

The Camfield Estates-MIT Creating Community Connections Project: Strategies for Active Participation in a Low- to Moderate-Income Community

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Abstract

This paper shares the early results of a study that is investigating strategies to bridge the "digital divide" (NTIA, 1995, 1997, 1999 & 2000) the gap between those who benefit from new technology and those who do not by examining the role of community technology for the purpose of community building and economic development in a low- to moderate-income housing development. Since January 2000, the Camfield Estates-MIT Creating Community Connections Project, a partnership between the Camfield Tenants Association and Massachusetts Institute of Technology, has taken place at Camfield Estates, a 102-unit, low-to moderate-income housing development in Roxbury, Massachusetts, and its surrounding environs.

With support from the W.K. Kellogg Foundation, Hewlett-Packard, RCN Telecom Services, Microsoft, and others, every family at Camfield has been offered a state-of-the-art desktop computer, software, high-speed Internet connection via cable-modem, and eight weeks of comprehensive courses – free of charge. Camfield residents are also supported by the Creating Community Connections (C3) System, a web-based, community building system designed at the MIT Media Laboratory, to establish and strengthen relationships between community residents, local businesses, and neighborhood institutions (e.g., libraries, schools, etc.) and organizations.

Of the 102 units at Camfield, approximately 80 are presently occupied, while approximately 60 units have elected to participate in the project in some capacity, from among two rounds of sign-ups in September 2000 and January 2001.

This paper is a case study of the Camfield Estates-MIT project to-date, including the history and background of the project, the theoretical frameworks guiding the initiative, the project methodology that has been employed to foster resident engagement and integrate community technology and community building, early results, and a set of recommendations and lessons learned for other initiatives.

Introduction

The digital divide (NTIA 1995, 1997, 1999), the gap between those who benefit from new technologies and those who do not, has received considerable attention in the new millennium as organizations from the public, private, and nonprofit sectors have partnered with communities to address this critical issue (Robinson, 2000). In urban and rural neighborhoods across the country there are examples of successful initiatives to provide economical access and promote meaningful use of technology, as a means toward achieving tangible and sustainable outcomes in areas

such as education, employment, and health care (Benton, 1998; Bishop et al., 1999; Chapman & Rhodes, 1997; Chow, Ellis, Mark & Wise, 1998; Cohill & Kavanaugh, 1997; Lazarus & Mora, 2000; Mark, Cornebise, & Wahl, 1997; Resnick, Rusk & Cooke, 1998; Schon, Sanyal & Mitchel, 1999; Turner & Pinkett, 2000).

Historically, one of the major challenges associated with community collaborations is the "inside-outside tension" resulting 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 dependence. As corporations, foundations, government bodies, universities, partner with non-profit organizations and expand the scope of their work to include high technology in low-income and underserved communities, the inside-outside tension will undoubtedly arise as it has in the past. However, the need for a greater awareness of, and sensitivity to these issues is only heightened by the challenges associated with the ongoing use of technology, such as installing new systems and maintaining and upgrading existing systems. Without careful attention to this dilemma, community-based organizations could easily be saddled with a prohibitively higher total cost of ownership than experienced before.

The ideal scenario for communities to truly work together as partners with the public, private, philanthropic, academic, and non-profit sectors, 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 these entities. As Kingsley, McNeely, and Gibson (1999) 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.

The Camfield Estates-MIT Creating Community Connections Project, a partnership between the Camfield Tenants Association (CTA) and the Massachusetts Institute of Technology (MIT), has endeavored to exemplify this notion.

Started in January 2000, the Camfield Estates-MIT project has the goal of establishing Camfield Estates as a model for other housing developments across the globe as to how individuals, families, and a community can make use of information and communications technology to support their interests and needs. This multi-sector collaboration (Robinson, 2000) has joined to create an infrastructure at Camfield Estates that combines the three primary models for *community technology* (Morino, 1994; Beamish, 1999) – a *community network* whereas state-of-the-art desktop computers, software, and high-speed Internet connectivity have been offered to every family, a *community technology center (CTC)* located on the premises in the community center, and *community content* delivered through web-based, community building system, the Creating Community Connections (C3) System, designed at the MIT Media Laboratory – along with a *community building* agenda (Aspen Institute, 1997; Kingsley, McNeely, & Gibson, 1999; Mattesich & Monsey, 1997). Note that there is a parallel, and related initiative being conducted at Camfield to build empowerment and self-sufficiency amongst residents that is beyond the scope of this paper.

