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Social Constructionism and the Inner City: Designing Environments for Social Development and Urban Renewal

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Submitted to the Program in Media Arts and Sciences,
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Abstract

Constructionist theories provide important paradigms for study in areas of childhood learning and developmental processes. In the constructionist view, the child is an active builder of cognitive structures, and childhood development is especially facilitated when the child takes charge of the learning process by building externalized expressions of his or her intellectual endeavors. By extending this paradigm, it is possible to apply constructionism to larger sociocultural and technological contexts as well, bringing about developmental benefits in the social setting. Using a theoretical formulation called "social constructionism," I present a model for how individual cognitive developmental paradigms can be used to guide technological approaches intended to foster social development and urban renewal. In particular, I will describe certain processes, activities and tools—including a community computer networking system—that are designed to support constructionist social environments.

In this thesis, I describe MUSIC (Multi-User Sessions In Community), a computer networking system designed around constructionist paradigms. This network focuses on neighborhood-based communities rather than on virtual communities. Computer networks present powerful organizational tools and collective models that can be useful in addressing local information infrastructure, instead of just national information infrastructure. This research attempts to address questions concerning how the same computers that enhance the independence of the individual might also be used to help the local community stay interdependent. Additionally, the intention of this research is to contribute to the discourse around addressing the difficulties faced by low-income urban communities.

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Jesus replied, "What is impossible
with men is possible with God."
— Luke 18:27

I am dedicating this work to Chinua and Yesuto, who remind me of the wonder and awe of our Creator. I am also dedicating this work to two dear friends of mine, Greg and Ty. They made many impossibilities in my life fade away. And now they are no longer bound by all of our limitations and imperfections. They remain forever in my thoughts.

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There is no end to the list of people that I must thank for getting me through this odyssey, and I cannot do justice to them with so few words at my disposal. But I shall forge ahead anyway, because the spirit of perseverance has been a key part of this entire endeavor. Yet, I ask for forgiveness from those who I neglect to mention, and forbearance from those who I do not adequately acknowledge.

First of all, I want to thank God for His hand in this. I am surely an oddity to many who know me, because I do not seem like the type to pursue and receive a Ph.D. But somehow God made this happen, and only He knows why or how. Take any such questions to His throne.

Next, I want to thank Michelle, my lovely wife. Without her, I would have given up long ago. Her love and support, in body, mind and spirit, saw me through all of this. We continually try to live out many of the ideas in this thesis in our lives together, so this work has truly been a labor of love. We believe that villages not only help raise children, but they also help keep marriages strong. Sweetheart, your name should be found above mine on this degree.

I also want to thank Seymour Papert for taking me on this journey in academic apprenticeship. My many years working with him have been filled with many wonderful constructions, both academic and social, as he has helped to guide me all the way to the finishing line. In many conversations I can remember Seymour telling me that he was quite confident that my work would

be significant and socially relevant. I cannot express how important it was for me to hear those words. Seymour, you have been an intellectual mentor as well as a friend.

Of course, I must also add Aaron Falbel to the ranks of my intellectual mentors. Aaron opened my eyes to many ideas that are still having an overwhelming impact on my life. I have found him to be a sage with the spirit of a griot, and he has been a great blessing in my life. His help in editing this document saved me from certain embarrassment. Aaron, thank you for being a true friend to me as well as a dear brother.

My other dearest family members in the academic community—past and present—at the Media Lab are Paula Hooper, Carol Strohecker, Jacqueline Karaaslanian and David Cavallo. All four of you have been very critical intellectual, spiritual and social forces in my life. You have all helped to make this thesis become a reality. The time I have spent working with you or just in simple conversation, has made me realize how truly privileged I am to be amongst you. I hope that we can somehow remain an extended family or a semi-intentional community throughout the coming years.

About two years ago, this thesis began to finally take shape from a morass of ideas and fieldwork that seemed to be going nowhere. The clearest moment of this turn came about when Mitchel Resnick became a part of my thesis committee. It is impossible for me to imagine how I could have finished this work without him. There were many days when I told my wife that Mitch had just convinced me that I was actually going to graduate by showing me how to

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Preface

There have been many conceptual obstacles that I have had to overcome to make this thesis a reality. I feel as though I have survived a paradigmatic battlefield, surmounting the pitfalls of my own false assumptions, and avoiding the minefields of inadequate reigning social heuristics. Through it all I have found a theoretical framework that has structured my thinking about the connections that exist between certain cognitive, social and technological expressions. I have found the school of thought known as "constructionism" to be pregnant with implications that go beyond its normal discourse around individual intellectual development. I have been profoundly influenced by the notion that the processes involved in cognitive development can be linked to the processes involved in social and technological development, and this notion has become a critical theme throughout this thesis. Indeed, this thesis itself is a conceptual construction, and it has gone through a constructionistic developmental process as well, one that was not particularly clear to me when I started it.

My thinking was forced to evolve during the researching and writing of this thesis. It is a claim of constructionism that by creating an artifact, the creator is changed by his creation. By being creative we express ourselves through our cognitive, social and technological structures, and this expression has an evolutionary effect upon us. If we were to have prior knowledge about the ultimate effect that our expressions are to have on us, then our experiences would not be evolutionary ones. Thus, it is through my own ignorance that I have stumbled upon new insights and into a new view of the world.

The evolution in my thinking has even led me to an expanded view of the constructionistic model. I call this extended model “social constructionism.” In the theoretical section of this thesis I describe this model in great detail, but here I am only able to flesh out some of its implications. Social constructionism has helped me to believe in the spirit of the idea that the pen is mightier than the sword, but I have come to this through a more fundamental formulation which states that **epistemology is mightier than technology**. Through the lens of social constructionism it is clear to me that computer networking can be as profoundly involved in issues about real (or proximal) communities as it is in issues about virtual communities. Social constructionism has taught me that the social hurdles and barriers that separate people are often more consequential than the physical distances that separate people. **Moreover, I have learned that rather than focusing on technology to address what people lack, it is better to think about technology as a search to help us understand what we already possess, the untapped potential hidden within us all.**

These ideas took shape from work that was both theoretical and applied—both academically and socially rooted. However, I did run into difficulties bridging the fence between these two critical spheres. **I have found that hubris lies on both sides of the divide between erudition and grassroots empirical sensibilities.** Yet, there is much to be gained from both camps, and attempting to find a middle ground has taken me on a truly exciting journey down an intellectually, socially and technologically relevant course of study.

In March of 1993, the research presented in this document was organized around a proposal aimed at applying the benefits of global telecommunication

technologies to local neighborhood infrastructures. The intent was to focus upon the social and organizational potential of the networking medium, yet not by examining the growth of virtual communities usually associated with the promise of telecommunications, but this time by focusing on how this technology can advance the proximal community—those communities made up of individuals who live in the same neighborhood. In particular, I began by centering my research upon a disadvantaged urban neighborhood in Boston.

Two years later, this work has already begun to bear fruit that I had not initially anticipated. Rather than just developing into an urban computer networking system, this project has developed into a thesis about how a particular set of epistemological paradigms can be used to guide the use and development of technological innovations in support of social development and urban renewal. Moreover, the network that was developed for this project has already gained a surprising measure of recognition and support—NetGuide (Fjermedal, 1995), Popular Science (DiChristina, 1994), The Christian Science Monitor (Ross, 1994), The Boston Globe (Delgado & Buse, 1993), The Boston Herald (Radsken, 1994), The Star-Ledger (Sherman, 1995), San Jose Mercury News (Jones, 1995), Intelligence Newsletter (Rosenfeld, 1995), The New Republic (Syman, in press), American Visions (Roach, in press)—and it has already begun being disseminated to other neighborhoods in Boston and other areas around the country. In fact, the network was chosen by the federal government last year as one of the seed projects it funded in its goal of ultimately deploying a National Information Infrastructure (NII).

