capacity-building around technology, more often to a greater extent than technology itself.

Second, when evaluating projects, an equal emphasis should be placed on progress in the aforementioned areas, such as the number of meetings held, number of participants at these meetings, etc. (process), in addition to more traditional measures such as a reduction in crime, increase in employment, etc. (product). At Camfield, their ability to spend time thinking strategically about community issues is partly constrained by the reality of having to raise money just to keep existing programs funded. The most difficult dollars to obtain have been the ones that allow them to think about what they really need dollars for.

**Engage Residents as Active Participants in the Process**

Although the Camfield Estates-MIT project was initially proposed by MIT to CTA, we did not approach this initiative as if we had all the answers. Instead, we have worked hard to create an atmosphere of trust and mutual respect with CTA and the broader community at Camfield. This has involved engaging participants as active producers of information and content, through the Camfield Estates website and the C3 system, and as active agents of change, through their involvement in the conceptualization and implementation of the project. It is indeed likely that as African-American researchers, Richard O'Bryant and I have been able to identify more quickly and more easily with the predominantly African-American residents at Camfield. But at the same time, given our status as non-residents our ethnic common ground could only go but so far. The process of working together has not been easy, rather, it has required relationship building, commitment, patience, and empathic listening on both sides.
From the beginning, CTA and MIT recognized that these foundational elements were fundamental to the project's success. Collectively, we acknowledged that for residents to feel a sense of ownership and empowerment, they must be actively involved in the process.

**Integrate Community Technology and Community Building Holistically**

Despite the fact that our approach to community technology and community building was indeed integrated, there was still room for improvement. Looking beyond considerations of time and coordinating our efforts, one of our primary challenges was our lack of deep foresight into the ways the “curriculum” could integrally support outcomes in the areas of community social capital and community cultural capital, as discussed in the previous chapter. Again, our methodology was strong in the areas of technological literacy and asset-mapping, as the courses were very well received and contributed significantly and positively to students’ perceptions of themselves as learners. However, in the spirit of a sociocultural constructionist and asset-based approach, there was also an opportunity to further promote technological fluency, sociocultural constructions, asset-mobilization, and facilitate a cognitive shift with respect to students’ attitudes toward community technology and community building.

In light of these observations, a recommended project methodology is shown in Figure 53. It is subtly different than the methodology employed at Camfield, but in two important ways. First, there is no longer a conceptual or methodological branching between the processes related to community technology and those related to community building. This helps to further integrate the two domains both theoretically and practically. Second, as alluded to earlier, the “curriculum” is organized as a set of projects, challenges, and experiences, all of which incorporate technological fluency, asset-mapping, sociocultural constructions, and asset-mobilization. This is presented in sharp contrast to the introductory courses, specialized courses, general asset-mapping, and specific asset-mapping we originally outlined as part of the Camfield Estates-MIT project (see Chapter 4 – Figure 7), and moves the activities related to sociocultural constructions and asset-mobilization further forward and center. The
The approach outlined below is inherently more holistic in nature and goes a few steps further toward fundamentally integrating community technology and community building.

![Recommended Project Methodology Diagram](image)

**Figure 53: Recommended Project Methodology**

**Connect the Community Technology Movement and the Community Building Movement**

Since its inception, the Camfield Estates-MIT Creating Community Connections Project has sought to integrate community technology and community building by drawing upon the theories of sociocultural constructionism and asset-based community development. However, the community technology movement, primarily in the form of community technology centers (CTCs), and the community building movement, primarily in the form of community-based organizations (CBOs), have historically existed in separate, rather than holistic spheres of practice. In *Bridging the Organizational Divide: Toward a Comprehensive Approach to the Digital Divide*, Kirschenbaum and Kunamneni (2001) coin this disconnect as the “organizational divide.” They write, “As we develop policies and programs to bridge the Digital Divide we must insure that these are linked to broader strategies for social change in two ways. First,
we must allow the wisdom and experience of existing community infrastructure to inform our work. Second, we must focus our efforts on emerging technologies as a tool to strengthen and support the community infrastructure" (Ibid., p. 3). Leaders in both fields must devise strategies to connect these two movements toward unleashing their collective transformative power. For this to occur, the following things must happen:

- **Theories must be developed.** This thesis offers the theoretical framework of sociocultural constructionism and an asset-based approach to community technology and community building, which represents just one of a growing number of theories dealing with these issues. There is both a need to further develop this perspective by applying it in different contexts toward different outcomes, and a need to establish new perspectives that suggest alternate approaches which can also be explored. Such a strategy can simultaneously serve to broaden and deepen our understanding of these issues.

- **Research must be advanced.** The Camfield Estates-MIT project is one of a growing number of initiatives seeking to demonstrate the role of technology for community revitalization (Kirschenbaum & Kunamneni, 2001). These other examples fall into the categories of advocacy and online organizing, community information clearinghouses, networking and online communities, innovations in service delivery, interactive database development, and community mapping (Kirschenbaum & Kunamneni, 2001), and are beginning to grow in number, size, and scope. We must to continue to study and highlight examples of community technology and community building projects as a means to disseminate lessons learned and advance our understanding.

- **Practices must be changed.** Community technology practitioners must connect their activities to more traditional, outcome-driven program areas such as youth, workforce development, and health care – as these areas also represent more established and stable sources of funding. Community building practitioners must closely examine the role of technology in improving their organizational
effectiveness and supporting their efforts to reach out to the community – as such an examination also holds the greatest promise for identifying new innovations in the work they perform.