This paper is a case study of the Camfield Estates-MIT project to-date, including the history and background of the project, the theoretical frameworks guiding the initiative, the project methodology that has been employed to foster resident engagement and integrate community technology and community building, early results, as well as a set of recommendations and lessons learned for other initiatives.

History of the Camfield Estates-MIT Project

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 is a participant in the US Department of Housing and Urban Development's (HUD) 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. Camfield residents, through the efforts of CTA, identified needs of not only affordable housing, vis-à-vis demo-dispo, but also closely related areas such as building community to address existing social, economic, and technological disparities.

Under the leadership of CTA, 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 2000 as residents returned to Camfield Estates - 102-units of newly built town houses. 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, and supported by MHFA. Finally, on June 22, 2001, HUD disposed (transferred ownership) of the property to CTA, making Camfield the first of several participants in the demo-dispo program to successfully complete the process.

The Camfield Estates-MIT Creating Community Connections project was initiated in January 2000, by graduate students and faculty from the MIT Media Laboratory, MIT Department of Urban Studies and Planning, MIT Center for Reflective Community Practice, and MIT Laboratory for Computer Science. These researchers shared an interest in the role of technology for the purpose of building community, empowerment, and self-sufficiency in a low-income community. 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 NTC, along with its associated course offering and ongoing technical support. However, what made Camfield particularly attractive were the prospects to sustain the initiative as a result of their 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), and ArsDigita Corporation (software and technical support), with additional support from MHFA, Williams Consulting Services, Lucent Technologies, HUD, US Department of Commerce, the Institute for African-American eCulture (iAAEC), YouthBuild of Boston, and the William Monroe Trotter Institute at the University of Massachusetts at Boston.

Exploratory meetings between CTA, MIT, Kellogg, and Williams Consulting took place during the winter 2000, culminating in final approval of the project by CTA. Under CTA's leadership, in spring 2000 a nine-person committee was established to oversee the project's implementation, which consisted of three Camfield residents, two representatives of CTA, two members of Williams Consulting staff, and two researchers at MIT. The project officially began in June 2000.

Background and Theory: Sociocultural Constructionism and an Asset-Based Approach to Community Technology and Community Building

One of the project's goals is to explore the synergy between *community technology* (Morino, 1994; Beamish, 1999) and *community building* (Aspen Institute, 1997; Kingsley, McNeely, & Gibson, 1999; Mattesich & Monsey, 1997). *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), and defined as "using the technology to support and meet the goals of a community" (Beamish, 1999). *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" (The Aspen Institute, 1997).

To date, three primary models have emerged for community technology – *community networks*, *community technology centers (CTCs)*, and *community content* – all of which have been deployed at Camfield and combined with a *community building* agenda.

Community networks are community-based electronic network services, provided at little or no cost to users. Every family at Camfield has been offered a state-of-the-art desktop computer, software, and high-speed Internet connectivity via cable-modem. *Community technology centers (CTCs)*, or community computing centers, are publicly accessible facilities that provide computer access for people who can't afford a computer, as well as technical instruction and support. As mentioned earlier, the Camfield Estates Neighborhood Technology Center (NTC) has been established in the Camfield community center where comprehensive courses as well as technical support are provided. *Community content* refers to the 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). The Creating Community Connections (C3) System, a web-based, community building system, has been co-designed between MIT students and Camfield residents at the MIT Media Laboratory, using the application service provider (ASP) model – Camfield residents create and maintain the content, while MIT administers and maintains the associated hardware and software.

To promote *community building*, Camfield residents and MIT researchers have been actively involved in "mapping" and "mobilizing" community assets and resources to create connections among residents, local organizations and institutions (e.g., libraries, schools, etc.), and neighborhood businesses.

Since the project's inception, a heavy emphasis has been placed on engaging the residents at Camfield as active agents of change, as well as active producers of community information and content. This orientation is grounded in the theories of *asset-based community development (ABCD)* (Kretzmann & McKnight, 1993) and *sociocultural constructionism* (Pinkett, 2000) which, in concert, constitute an asset-based approach to community technology and community building (Turner & Pinkett, 2000). These theoretical frameworks have proven extremely useful for conceptualizing how this partnership can foster community empowerment, rather than dependency.