The National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce serves as the President's principal advisor on telecommunications policies pertaining to the nation's economic and technological advancement

and to the regulation of the telecommunications industry. As noted by President Clinton (10/19/93), NTIA will play a key role in fulfilling this Administration's goal of deploying an "information superhighway," as outlined by the National Information Infrastructure: Agenda for Action.

On March 4, 1994, the NTIA announced an important new program to assist the public sector at the local level in gaining access to the advantages of a modern, interactive National Information Infrastructure (NII). This **Telecommunications and Information Infrastructure Assistance Program (TIIAP)** program was designed to fund NII planning grants and demonstration projects. This program provides matching grants to state and local governments, health care providers, school districts, libraries, universities, social service organizations, public safety services, and other non-profit entities to help them access new telecommunication technologies.

On October 12, 1994, Secretary Ronald H. Brown announced the FY94 grant recipients. Approximately 90 grants were awarded throughout the nation. The projects receiving funding will serve as catalysts and models for other communities throughout the nation. (NTIA, 1994)

On October 12, 1994, the U.S. Department of Commerce announced that a project in Newark, New Jersey was receiving a grant to implement the network described in this thesis to link up a housing development, a school and a hospital that are all across the street from one another in an urban community. This Newark project is now up and running. It had its opening ceremony on March 27th, 1995. Furthermore, in Chicago, Cleveland, the Mississippi Delta region and other areas in New Jersey, there are other groups which are also proposing to implement this network in their communities.

In Boston, my wife and I have begun a project called "Linking Urban Villages" which aims to use the same network to link up any other urban communities that are interested. By focusing our push on neighborhoods in the Roxbury and Dorchester sections of Boston, we are trying to keep African-

American communities from falling behind the technological mainstream with a bold attempt that actually puts them on the cutting edge. Yet we are not pursuing these goals because we believe in the technological imperatives of the modern era. We are not convinced by the popular maxim that seems to say that more technology always equals more prosperity. Instead, we believe that there are other reasons to support the proliferation of computer networks that are based on epistemological rather than technological rationales.

Each individual's theories about knowledge profoundly affects that person's connections to and interactions with his or her world. How we believe we come to know about the world around us or become known by that world, helps to determine much of our driving goals and ambitions. These theories are our epistemologies, and they can be determining factors in how we develop and use our technology. This is why I believe that epistemology is mightier than technology. The epistemological paradigm of social constructionism has informed my own and my wife's thinking about the use of information technologies. For us this is no longer an issue about bringing something new into people's lives, instead it is about addressing some of the very oldest questions that people face. Networking is not just about computers and it is not just about virtual communities that are forming. The issues around networking are as old as the concept of the village. Social networks have been a critical part of human history as long as our collective memory can recall. Even before computers joined the networking landscape, people have been at work trying to build better connections to one another, and this has been particularly important when it comes to the relationships that people have with their neighbors. The quality of life that each of us enjoy is related to our ability to get along with

others who live in the world with us, and our neighbors are an important part of that equation.

Villages represent a collective of people who have many connections linking them to those who live in proximity to them. These links are not simply passive social ties, but they are also extremely active forces in helping residents to be productive members in their own communities. As urban environments have added increasing complexity and mobility to peoples' lives, creating and sustaining the social and communal links that defined the villages of old has become increasingly difficult. Neighbors need help building and sustaining the social networks that can help them actively contribute to and shape their own local communities.

Social constructionism is an epistemological paradigm that suggests that getting to know one's neighbor is an act of extending one's self which has developmental ramifications. Computer networking is a technological medium that can offer support for this type of human endeavor. The technological tool is not the active force, however, because the critical agency is entirely based upon the prerogatives of the people involved. If we focus our attention only on how this technology can connect us to people who are physically distant from us, then we are robbing ourselves of the potential for using these tools to address some of the most profound experiences that we will face in our lives. This is why epistemology is mightier than technology. Without adequate forethought and conceptual underpinnings, our technological advances can become disconnected and even contrary to some of our deepest collective assets and endeavors.

Why are we focusing most of our attention on the national information infrastructure? What about the local information infrastructure? It takes neighbors being informed about each other and involved with each other to rally a community to address the critical issues that exist in the local arena. If computer networks can contribute to the social infrastructure in local neighborhoods, then these networks can become a part of the profound developmental issues that social constructionism focuses upon. Rather than simply viewing this technology as a means to connect to resources and support that are far away, we should look at it as a means to rally the resources and support that are close at hand. Neighbors can use this technology to coordinate and develop their own cooperative projects, expand their communications, and begin forums and social activities that people are having trouble organizing without these types of tools. Local community members can take charge of information technology to become their own information managers and advocates. Rather than relegating this technology to the experts to manage and control on the "information superhighway" as the rest consume, "surf" and "browse," neighbors can develop and control their own local information infrastructure, and in so doing, begin to redevelop the ties and links to one another that are critical for making communities tight-knit and village-like again.

As the focus of networking continues to be primarily upon issues concerning virtual communities, many people are beginning to worry that the tide is turning us toward abandoning our commitments to work with the real communities in which we live.

If you're like most Americans, you probably grew up in a community—some place where you knew most of your neighbors by name, where your life intersected with your neighbors' in the street, at school, in shops, and at church. If you're like most highly

educated Americans you probably think you live in a community now, but it's far from where you were raised, you don't know most of your neighbors, and most of the people you consider to be part of your community live across town or across the country. The truth is most of us aren't really living in real communities anymore. We're living in the ruins of bygone communities, in special-interest networks that aren't really communities at all—they're ghettos of like minded people.

Most of the rest of the world still live in communities, connected to a place and their neighbors are of mutual need and support. Of course real communities can be constrictive and oppressive, but they can also teach you how to live with people who are very different from you, people you wouldn't necessarily choose to be with. Networks are based on choice. When they get uncomfortable, it's easy to opt out of them. Communities teach tolerance, co-existence, and mutual respect. I think most of us are searching for community. (Utne, 1995, p. 3)

I think that Eric Utne's concerns should be understood from the light cast by a broad backdrop of social alienation. For it is clear that some people are turning to cyberspace as they retreat from social settings that have been very painful and troubling for them. As a nation we face enormous difficulties trying to hold ourselves together in the midst of vast social, cultural and economic disparities. These are the barriers that I spoke of earlier that are often more consequential than the physical distances that separate people. It is not just the highly educated who have seen their traditional communities erode. The poor and the marginalized are also finding that their communities are becoming more troubling and difficult places in which to live. Our age-old quest to get along with each other, to learn "tolerance, co-existence, and mutual respect" must not end in the "ghettos of like minded people." For then we would be abandoning one another and giving up on this nation's dream for a society of equals. Justice and liberty cannot be realities unless people find a way to work together to achieve it. Perhaps we will never fully achieve these goals, but it seems that if we

stop trying we shall end up in a more wretched state than the one that we achieve as we continue the struggle.

*People say it doesn't exist
'Cause no one would like to admit
That there is a city underground
Where people live everyday
Off the waste and decay
Off the discards of their fellow man*

Subcity
Tracy Chapman, 1989

There are underground communities in America whose plight are a painful reminder that ours is not a perfect society. As Tracy Chapman points out, it is often difficult for us to face this population because of the disturbing implications that they represent to us. But the underclass do exist, and they are connected to the world in which we live. Some of them are homeless or unemployed, some are welfare dependents or high school dropouts, but undoubtedly all of them feel disconnected from the wealth and promise that abound in a world which has left them feeling hopeless and abandoned. To Chapman, there is a great divide between those with and those without hope in this society. It is a divide between those who have a piece of the fabled American pie and those who must live off of its discards, waste and decay.