- *Funding must be shifted.* There are a number of grant programs that will provide money for hardware or software only, without associated funds for the necessary courses and training required to make productive use of these tools. Conversely, there are a number of grant programs that will provide money for specific programs, such as youth development or improved delivery of health care, without simultaneous support for technology development and infrastructure. Community technology and community building initiative requires funding that allows them to pursue an integrated and comprehensive agenda. Although both movements combined would benefit from additional resources, and easier “win” could be achieved by simply leveraging existing resources more synergistically.

- *Policies must be altered.* For example, the federal E-rate program that provides subsidized telecommunications services to schools and libraries, should be extended to nonprofit organizations. In short, government must acknowledge the inherent synergy between programs aimed at bridging the digital divide and those aimed at alleviating poverty.

At Camfield, we have been fortunate that through the combined support of the W.K. Kellogg Foundation, MIT, Hewlett-Packard Company, Microsoft Corporation, RCN Telecom Services, U.S. Department of Housing and Urban Development (HUD), Massachusetts Housing Finance Agency (MHFA), Williams Consulting Services (WCS) and others, we have been able to pursue a combined agenda. Accordingly, for the existing pool of community technology and community building practitioners to unite their efforts, it will require the coordinated activities of presently disjoint foundations, policy makers, government agencies and nonprofit organizations, as well as technical assistance providers, researchers, industry representatives, and circuit riders, in order to be successful.
CONCLUDING REMARKS

There are two questions I have been consistently asked since I first became involved with the Camfield Estates-MIT Creating Community Connections project. The first question is, “What will be your involvement with the project after you and Richard have completed your dissertations?”

Personally, I will maintain my involvement at Camfield as a researcher by continuing to follow the progress of subsequent cohorts of families who participate with the project, and continuing to support the Camfield Estates website and C3 system deployed there, as well as in other communities. MIT will continue its relationship with Camfield through The Center for Reflective Community Practice (CRCP) under the direction of Professor Ceasar McDowell. CRCP is housed in the Department of Urban Studies and Planning, a department with expertise in teaching, learning, research and training of professionals in the field of urban planning and development. Through a range of long-term relationships, CRCP offers the opportunity to link students and faculty at MIT with community partners for mutual benefit, and to help develop the resource and leadership capacity of low-income communities and communities of color. It also allows community- and university-based partners to engage in community practice and in strategies for change in more thoughtful and deliberative ways, leading to a new and shared knowledgebase of resources and approaches that include the best practices of both community-based and academic teaching and learning. CRCP has identified Camfield as one of a few communities it will work with over the next three years. As part of this effort, Nakia was selected as a Reflective Practitioner Fellow for the 2000-2001 academic year, and four members of the Camfield leadership have been selected for the 2001-2002 academic year including Paulette Ford, Thaddeus Miles, Donna Fisher, and Wayne Williams. With this commitment in place, Camfield and MIT will continue to explore the mutual benefits associated with a long-term, institutional, community-wide partnership.

The second question I am frequently asked is, “What has been the most memorable moment of your involvement with the project?” There is an easy answer to this question. It begins on November 15,
2000, when Richard, Nakia, and I loaded up a U-Haul truck with computers and monitors and drove it over to Roxbury. Our first stop was the neighboring housing development of Lenox St. Apartments to deliver six computers that Camfield decided to donate to them to upgrade their community technology center. Our second stop was the community center at Camfield where there were already residents waiting for us who had arrived early in anticipation of receiving their computers. As we unloaded the boxes we saw children running back to their homes informing their parents that "the computers are here!" With the help of student volunteers from MIT, staff from NTC, and other residents, we carted the boxes back to their respective apartments and assisted participants in setting up and configuring their systems. One of my final responsibilities for the day was to make sure Mrs. Gail Smith, a mother of three whom I had interviewed months earlier and reminds me of my mom, was paired up with someone who could deliver her computer to her residence. As she was leaving the community center, the last thing Mrs. Smith said to me after I congratulated her on completing the program was, "I love you." I gave her a hug and replied, "I love you too." Almost one year later, I revisited Mrs. Smith in her home as I was conducting the follow-up interviews for the case studies. I asked her why she was so thankful to me on that memorable November day, and she replied:

*I feel that I can keep learning. I can keep growing. It's changed my life because learning and growing do not stop with age. Now, I want to learn new things. It has changed my life to learn that learning and growing is forever and you just keep going and going. It's taught me that you have to keep growing and learning forever.*

This response was powerful to me because it suggested that while the Camfield Estates-MIT Creating Community Connections project has brought hardware, software, and other technological resources to the residents at Camfield Estates, far more importantly, it has brought powerful ideas along with it—ideas about self, ideas about community, and ideas about community technology and community building.
In closing, I believe we are only beginning to witness the wonderful stories that will emerge from the Camfield Estates-MIT Creating Community Connections project. Our goal to establish Camfield as a model for other communities manifests itself in two ways. First, as a methodology that can inform the work being done in other communities to strengthen the capacity of residents, organizations, and businesses in their neighborhood. Second, as an example that demonstrates the limitless possibilities when community members are engaged as active agents of change and active producers of information and content. Years from now I expect to see new realities at Camfield Estates, and new areas within cyberspace by Camfield residents, that continue to inspire other communities across the globe.
BIBLIOGRAPHY


Contractor, N. & Bishop, A. P. (1999). Reconfiguring Community Networks: The Case of PrairieKNOW. Urbana-Champaign, IL: Department of Speech Communication, University of Illinois at Urbana-Champaign.


Creating Community Connections


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