Asset-based community development (ABCD), a particular model, or technique, for community building, assumes that social and economic revitalization starts with what is already present in the community – not only the capacities of residents as individuals, but also the existing commercial, associational and institutional foundation (Turner & Pinkett, 2000). 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. Asset-based community development is an approach to community building that sees community members as active agents of change, rather than passive beneficiaries or clients.

Sociocultural constructionism, here applied to community technology, is a synthesis of the theories of *social constructionism* (Shaw, 1995) and *cultural constructionism* (Hooper, 1998), both extensions of the theory of *constructionism* (Papert, 1993). *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). *Sociocultural constructionism* argues that "individual and community development are reciprocally enhanced by independent and shared constructive activity that is resonant with both the social setting that encompasses a community of learners, as well as the cultural identity of the learners themselves" (Pinkett, 2000). Sociocultural constructionism yields an approach to community technology that regards community members as the active producers of community information and content, rather than passive consumers or recipients.

In practice, the asset-based community development and sociocultural constructionist frameworks help operationalize a methodology for integrating community technology and community building.

Camfield Estates-MIT Project Methodology

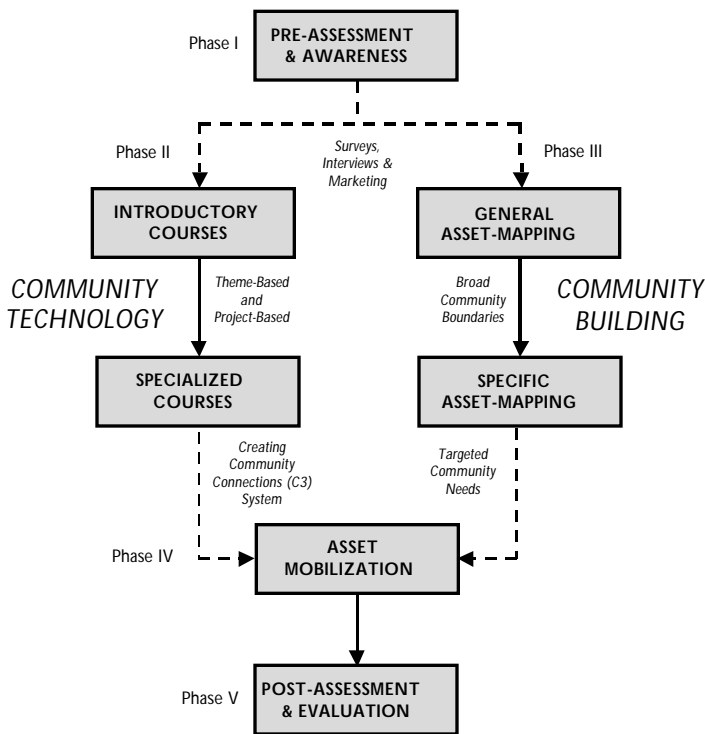


Figure 1: Project Methodology

In June 2000, the project committee outlined a methodology to integrate community technology and community building, consisting of five interrelated, and at times parallel phases, as shown in Figure 1:

- I. Pre-Assessment and Awareness
- II. Community Technology – Introductory/Specialized Courses and C3
- III. Community Building – General and Specific Asset-Mapping
- IV. Online and Offline Asset-Mobilization
- V. Post-Assessment and Evaluation.

Phase I: Pre-Assessment and Awareness

During the summer 2000, we developed a pre-assessment survey instrument to collect data in the following areas: *community interests and satisfaction, social networks (strong and weak ties), neighboring, awareness of community resources, community satisfaction, community involvement, empowerment, self-sufficiency, computer experience, hobbies, interests and information needs, assets and income, and demographics*. The survey was designed for two purposes. First, to provide strategic direction for the community building and community technology initiative by identifying the interests and needs of residents. This information would shape the nature of online and offline activities to be planned in the future. Second, to provide baseline and formative data for the research study. This information would be used to perform a comparative analysis of a similar data set to be gathered approximately one-year later.

During this 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, high-speed Internet connection, and comprehensive courses at NTC, for adults 18-years and older that completed the courses, completed the preliminary interview, and signed an informed consent form granting permission to track the web-traffic at Camfield through a 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 and Internet access. Given the fact that NTC was primarily used by youth at this time (O'Bryant, 2001), it was the decision of the committee 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 33 of the 66 occupied units at Camfield elected to participate in Round I. Subsequently, and just prior to the introductory courses, three committee members administered the preliminary survey via one-on-one interviews with each of these participants (lasting between approximately one and four hours).