Yet this cannot be the end of the story. There must be some middle ground in this picture through which efforts can be made to bring an end to this divide. At the Media Laboratory at MIT, I have learned to think of media as the abstract notion of a middle ground—it is any place where the process of negotiation and communication can lead to new profound and meaningful experiences. Technologies or theoretical models can be used to develop new

forms of media or change our relationships to old ones. In the chapters that follow, I shall examine a particular set of theories and technologies that I believe can provide new approaches to mediate social development in urban settings, which is at the core of this thesis. I focus on a certain urban setting which is underprivileged, although I believe that the potential exists for applying this type of inquiry to other settings as well. The reason that my investigations center on this particular setting is personal—I live in the setting that I am studying and I grew up in settings very similar to it. This research has been an important part of my own inner searchings for better understandings about the world in which I have come to know. In light of Chapman's words, it is important that we better understand the existence of those who are often misunderstood and the promise of those who are often defined more by their perceived failings than by their ultimate potential. In doing this, I believe we begin to better understand ourselves as well, and we open the door to the social reconstruction of our lost communities.

Introduction

A quarter of a century after our country declared a war on poverty, social theorists and policy makers have said and done many things to attempt to fix our economic inequities. Yet, by many accounts, the situation that the poor find themselves in is actually getting more desperate. It is not simply an economic tragedy that the underclass face, but it is also devastating levels of crime, violence, addiction and despair that are a dramatic crisis among them. We could view the situation as simply an example of the problems of modern social stratification, but I believe that it is an expression of a more universal issue of our time. The conditions that the underprivileged face have crystallized into a devastating enigma that affects and challenges each of our lives in the increasingly complex world in which we live.

Alienation is becoming the common denominator in our modern age where the only constant seems to be the increasing pace of change in our society. As change has become the rule, fear and anxiety have begun to reign. If we can learn anything from the plight of the underprivileged, it is that their situation reflects some of our own disaffection and instability as well. As our social, economic and technological order continues to evolve rapidly, there is no one who can safely predict how any of us or our children will fare in the future. Is America in a decline, doomed to suffer as a second-rate economy and as the world's largest debtor nation? Have we failed our children, leaving them with a broken educational system, unsafe streets and deteriorating social norms and traditions? Or will we find new ways to draw upon the potential and the promise within all of America's citizens, to shape our collective future in a

positive direction? Our only hope is to face this new world with a growing ability to change along with it, as Seymour Papert recently noted:

Not very long ago, and in many parts of the world even today, young people would learn skills they could use in their work throughout life. Today, in industrial countries, most people are doing jobs that did not exist when they were born. The most important skill determining a person's life pattern has already become the ability to learn new skills, to take in new concepts, to assess new situations, to deal with the unexpected. This will be increasingly true in the future: The competitive ability is the ability to learn. (Papert, 1993, p. vii)

In cities and among the poor, we see the clearest picture of pressures that the pace of change has put upon all of our lives. As American society has become more technical and urban, the local community and family units have begun to change and exhibit less cohesion. As social bonds have suffered there have been certain well-documented consequences. There are now fewer two-parent households, fewer intergenerational associations and fewer defining traditions among many social groups. In particular, for the underprivileged, the neighborhood setting has become less of a tight-knit community as neighbors have begun to distrust one another as much as they have historically distrusted outsiders. As a larger proportion of our society has moved to live in the city, cities have become increasingly more difficult places in which to live (Heilbrun, 1981, pp. 1, 6, 269).

No one can doubt that most American cities these days are deeply troubled places. At the root of the problems are the massive economic shifts that have marked the last two decades. Hundreds of thousands of industrial jobs have either disappeared or moved away from the central city and its neighborhoods. And while many downtown areas have experienced a "renaissance," the jobs created there are different from those that once sustained neighborhoods. Either these new jobs are highly professionalized, and require elaborate education and credentials for entry, or they are routine, low-paying service jobs without much of a future. In effect, these shifts in the economy, and particularly the disappearance of decent

employment possibilities from low-income neighborhoods, have removed the bottom rung from the fabled American “ladder of opportunity.” For many people in older city neighborhoods, new approaches to rebuilding their lives and communities, new openings toward opportunity, are a vital necessity. (Kretzmann and McKnight, 1993, p. 1)

In their introduction to “Building Communities From the Inside Out,” John Kretzmann and John McKnight argue that it is common knowledge now that what it means to be a community in an urban environment has radically changed. Our cities are experiencing troubling economic shifts that are resulting in social upheaval, and the old neighborhoods that we used to live in no longer exist. The economic realities in modern urban settings appear to be producing unforeseen consequences that are forcing many to rebuild the premises, the assumptions and the institutions that serve as the organizational foundations for their lives and their communities.

Schools in urban America are experiencing enormous difficulties adjusting to the changes in the surrounding social setting. As issues concerning crime, violence, drug use and teen sexuality become more prevalent, we are seeing record high drop-out rates and declining academic performance. Practically all big cities have public schools that are struggling with the attrition of a large percentage of their teenage student body. Many social theorists view the situation as one that will continue to worsen with no end in sight, especially in light of political realities that include shrinking budgets and declining commitment to public education (A Nation at Risk, 1983).

Without better methods for understanding the difficulties involved in urban experiences, much of the public debate is centered around how to *force*

schools and students to perform, often by threatening to purge those in either category who fail. School departments are being blamed, teachers are being blamed, parents are being blamed, and the children themselves are being blamed. But assigning this blame has done little to change the situation. This scenario is one of social retrenchment and retreat.

*They say there's too much crime in these city
streets*

*My sentiments exactly
Government and big business hold the purse
strings*

*When I worked I worked in the factories
I'm at the mercy of the world
I guess I'm lucky to be alive*

*They say we've fallen through the cracks
they say the system works
But we won't let it
Help
I guess they never stop to think
We might not just want handouts
But a way to make an honest living
Living this ain't living*

Subcity
Tracy Chapman, 1989

Chapman's desire is that we see these problems not from the position of one who wants to assign blame, nor as one who wants to do a good deed for the helpless. But instead she is imploring us to see it from the perspective of one who believes that there is unleashed potential and capacities within the underprivileged that can restore to them their dignity and self-respect. If we begin with this understanding, then there is hope that we might be guided by a philosophy that can humbly bring us onto common ground with the underprivileged, from which we can collectively bring about social redress. Paulo Freire reinforces this point when he discusses two possible results that can

come from one group's attempt at intervention to help another group. He calls the first type "cultural invasion," which can be devastating to the latter group, and he calls the second type "cultural synthesis," which brings benefits to both groups.

In cultural invasion, the actors draw the 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 to *transmit* or to *give* anything, but rather to learn with the people, about the people's world.

In cultural invasion the actors (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. (Freire, 1982, pp. 181-182)

If we invade the poor with our solutions to their issues, then we shall betray them by forcing them to be spectators, passive in the face of critical questions that concern them, while our modern world demands that they be active and engaged, prepared for the realities of constant change. But if we work with them to find solutions, then we are developing together with them our capacity to continually learn as we face the future that Papert spoke of above. One way or another, we all share the fate of the poor and the underprivileged. Either we shall all lose hope in the face of extreme social upheaval, or together we shall all find productive responses to the new realities that we face. In the

pursuit of the latter ends, I believe that certain epistemological paradigms and inquiries can help.

Constructionism, epistemological pluralism and dynamic objectivity are three important theoretical models to consider. Through the lens of constructionist inquiries, I have found that it is possible to see how urban communities can be the active forces in their own development. Through the insights and techniques this type of inquiry provides, it is possible to make sense of the connection between the work of community building and the issues of social development and interpersonal relationships. Epistemological pluralism and dynamic objectivity provide a framework for understanding how inner-city environments can support the various types and styles of constructive analyses that urban communities might engender. In fact, I will use these theoretical models as a basis from which to analyze my own research activities in the latter portion of this thesis.

However, this thesis goes beyond discussing theoretical paradigms. I will also evaluate how these ideas are expressed in the praxis of actual community development projects that have been the focus of my research during the past four years. My work involved, among other things, analyzing the role that technology can play in these types of projects. I will look at a particular example of communal appropriations of technological media—namely a telecommunication system I developed—and I will evaluate ways in which this type of media can strengthen or weaken internal ties within the community on which I focus my study. I will attempt to demonstrate that activities and tools in this social setting which are related to the concepts above can help to create urban environments that support profound examples of social development and

urban renewal. In short, I seek to explore how certain urban models can guide the use of various technological media as our society attempts to address the concerns raised by Chapman, Papert, McKnight and Freire.

Part I — The Theoretical Construction

Chapter 1: Constructionism

1.1 Shifting Paradigms

Technically speaking, the term “inner city” refers to the central section of a city, an area that is usually older and more densely populated. However, practically speaking, the term “inner city” has come to describe urban settings fraught with many troubling inequities and social afflictions, regardless of the location, population or age of the setting. The problems faced by those who live in the inner city have drawn an enormous amount of the public's attention, and so, there have been various efforts made at addressing these concerns. There are at least two types of approaches that can be taken when attempting to address the difficulties faced by those who live in the inner city. One focuses on what institutions and individuals outside of the inner city can do, while the other focuses on what can be done by those who are within that setting. It often seems that we lack theories and models which focus on internal development, and so the most common approach that is adopted concerns what outside forces can and should do to *fix* the inner city, rather than how the internal forces can make an impact. Yet, just as America's war on poverty has not completely succeeded at *fixing* the problems faced by the poor, neither have these approaches succeeded at their goals in the inner city, and I believe a developmental theory called constructionism can help us understand why.

Constructionism is usually thought of as an educational theory, rather than as a theory with broader social implications. But I believe that borrowing this paradigm from educational circles can offer fresh and insightful perspectives to issues involving urban social conditions. Borrowing ideas from one field to another can be an important avenue for breaking new ground on old problems. Stephen Jay Gould made this point when discussing the line of reasoning that made Darwin's theory of natural selection possible.

In reading Schweber's detailed account of the moments preceding Darwin's formulation of natural selection, I was particularly struck by the absence of deciding influence from his own field of biology. The immediate precipitators were a social scientist, an economist, and a statistician. If genius has any common denominator, I would propose breadth of interest and the ability to construct fruitful analogies between fields. In fact, I believe that the theory of natural selection should be viewed as an extended analogy—whether conscious or unconscious on Darwin's part I do not know—to the laissez faire [sic] economics of Adam Smith. (Gould, 1982, p. 66)

In certain cases such analogies lead to breakthroughs which open entirely new perspectives from which to study material that is very familiar and already thoroughly researched from the 'old school.' Thomas Kuhn calls this type of challenge to a field a paradigm shift (Kuhn, 1970, p. 104), and if acceptance to it grows, it can expand the reach and consequence of a particular field. In my work at the Media Laboratory at MIT, I have grown to believe that models and theories about learning and development that I have seen applied to educational settings have important ramifications in other social settings. I have found that there are relevant connections to be made between understanding the development of individuals and that of social groups, and indeed that a theory about individual childhood development is also useful

when applied to the needs of complex social settings. In particular, I believe that there is a comparison to be drawn between that fact that children caught in certain passive educational models often lose developmental opportunities, while similarly, members of social settings can lose developmental opportunities when they are caught in passive roles in those settings.

This is not a novel idea. In my view, Marvin Minsky (1985,1986) put forth a much more challenging version of this proposition in his "Society of Mind." There he argued that a individual mind can be thought of as a society of many agents. Here, I simply state the inverse, which has been stated in many forms and contexts before this. A society of agents often act as if they are an individual mind. And certain theories that apply to the development of the individual also apply to the development of a larger society of agents. Constructionism is one such theory, and I have found this to be the case in an urban setting in which I live and on which I focus my research.

1.2 Constructivism and Constructionism

To understand the utility of constructionist theories in urban settings, it is important first to understand the usage and efficacy of the concept in its traditional applications. The academic usage of the word *constructionism* which I am appropriating expands on the concept known as *constructivism*. In social and developmental psychology, constructivist models view the subject as a builder of knowledge, not a passive receptor, but an active constructor. Through constructivism, theorists such as Jean Piaget attempt to

describe how this building process takes place in order to better understand childhood learning and development (Piaget, 1954). In educational settings, this model goes against the idea of the student as a “tabula rasa” and the teacher as an authority that must force the student to learn by imposing knowledge on the student. Instead, constructivism argues that teachers should understand the active nature of the learning process in which students are already engaged, so that the teacher can enhance and facilitate that process, rather than impose unnatural learning experiences on the student:

I take from Jean Piaget a model of children as builders of their own intellectual structures. Children seem to be innately gifted learners, acquiring long before they go to school a vast quantity of knowledge by a process I call “Piagetian learning,” or “learning without being taught.” For example, children learn to speak, learn the intuitive geometry needed to get around in space, and learn enough of logic and rhetorics to get around parents—all this without being “taught.” (Papert, 1980, p. 7)

Constructivists believe that all children are engaged in creating a vast array of intellectual structures that give order to the world in which they live, and that these structures must support increasing levels of complexity as each child grows and develops. This view opens the door to understanding how consequential various childhood experiences are, whether they be in the area of early sensori-motor experiences that Piaget examines in *The Construction of Reality in the Child* (1986), or in the area of childhood play and fantasy as Winnicott examines in *Playing & Reality* (1989). These works along with others have helped to encourage greater academic respect for and interest in childhood learning and developmental processes.

Constructionist thinking adds to the constructivist viewpoint. Where constructivism casts the subject as an active builder and argues against passive models of learning and development, constructionism places a critical emphasis on particular constructions of the subject which are external and shared.

We understand "constructionism" as including, but going beyond, what Piaget would call "constructivism." The word with the v expresses the theory that knowledge is built by the learner, not supplied by the teacher. The word with the n expresses the further idea that this happens especially felicitously when the learner is engaged in the construction of something external or at least shareable ... a sand castle, a machine, a computer program, a book. This leads us to a model using a cycle of internalization of what is outside, then externalization of what is inside and so on. (Papert, 1990, p. 3)

By directing particular attention to the external constructions of the active learner, constructionism reveals that childhood development involves more than just creative action, but recreative reaction as well. This is to say that constructionism argues that the creative activity of the child can lead to an interplay between internalized and externalized experiences in such a way as to promote further creative activity. The "internalization of what is outside" and the "externalization of what is inside" represents a developmental cycle. Internal experiences are externalized through some shareable construction, which a child can then re-internalize by reinterpreting it in its external form. This process can even become a dialectic when the child's reexamination and reinterpretation of the internal and external forms produces a new synthesis of these distinctive expressions. The creative construction of a child is not an ends, but a means to further development activity, especially when it can be externalized. Needless to say, from a

constructionist point of view, opportunities and materials for constructive activities which can be externalized are critical to educational settings.

I like to formulate a major theoretical issue as “constructionism vs. instructionism.” This does not suggest that instruction is bad or useless. Instruction is not bad but overrated as the locus for significant change in education. *Better leaning will not come from finding better ways for the teacher to instruct but from giving the learner better opportunities to construct.* And this conviction has driven our continuing quest for new building materials or new uses of old ones. (Papert, 1990, p. 3) [emphasis his]

Constructivist notions have provided breakthroughs in outlining some of the hidden mechanisms in individuals which produce creative, developmental experiences. Constructionist notions shed light on how internalized and externalized expressions of a subject’s constructs interrelate and spur further development. Without a clear understanding of this interplay, it is often difficult to understand the ramifications that developmental activity has on a subject. A good example of how this can be fleshed out is found in the research of Lev Vygotsky.