Phase II: Community Technology–Introductory/Specialized Courses and the Creating Community Connections (C3) System

From September to October 2000, introductory courses were offered at NTC to Round I participants. The project-based curriculum lasted eight weeks (two sessions per week, two hours per session) and covered various aspects of computer and Internet use. In November 2000, specialized courses were offered on how to use the Creating Community Connections (C3) System, available through the Camfield Estates website (<http://www.camfieldestates.net>), as shown in Figure 2. Whereas the introductory curriculum was designed solely by Williams Consulting Services, with input from MIT, the C3 curriculum was co-designed by both parties.

C3 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. Designed at the MIT Media Laboratory, and based on the principles of sociocultural constructionism and asset-based community development, C3 serves two primary functions:

- As a *community intranet*, C3 facilitates community communication and information exchange with the following features: resident profiles (cataloging formal and informal skills and interests obtained during specific asset-mapping, described in greater detail below), community calendar of events, community discussion forums, community e-mail lists (listservs), community chat rooms, community news and announcements, surveying, and more.
- As a *community extranet*, C3 facilitates asset-mapping and asset mobilization among residents, organizations, and businesses with the following features: organization and business database (visualized using a geographic information system (GIS) that represents this data in the form of a map with hyperlinked symbols for various resources), job and volunteer opportunity postings, online résumés, personal home pages, personalized web portals, electronic commerce, and more.



Figure 2: The Creating Community Connections (C3) System

C3 is built using the ArsDigita Community System (ACS), an open-source software platform. C3 is delivered using an application service provider (ASP) model – Camfield residents create and maintain the content, while MIT administers and maintains the associated hardware and software.

C3 was first prototyped in December 1999, as a collaborative effort between students in MIT Course 6.916: Software Engineering of Innovative Web Applications, researchers at the Asset-Based Community Development (ABCD) Institute at Northwestern University, and residents at Northwest Tower, a federally-assisted affordable housing development in Chicago, Illinois (Turner & Pinkett, 2000). A modified and improved version of the system was co-designed and implemented by MIT students and Camfield residents one-year later.

In November 2000, 31 families received computers, software, and subsequent high-speed Internet access, having fulfilled the aforementioned requirements. In January 2001, a second awareness campaign was conducted and aimed at the 47 families still eligible for the project (the number of occupied units had increased from 66 to 80), including another round of mailings and meetings. After the second deadline passed, only 8 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.

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 unique 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 60 out of 80 eligible units. Interestingly, for those residents that did not participate in Round I, but decided to participate in Round II, the most commonly cited reasons were: 1) miscommunication/misunderstanding ("I never received any of the flyers"), 2) skepticism ("It sounded too good to be true"), and 3) they already owned a computer and weren't as quick as others to move on the opportunity. For those residents that did not participate in either Round I or Round II, the most commonly cited reasons were: 1) lack of relevance ("I just don't want to be involved"), 2) too many responsibilities, including a few single mothers juggling multiple jobs, and 3) a health-related condition preventing involvement (i.e. pregnancy). A third awareness campaign will be conducted at the end of Round II, 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.

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 researchers at MIT. It consisted of mapping all the organizations, institutions (e.g., libraries, schools, etc.), and businesses within an approximately 1.5-mile radius of Camfield, as shown in Figure 3. 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 more specific asset-mapping to be conducted after analyzing the results of the pre-assessment. Not surprisingly, the mere 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 in this catchment area, and only a small cluster of businesses. 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.