1.3 Constructionism and Social Relations

Vygotsky pioneered a sociocultural approach to understanding cognitive processes in childhood development. Rather than focusing his research on uncovering the dynamics of mental activity in an individual in isolation, he sought to reveal how social and cultural interactions were critical to the genesis of cognitive functions. In fact, he believed that it is our need to interact and communicate in the sociocultural context that makes

human cognitive development intellectual and distinct from animal cognition:

Signs and words serve children first and foremost as a means of social contact with other people. The cognitive and communicative functions of language then become the basis of a new and superior form of activity in children, distinguishing them from animals. (Vygotsky, 1978, pp. 28-29)

The internalization of socially rooted and historically developed activities is the distinguishing feature in human psychology, the basis of the qualitative leap from animal to human psychology. (Ibid, p. 57)

By highlighting the effects of social interactions on cognitive development, Vygotsky reveals a critical role that external activities play in sparking internal mental constructions. Understanding this interplay, as Papert indicated above, is at the heart of constructionism's paradigm. Although these internal and external dynamics are cyclic, Vygotsky clearly views the external component (the shared and communicated experiences) as being primary in many key instances, in that they initiate certain critical internal components through the process of internalization.

We call the internal reconstruction of an external operation *internalization*. A good example of this process may be found in the development of pointing. Initially, this gesture is nothing more than an unsuccessful attempt to grasp something, a movement aimed at a certain object which designates forthcoming activity. The child attempts to grasp an object placed beyond his reach; his hands, stretched toward that object, remain poised in the air. His fingers make grasping movements. At this initial stage pointing is represented by the child's movement, which seems to be pointing to an object—that and nothing more.

When the mother comes to the child's aid and realizes his movement indicates something, the situation changes fundamentally. Pointing becomes a gesture for others. The child's unsuccessful attempt engenders a reaction not from the

object he seeks but *from another person*. Consequently, the primary meaning of that unsuccessful grasping movement is established by others. Only later, when the child can link his unsuccessful grasping movement to the objective situation as a whole, does he begin to understand this movement as pointing. At this juncture there occurs a change in that movement's function: from an object-oriented movement it becomes a movement aimed at another person, a means of establishing relations. *The grasping movement changes to the act of pointing.* As a result of this change, the movement itself is then physically simplified, and what results is the form of pointing that we may call a true gesture. It becomes a true gesture only after it objectively manifests all the functions of pointing for others and is understood by others as a gesture. Its meaning and functions are created at first by an objective situation and then by people who surround the child. (Vygotsky, 1978, pp. 56-57) [emphasis his]

In this, Vygotsky gives us a picture of the early stages of the child's use of signs for representation and communication. The communicative use of a sign by the child requires some type of internalized intellectual order which can allow it to become meaningful and reusable to the child, and Vygotsky demonstrates that this internal order can be initiated by the external context of social relations. This primary role played by external relations suggests profound implications are involved in the effects that social and cultural settings have on individuals during developmental stages. In fact, Vygotsky goes so far as to claim that *all* higher mental functions evolve from social relations.

Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first *between* people (*interpsychological*), and then *inside* the child (*intrapsychological*). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals. (Ibid, p. 57) [emphasis his]

1.4 The Developmental Cycle: A Balancing Act

Vygotsky's emphasis on the priority of the social level in all higher mental functions has drawn considerable fire from constructivist critiques which argue that many internalized mental structures evolve before being exposed to the sociocultural milieu (Carey and Gelman, 1991; Bereiter 1994). However, it is essential not to let this important critique detract from the idea that the social and the individual areas of intellectual development are both critical planes to consider. Vygotsky's sociocultural focus and the more classical constructivist's individualized focus can find harmony, as Paul Cobb recently argued from a constructivist viewpoint when he stated, "Each of the two perspectives, the sociocultural and the constructivist, tells half of a good story, and each can be used to complement the other" (Cobb, 1994, p. 17). He developed this point further when comparing Barbara Rogoff's (1990) sociocultural viewpoint to Ernst von Glaserfeld's (1994) Piagetian perspective.

In comparing Rogoff's and von Glaserfeld's work, it can be noted that Rogoff's view of learning as acculturation via guided participation implicitly assumes an actively constructing child. Conversely, von Glaserfeld's view of learning as cognitive self-organization implicitly assumes that the child is participating in cultural practices. In effect, active individual construction constitutes the background against which guided participation in cultural practices comes to the fore for Rogoff, and this participation is the background against which self-organization comes to the fore for von Glaserfeld. (p. 17)

From the viewpoint of urban social anthropology, Elizabeth Bott (1971) came to a similar conclusion. She argued that the sociological concept of internalization of sociocultural experiences needs to be balanced with the psychological concept of internal cognitive reorganization.

The basic argument of both chapters is that people do not acquire their ideology, norms, and values solely by internalizing them from outside. They also re-work the standards they have internalized, conceptualize them in a new form, and project them back on to the external situation. The more varied their social experience and the more unconnected the standards they internalize, the more internal rearrangement they must make. (Bott, 1971, p. 223)

In brief, I had to give up the attempt to interpret norms and roles as social and entirely externally determined and role performance as internal and psychologically determined. Sociological and psychological concepts were now used simultaneously at every stage of the analysis. (Ibid, p. 229)

Constructionism offers an important bridge for the sociocultural and constructivist viewpoints by arguing that individual developmental cycles are enhanced by shared constructive activity in the social setting. *Social* constructionism adds further harmony to sociocultural and constructivist views by revealing that the social setting is also enhanced by the developmental activity of the individual. The duality of this interplay has important ramifications for urban social conditions. If the constructionist notion that shared constructions and social relations are key to individual development, then social settings that are marked by fractured and limited shared social activity and less cohesive social relations—as is the case in many urban settings—may present troubling developmental barriers. However, since the social setting is not immutable, introducing activities which are socially constructive may provide rectifying responses. Indeed, this possibility speaks to the need for better insight into the nature of the developmental processes involved in social settings. This insight is the goal of social constructionism's inquiry.

1.5 Social Constructionism and the Social Setting

If the constructionist notion that shared external constructions and social relations are key to individual development cycles, what effects do social settings have when they are marked by fractured, less cohesive social relations, as is the case in many urban settings? Indeed, this question speaks to the need for insight into the nature of social settings as they influence individual relations and shared constructions. Papert offers this type of insight when he addresses the subject's need for appropriate materials in the process of building shared constructions, and how sociocultural settings need to provide a source for these materials:

All builders need materials to build with. Where I am at variance with Piaget is in the role I attribute to the surrounding cultures as a source of these materials. In some cases the culture supplies them in abundance, thus facilitating constructive Piagetian learning. For example, the fact that so many important things (knives and forks, mothers and fathers, shoes and socks) come in pairs is a "material" for the construction of an intuitive sense of number. But in many cases where Piaget would explain the slower development of a particular concept by its greater complexity or formality, I see the critical factor as the relative poverty of the culture in those materials that would make the concept simple and concrete. In yet other cases the culture may provide materials but block their use. (Papert, 1980. pp. 7-8)

By indicating that the cultural context plays an important role in individual development, Papert points us to the broader sociocultural component of the constructionist viewpoint that has some connections to fields like social anthropology. Theorists from such fields focus on broader sociocultural and corporate factors—rather than individual processes—that help to produce outcomes and artifacts in particular populations and groups. These outcomes and artifacts can be constructs in particular academic fields or

they can be broader social and cultural constructs. To Thomas Kuhn, for example, the constructs produced by the community of researchers who focus on “normal science” can be described as “shared paradigms” (Kuhn, 1970, pp. 10-11). Similarly, Michael Cole looks at cultural traditions and norms among the Kpelle tribe in Liberia as constructs that serve as “functional cognitive systems” (Cole & Scribner, 1974, p. 194). In either case, the constructs are defined through the activities and characteristics of a particular social group which has functional objectives and needs.

Social constructionism takes constructionism out of the classroom and out of the realm of educational priorities. In so doing, it takes the constructivist viewpoint even further into sociocultural perspectives bringing with it the same insights concerning the cycle of internalization and externalization. Through this lens, a group of subjects serve as active agents in the construction of outcomes and artifacts that produce a developmental cycle in the social setting, and this view explicitly includes as *social* constructions the social relations and social activities embedded in the social setting. To social constructionism, the social setting itself is an evolving construction. When the members of a social setting develop external and shareable social constructs, they engage the setting in a cycle of development which is critical to determining its ultimate form.

Chapter 2: Social Constructionism

2.1 The Paradigm of Social Constructionism

Consultants in group dynamics in corporate circles often break up corporate personalities into three different types. There are outcomes or results-oriented people, there are process-oriented people, and there are people who focus primarily on relationships. The results-oriented types will often be willing to sacrifice due process or to damage relationships in order to achieve particular outcomes. Process-oriented people might never be willing to sacrifice the process in the name of some particular outcome or to preserve a particular relationship. And the relational types might not take seriously accomplishing particular results or abiding by certain processes as they pursue developing relationships.

Interestingly enough, however, employees who subscribe to one of these approaches can become ineffective at accomplishing what they view as a priority if the other approaches are not also represented in some balanced way. The results-oriented ones can end up in mismanaged affairs without proper respect for due process, or there might be a dangerous turnover in the staff if they develop bad interpersonal relationships, and in either case the problems might cause severe complications for the business down the line. The process-oriented types might let red tape damage the business's productivity or jeopardize the loyalty of its staff, again possibly destroying the business and its due process along the way. And the relational employees might not be productive or well-managed in the business's affairs, and this

could negatively affect the business and result in a stressful work environment that can ultimately hurt or breakup the treasured relationships. All three areas of focus to some degree depend on one another and balance each other.

These three areas also play a similar role in urban group dynamics from a social constructionist point of view. The outcomes that are involved are the internalized and externalized constructs of the members of a social setting in the developmental cycle as described in Chapter 1. The processes that are involved are the Piagetian mechanisms involved in cognitive self-organization and the Vygotskian mechanisms through which sociocultural experiences are internalized, both of which are critical to achieving the outcomes as discussed in Chapter 1. And finally, the relationships that are involved are those that connect individuals with the sociocultural milieu and provide the opportunities and materials that Papert argued were necessary for constructivist outcomes as we also explored in the last chapter. All of these factors function as components of a three-part social constructionist paradigm.

To understand this paradigm, it is important to understand that in any given social setting certain social relationships and relationships to cultural materials already exist. When sociocultural activities and social and cognitive processes act in the context of those pre-existing relations, outcomes are formed which make up new internalized and externalized constructs. These constructs can bring about development in the internal cognitive order and in the external social order. This suggests 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 existent relationships, adding or altering cultural materials, activities and processes, and by fostering new cognitive and social developments. Each of these components—social relations and cultural materials, sociocultural activities and processes, and internalized and externalized constructs—are influenced by one another. Nothing is static here. As the individuals in the social setting develop, constructs are produced, relationships and activities are affected and the setting evolves.

From the mindset of social constructionism, social settings are not viewed as simply neutral grounds in which developmental activities take place, but instead they are seen as intimately involved with the process and outcome of that development. It is through the sociocultural opportunities and materials in the setting that critical activities take place. Cognitive processes and internal intellectual constructs are deeply affected by these factors. However, the opportunities are themselves a function of social relations, and the materials are externalized constructs developed and maintained by the members of that setting. This is to say that even culture is a construction. It is a part of the developmental process.

2.2 The Promise of Social Constructions

It is important to note that externalized constructs are not just objects but they can also be reconstructed social activities and social relations. From this point on, I shall use the term “social constructions” to refer to these types of constructions. There are five types of social constructions which I address in the description of my field work in Part III of this thesis: 1) social relationships; 2) social events; 3) shared physical artifacts; 4) shared social goals and projects; and 5) shared cultural norms and traditions. The social relationships in question are the friendships, the familial relationships, the partnerships and the varied associations that people actively develop and maintain in their social setting. The social events are the potlucks, the block parties, the Easter Egg hunts and the other activities that will not happen unless people come together and organize them. The shared physical artifacts are things like wall murals, community gardens, a public well, a swing or a basketball hoop or any shared space that neighbors build or maintain through their own effort or expense. The shared social goals are the impetus for activities like keeping the streets clean, donating food or clothing to those in need, helping the very young and the elderly, participating in shared economic endeavors, crime watches and democratic processes such as voting. The shared social projects are the activities involved in accomplishing the social goals. But these goals and projects are social constructions only if the primary active proponents for them come from within the social setting. And lastly, the cultural norms and traditions are things like shared dialects, music, styles of interacting and dressing, an accepted neighborhood identity and the organizational processes with which people are comfortable, such as town hall meetings, neighborhood workshops and church participation.

In social constructionism the activities available for engaging in social constructions are key to the developmental model. Without adequate opportunity for active social constructions, there can be detrimental developmental consequences. As Papert pointed out above, the availability of appropriate cultural materials plays an enormous role in determining whether or not particular constructivist activities take place in a setting. I wish to make the further point that when appropriate cultural materials and opportunities for a constructivist activity are not available, all is not lost, for these materials and opportunities can still be socially constructed by the members of a setting if they have adequate opportunities and incentives for reconstructing social activities.

This is to say that the culture of a setting can evolve to address difficulties and deficiencies, but of course this is dependent on the interest and sensibilities of the members of that setting. The culture involved in a particular social setting will include certain sensibilities and tensions which encourage change, as well as conflicting ones which discourage change. One can attempt to accomplish certain outcomes or build certain relationships without regard to the cultural processes involved, but this will ultimately be an unbalanced approach with certain negative consequences of its own. The cultural aspects involved should be thought through, and the cultural process available through which constructionist activities are possible should be encouraged.

This paradigm applies for all social settings that bring people together for meaningful long-term relationships, sociocultural activities and social

constructions. The setting might be a grade school classroom, an indigenous African tribe, a scientific research community, a community center, a church or an urban, suburban or rural neighborhood. When social relations are fractured and sociocultural interactions are strained, the setting is affected and the developmental and evolutionary processes are disrupted. Conversely, when social relations are not damaged, the sociocultural interactions in the setting can spur on individual development and have an evolutionary effect on the setting. Understanding the issues that make for a positive or negative outcome provides insights into finding adaptive responses to one's social setting, even when that social setting is unstable and unpromising, as is the case in many urban environments.

Chapter 3: Appropriable Activities

3.1 Appropriable Activities in the Social Setting

Positive or negative outcomes and instability in a setting are issues that are related to what Papert describes as criterion for appropriable activities. If an activity is not appropriable to the social relations and cultural processes involved in a setting, then that activity will have difficulty providing opportunities for internalized or externalized constructions, and thus, it is not well suited for the synergy of social constructionism. If a social setting is made up of a large share of activities which are not appropriable, then that setting is an unpromising one. That many classrooms are in this state has been argued often enough, but the idea that many urban environments are suffering in this way is not as frequently stated. If, in fact, this is the case, then to address the situation requires that some attempt be made to develop new appropriable activities or reconstruct old ones to make them more appropriable. Papert lists three principles that determine appropriable activities: the *continuity principle*, the *power principle*, the *principle of cultural resonance* (Papert, 1980, p. 54). Understanding these principles is an important part of learning how to encourage appropriable social constructions.

The continuity principle argues that appropriable activities will connect with some “well-established personal knowledge” that comes from those involved with the activity. The power principle establishes that one must be involved in work that is personally meaningful and that could not

be done as well in other available activities. The principle of cultural resonance states that the activity must “make sense in terms of a larger social context.” Not surprisingly, these three principles are related to the three-part social constructionist paradigm, although through a different breakdown. Taken together, these principles provide a lens through which to evaluate sociocultural activities and processes. Taken individually, the principles offer separate methods to measure the other two components of the paradigm. The continuity principle is connected to internalized constructs, the power principle addresses externalized constructs and the principle of cultural resonance involves issues concerning social relations and cultural materials.