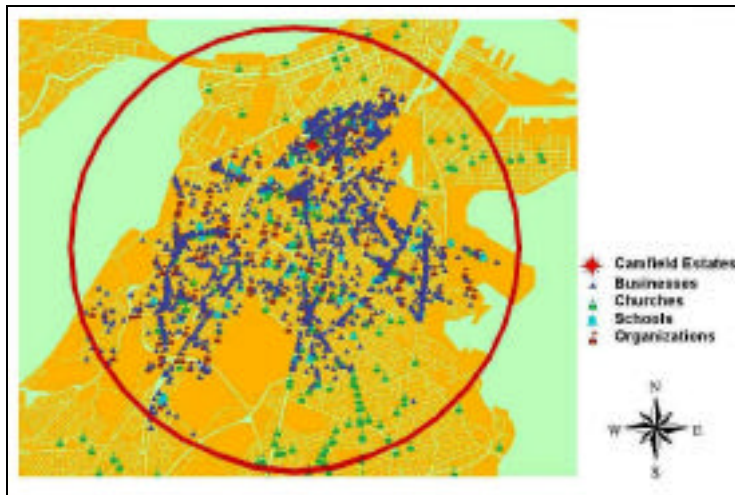


Figure 3: Camfield Estates Catchment Area

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. The former activity took place during the final two weeks of the introductory and specialized courses. Using C3, residents entered their formal and informal skills and interests, by selecting from an inventory of more than 150 items. Given this information, residents could now use C3 to identify neighbors who could perform plumbing, babysitting, web design, etc., or neighbors who were interested in learning these skills. Again, residents were often pleasantly surprised to learn about the talents and abilities of their neighbors. The latter activity is presently underway, and is being informed by the results of the pre-assessment. For example, Table 1 lists the issues deemed important according to residents.

Issue	Rank
Safety/environment	1
Employment	2
Housing	2
Education	4
Health care	5
Child care	6
Parenting	7
Community activism	8
Political involvement	9

Table 1: Issues Deemed Important by Residents

During general asset-mapping, only basic information was obtained for community organizations, institutions, and businesses (e.g., name, address, contact information, products/services for businesses, programs/services for organizations and institutions, etc.). During specific asset-mapping, to begin addressing issues such as child care and health care we can obtain more detailed data (e.g., hours of operation, eligibility, fees, etc.) on this focused subset of the community resources deemed important to residents, who can then publish this information online using C3. We can also involve the resident social services coordinator in connecting residents to these programs/services.

Phase IV: Online and Offline Asset-Mobilization

Asset-mobilization involves devising strategies to create community connections between residents, organizations, institutions, and businesses, which previously did not exist, toward achieving specific outcomes. Asset-mobilization will be heavily informed by the pre-assessment, and will likely involve outreach and the formation of new community partnerships. For example, Table 2 identifies items residents would like to see made available on the Camfield website.

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

Table 2: Items Desired for Website by Residents

Several of these items are now available through the C3 system, such as the resident profiles module. However, based on these results we will continue to add new modules including a job posting board, and education- and safety-related features, by partnering with relevant community entities. Table 3 ranks the topics residents would like to see addressed through follow-up training.

Topic	% Requested
Creating my own website	83%
Accessing government information online	78%
Accessing community information online	74%
Protecting my children from certain online content	68%
Finding jobs online	68%

Helping my children in school	65%
Starting a business	65%
Managing my finances	64%
Shopping for groceries online	36%

Table 3: Topics Desired for Training by Residents

We have already started to offer theme-based workshops at NTC to Round I participants in many of these areas. Tables 1 and 2 also reveal that employment is an important issue among residents. Given this information and the infrastructure now in place at Camfield, we can enact a number of online and offline strategies to address this issue. First, during specific asset-mapping we can obtain detailed information on the job training programs and employment agencies already identified during general asset-mapping, and again, residents can publish this content to C3, while the resident social services coordinator can play a role in leveraging these resources. Furthermore, we can partner with these organizations to design a follow-up training curriculum that meets the demands of the job market, filter job opportunity postings through C3, and even match these postings against the skill and interest profiles of residents.

We anticipate residents connecting with other residents (e.g., leveraging neighbors skills, interests, etc.), local organizations and institutions (e.g., utilizing services, programs, etc.), and neighborhood businesses (e.g., identifying products, services, etc.). In fact, even in the project's relative infancy, a few stories have already begun to emerge. For example:

CTA is always looking to provide opportunities for youth to get involved in the community. Ms. Johnson, a CTA board member, attends a local church that would like to create a website, yet lacks the expertise to build one – she is looking for assistance. Meanwhile, several people at the development have completed the web design course at NTC and are looking for opportunities to apply their skills in a new and meaningful context. Using the C3 system, these residents were able to publicize their skills to the church, while the church was able to easily identify someone with these skills, and notify them via e-mail of this worthwhile opportunity.

We envision similar scenarios such as parents exchanging their child-rearing practices via e-mail, NTC classmates relying on one another to solve technical problems in a chat room, residents identifying volunteer opportunities from a discussion forum, or adults obtaining a new job from employment postings available online.