With these principles in mind in the context of the classroom setting, Papert and his colleagues designed Turtle Geometry, the mathematical activities that are involved in the Logo environment. However, these principles are not limited to this type of activity or to this type of setting, as I will show by describing how each one of them—in reverse order—can also help us design appropriate activities for urban social environments.

3.2 Cultural Resonance as Conviviality and Cultural Synthesis

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 the 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 processes. As Vygotsky's indicates in an above quote, a natural desire to connect to socially rooted activities is a distinguishing feature of human psychology. This natural desire to build relationships connects to many of our most basic motivations and so it provides the context for the constructionist paradigm. Thus, a natural environment for fostering social relationships is critical. This means activities for social constructionism must involve natural affective interactions. Such activities are related to what Ivan Illich calls 'conviviality'.

I choose the term 'conviviality' to designate the opposite of industrial productivity. I intend it to mean autonomous and creative intercourse among persons, and the intercourse of persons with their environment; and this in contrast with the conditioned response of persons to the demands made upon them by others, and by a man-made environment. I consider conviviality to be individual freedom realized in personal interdependence and, as such, an intrinsic ethical value. (Illich, 1973, p. 24)

Illich's 'conviviality' addresses one dimension of what cultural resonance is all about. It concerns individual freedom but it is also about interdependence. It deals with "creative intercourse among persons" and it deals with "intercourse of persons with their environment." When an activity or tool allows a person to explore new potential experiences somewhat freely, while at the same time that activity or tool connects that person to other people or materials in their environment, then the activity or tool is a convivial one. It is the absence of these types of experiences that leave people alienated and robbed of rich developmental opportunities, which Illich points out is often the case in urban environments.

The city child is born into an environment made up of systems that have a different meaning for their designers than for their

clients. The inhabitant of the city is in touch with thousands of systems, but only peripherally with each... Learning by primary experience is restricted to self-adjustment in the midst of packaged commodities... People know what they have been taught, but learn little from their own doing. (Illich, 1970, p. 73)

Activities that encourage various types of social relations open up connections through which individuals can investigate the world around them. Such investigations can result in internalized developmental outcomes. However, activities that are like packaged commodities do not give anyone meaningful connections, and so these types of activities do not lead anywhere, making for unconstructionist passive outcomes. No setting needs to provide exclusively convivial activities, but there needs to be a healthier balance than is often found in urban settings.

What is fundamental to a convivial society is not the total absence of manipulative institutions and addictive goods and services, but the balance between those tools which create the specific demands they are specialized to satisfy and those complementary, enabling tools which foster self-realization. The first set of tools produces according to abstract plans for men in general; the other set enhances the ability of people to pursue their own goals in their unique way. (Illich, 1973, p. 37)

Another, perhaps more obvious, dimension of cultural resonance is addressed by what Freire calls "cultural synthesis." This is an idea that we have already touched upon which is especially critical for designers of appropriable activities who do not live in the setting for which their activities are designed.

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 to *transmit* or to *give* anything, but rather to learn with the people, about the people's world. (Freire, 1982, p. 181) [emphasis his]

Since the principle of cultural resonance is concerned with making sense of the larger social context, this principle must involve active learning. For an activity to be appropriable from the standpoint of cultural resonance, the activity must involve learning about the setting by its members as well as by those who are involved in a more peripheral way. No culturally resonant activity should promote passive disengagement from the setting, but active investigation and discussion. No one should ever stop learning about themselves and the world in which they live.

3.3 The Power Principle and Tools for Social Constructions

As socially rooted, unmanipulative activities lead to convivial experiences and as the spirit of lifelong learning helps us better understand the principle of cultural resonance, the power principle is best understood in connection with Illich's concept of "enabling tools" as quoted above. The word "power" in this principle refers to the opportunity and ability to produce (or construct) a particular outcome in an environment. Tools present and represent the opportunities in the social setting which are necessary to mediate developmental activities. Indeed, the very term 'instrumental' points to this. Instruments are always critical. An active builder will naturally develop tools which serve as his or her instruments in the building process. Tools can be empowering since without effective tools a task may be too difficult to be viable. This issue was of critical importance to Vygotsky:

The third theme in Vygotsky's writings is the claim that higher mental functioning is mediated by tools and signs... The fundamental claim here is that human activity (on both the

interpsychological and the intrapsychological plane) can be understood only if we take into consideration the “technical tools” and “psychological tools” or “signs” that mediate this activity. These forms of mediation, which are products of the sociocultural milieu in which they exist, are not viewed as simply facilitating activity that would otherwise take place. Instead, they are viewed as fundamentally shaping and defining it. (Wertsch, 1990, p. 114)

Tools are instruments for builders, and thus they are critical in constructionist paradigms. The type and utility of a tool can change a building process radically. In urban projects which I discuss at length in later chapters, there were three functions in which tools served a particularly important role: as extensions of the subjects, as catalysts for activism, and as artifacts for epistemological foundations.

Tools can become an extension of a builder's personal models and instruments. This is to say that as a tool becomes increasingly relied upon, it can become integral to the process it is facilitating. The builder can begin to think of the tool as a part of the internalized model that informs the builders efforts, and it can become so intimately identified with the builder's other instruments that it can seem to become an intricate part of them. In fact, this idea about tools leads to the idea that powerful tools can help members of a social setting feel more empowered. The greater the empowerment, the greater the activism, and the greater the chance for socially constructionistic outcomes.

With this last point in mind, tools can also be viewed as catalysts. When one is presented with a new tool, it provides a new opportunity to engage in the activity mediated by that tool. Since the activity is changed

somewhat by the addition of the tool, the tool opens up a new avenue to pursue. If this makes the activity less burdensome, then the tool's existence may make the activity more approachable and achievable, and thus more likely to happen. In this way tools can be seen as catalyst, providing incentives for bringing about new changes in the social setting.

Furthermore, this characteristic of tools—that they also provide new opportunities and a new context with which to approach situations—leads to the idea that tools provide new conceptual models for those engaged in an activity to consider. Thinking about a situation with a tool and considering that same situation in the absence of the tool provides an opportunity to develop new epistemological foundations. Dialogues can exist that concern thinking about the tool, and even thinking about thinking about the tool. Indeed, certain tools may engage residents of social setting in a dialogue that has an effect that is as profound as the activity that the tool empowered the residents to accomplish.

The power principle is about enabling a subject to engage in meaningful work. Work involves appropriate tools, and meaningfulness involves epistemology, as we shall consider more thoroughly when we analyze how telecommunications made an impact as an important tool in my research.

3.4 The Continuity Principle and Epistemological Foundations

The development of epistemological inquiries may seem to be an extraordinary goal for urban social settings, but on the contrary, it is quite a basic and necessary component to any setting, and it is related to the continuity principle. Since the continuity principle stresses that activities connect to well-established personal knowledge, the members of a setting must have some approach for making intimate connections to different types of knowledge. This includes developing a sense of the limits and validity of various expressions of new and old forms of knowledge, which serves as an entry point into epistemology and involves the internalized outcomes of the social constructionist model. This principle also addresses the potential for developing personal and cultural extensions via Vygotsky's zone of proximal development, as we shall see when we explore this concept in more detail below.

Just as constructivism points out important consequences in childhood developmental activities, the continuity principle opens the door to understanding profound implications in certain activities in social settings. Social activities often involve formal or informal learning experiences that are intended to help us make more meaningful connections in our lives. This has especially been true of older, more traditional societies.