We also anticipate residents producing information and content on the Internet that reflects their interests and needs, and explicates knowledge indigenous to the community. This will be done by creating personal websites, configuring e-mail lists, posting messages to the discussion forums, and contributing activities to the community calendar of events. Again, we have already observed promising activity in this area thus far. For example:

Since completing the introductory courses on basic computer and Internet use, Mr. Williams has started his own home-based business on the web that involves direct sales of health-care products. He is interested in developing better marketing materials, in hopes of advertising his business to other residents in the development. Using the C3 "Help" discussion forum, he solicited advice regarding good books on word processing and layout/design. Furthermore, he anticipates using the C3 calendar of events, e-mail lists, and news and announcements discussion forum to publicize his business to neighbors, and announce a reception in the community center where he will showcase his products.

We envision similar scenarios such as a group of single mothers creating an e-mail list to discuss their experiences, a senior creating a website containing her favorite recipes, the tenants association publishing their newsletter electronically, and the social service coordinator advertising activities on the community calendar of events.

CTA and MIT will continue to work closely with residents and the broader community to leverage the established infrastructure and demonstrate the possibilities resulting from an asset-based approach to community technology and community building.

Phase V: Post-Assessment and Evaluation

In summer 2001, a post-assessment and evaluation will be conducted. At that time, a comparative analysis will be performed against the pre-assessment interviews and other sources of data (proxy server logs, C3 server logs, direct observation) to quantify and qualify our progress to-date.

Recommendations

The following five recommendations are offered for other community technology and community building initiatives. They are not presented as strict rules to follow, but rather lessons learned as a result of our experience with the Camfield Estates-MIT project thus far.

- *Conduct ongoing assessment to establish a baseline and guide implementation.* Good survey instruments are designed with outcomes in mind, and if done properly, the information gleaned can be very useful. The Camfield Estates-MIT preliminary survey data has been invaluable. It has provided tremendous insight into how technology can be made relevant to people's lives. It is important to note that the survey was designed for two related, yet distinctly different purposes. First, to obtain baseline data for later comparative analysis, and second, to obtain formative data that would guide the project's implementation. With community building identified as an agreed upon goal (among others) 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.
- *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 project-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 are 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. For example, an elderly 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 introduced her to the information she could obtain online and 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 expressed similar observations (Cohill & Kavanaugh, 1997).
- *Link curriculum to outcomes.* 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 project-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.
- *Establish multi-sector collaborations to build capacity and promote sustainability.* CTA has established relationships with universities, government agencies, corporations, foundations, nonprofit organizations, and neighboring tenants associations. HUD and MHFA have played a critical role with respect to the demo-dispo program, which will ensure NTC remains operational. Support from Kellogg, Hewlett-Packard, Microsoft, and others, has been instrumental in establishing a state-of-the-art technological infrastructure. MIT's strength in areas such as research, education and technology positioned the institute to provide useful technical assistance, evaluation, software development, and more. Similarly, each of the remaining entities, which span the public, private, and nonprofit sectors, has contributed something different, yet valuable to sustaining this initiative.

However, it is CTA's demonstrated commitment to internal capacity-building, which is strengthened by their ability to cultivate and leverage these relationships, that ultimately bodes well for these efforts to be sustained.

- *Engage residents as active participants in the process.* Although the Camfield Estates-MIT project was initially proposed by MIT to CTA, MIT researchers 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. The process 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.

Conclusion

The digital divide 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 areas such as education, health care, employment, economic development, and more. Meanwhile, the community building movement has wrestled with directly related issues such as the war on poverty, and instituted programs aimed at identical outcomes, for more than a century.

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 in practice. In fact, community technology efforts are often completely decoupled from community building initiatives.

From among the three models of community engagement with technology – community computing centers, community networks, and community content (Beamish, 1999) – there are 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 the active producers of community 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.

In this regard, our goal to establish Camfield as a model for other communities manifests itself in two ways. First, as a methodology that can be replicated in other communities seeking to strengthen relationships between residents, organizations, and businesses in their neighborhood. Second, as an example that demonstrates the limitless possibilities when community members are engaged as active, rather than passive participants in the process. We are only beginning to witness the wonderful stories that will emerge from the Camfield Estates-MIT Creating Community Connections project. Years from now we expect to see new areas within cyberspace that belong not only to residents at Camfield Estates, but other low- to moderate-income communities across the globe.

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