Traditional society was more like a set of concentric circles of meaningful structures, while modern man must learn how to find meaning in many structures to which he is only marginally related. In the village, language and architecture and work and religion and family customs were consistent with one another, mutually explanatory and reinforcing. To grow into one implied a growth into the others. Even specialized apprenticeship was a by-product of specialized activities, such as

shoemaking or the singing of psalms. If an apprentice never became a master or a scholar, he still contributed to making shoes or to making church services solemn. Education did not compete for time with either work or leisure. Almost all education was complex, lifelong and unplanned. (Illich, 1970, p. 33)

The continuity principle is all about learning to make connections, which is a lifelong experience. In traditional village societies this issue was involved in many daily activities in a very natural way, and although certain factors in modern urban settings may complicate this issue, dealing with new experiences by attempting to associate them with older ones is also a lifelong challenge for the city dweller. Papert presents a constructionist formulation for this type of connection making in the following:

First, relate what is new and to be learned to something you already know. Second, take what is new and make it your own: Make something new with it, play with it, build with it. So for example, to learn a new word, we first look for a familiar "root" and then practice by using the word in a sentence of our own construction. (Papert, 1980, p. 120)

Here Papert is providing us with more than just a strategy for constant learning, he is also giving us a look at what it means to move from an old developmental state to a new one. This movement requires reformulating the old to try to appropriate the new. To do this, there needs to be a reasonable potential for drawing connections between the old and new. Understanding when and where that potential exists is what Vygotsky has attempted to address through the concept of the zone of proximal development (ZPD). Dealing with proximal development means looking at where one is and where it is possible to get from there. The possibilities define the zone.

Earlier, I made the following argument that is related to the concept of ZPD: “when appropriate cultural materials and opportunities for a constructivist activity are not available, all is not lost, for these materials and opportunities can still be socially constructed by the members of a setting if they have adequate opportunities and incentives for reconstructing social activities.” Rather than thinking of a sociocultural setting’s opportunities for constructivist activities as static, one ought instead to view the situation as one of constant evolution. By understanding when and where the potential for further sociocultural development can exist, one can apply the concept of ZPD to the urban setting. Without this concept, we are left in a situation similar to that Vygotsky described for the classroom setting that uses static developmental models:

For a time, our schools favored the “complex” system of instruction, which was believed to be adapted to the child’s ways of thinking. In offering the child problems he was able to handle without help, this method failed to utilize the zone of proximal development and to lead the child to what he could not yet do. Instruction was oriented to the child’s weakness rather than his strength, thus encouraging him to remain at the preschool stage of development. (Vygotsky, 1986, p. 189)

If we simply “adapt” to social conditions the way they are, then many urban residents will never see their communities develop into the types of environments that they would like to live in. Yet to foster new social developments in a setting, those who live there must engage in the dialogue and social analysis necessary to define the potential developmental zone. This can happen naturally as the residents effectively become epistemologists.

3.5 The Praxis of Social Constructionism

Before examining what all of this implies about certain urban conditions, it can be helpful to use these models to think about another social setting to weigh the model's utility. In *Mindstorms*, Papert describes a Brazilian social setting that was developed around the context of the carnival in Rio de Janeiro. This is a description of the samba school, which has become a classic example of a social setting with important learning and developmental experiences.

For example, at the core of the famous carnival in Rio de Janeiro is a twelve-hour-long procession of song, dance, and street theater ... The processions are not spontaneous. Preparing them as well as performing in them are important parts of Brazilian life. Each group prepares separately—and competitively—in its own learning environment, which is called a samba school. These are not schools as we know them; they are social clubs with memberships that may range from a few hundred to many thousands ... Members of the school range in age from children to grandparents and in ability from novice to professional. But they dance together and as they dance everyone is learning and teaching as well as dancing ... Every American disco is a place for learning as well as for dancing. But the samba schools are very different. There is greater social cohesion, a sense of belonging to a group, and a sense of common purpose.

In this book we have considered how mathematics might be learned in settings that resemble the Brazilian samba school, in settings that are real, socially cohesive, and where experts and novices are all learning. The samba school, although not "exportable" to an alien culture, represents a set of attributes a learning environment should and could have. Learning is not separate from reality. The samba school has a purpose, and learning is integrated in the school for this purpose. Novice is not separated from expert, and the experts are also learning. (Papert, 1980, pp. 178-179)

Within an informal social setting people come together to work on something that is very much a part of their relationships and commonalities.

It involves “social cohesion, a sense of belonging to a group, and a sense of common purpose,” and it involves learning and development at some profound levels. Indeed, the samba school is what the concept of social constructionism is all about. Everyone is active and developing: “Novice is not separated from expert, and the experts are also learning.” Here is a practical example of social constructionism’s three-part paradigm. The samba school itself—with its traditional routines and its learning environment—represents the *sociocultural activities and processes* which bring people together. Coming together establishes or reinforces certain *social relations* between the participants, which along with the music, the instruments, the costumes and the activities themselves provide the *cultural materials* with which to construct in this setting. And finally the constructive acts lead to the *internalized* learning and developmental constructs and *externalized* constructs of new and old dances and routines, which act to define and redefine the school itself. This is a social setting that represents a learning environment that is always alive and evolving.

The samba school is an ideal example of an appropriable activity. It is convivial in that it is developed around “autonomous and creative intercourse” that is socially rooted, and so it satisfies the cultural resonance principle. It addresses the power principle in that the tools of the school are especially “instrumental” in enabling the performers to creatively extend themselves in their performances. And the samba school is in line with the continuity principle because it allows for different types of expressions and learning styles, connecting new and old in many challenging and dynamic ways. Since both novice and expert experience new learning and

development, those in the samba school engage in zones of proximal development.

3.6 Villages of Learning

With the social constructionist paradigm and the principles of appropriable activities, it is possible to make sense of what a samba school experience might look like in urban American. The samba school gives us a model of the praxis of social constructionism. In more general terms, it is the model of the village where interconnections abound that empower people to experience life-long creativity, learning and development. Imagine an urban American counterpart. Imagine an urban environment where people met with one another during the day and where they spent time working together in some purposeful activity that supported rich personal growth and development. Imagine students as teachers and learners with adult coordinators who try and help with the investigations that the students are working on. Now imagine this being done in one particular neighborhood where the adults become a part of this community of kids and they stay involved as long as they live in that community. This activity begins to take the shape of a village of learning through the “social cohesion, a sense of belonging to a group, and a sense of common purpose” that we found in the samba school.

Kids helping other kids as they investigate ideas brings the dual nature of teacher and learner into the world that children are coming into contact with. As they get involved and embrace new ideas with other kids with

whom they have formed meaningful relationships, they internalize new models. As other kids need them to help them with those same ideas later, the kids will step back and reflect on the ideas and externalize them, for indeed, this is the duty of the teacher. Learning and teaching bring to fore a natural expression of internalization and externalization cycles. If the kids are somewhat rooted in their village of learning, real social and cultural issues can become a part of their education. Like a village where individuals are not uprooted so often, social cohesion can truly exist. Those who are older will probably learn to take some form of responsibility for those who are younger. As members leave or graduate from the learning community, others will acquire new obligations that those leaving must give up. Social realities in the form of duties and obligations as well as meaningful relationships will be formed in the hub of an educational culture.

Giving children freedom to build on teaching and learning models with one another gives rise to the probability that there will be many different approaches to this. It is likely that the many different learning styles that are exhibited will not be neglected in favor of a single learning style preferred in various institutional settings. The concentric circles of traditional village society that Illich spoke of can once again exist. For if a child is interested in some issue or idea that is not represented within his or her village of learning, then the other kids who help that child to investigate can become involved and thus form a rim of an inner circle of investigators concerned with finding out about this new idea. If they all cannot resolve the investigation or if they run into pitfalls, then other kids who help them to learn can be called on who will now form an outer circle of investigators. This can continue on until an adult teacher or coordinator gets involved and

other adults can be called upon if need be. Resolving problems in this way creates a real spirit of unity of purpose and integrated learning.

This is the ideal picture which I have been equipped with in my research in an urban community in Boston. Using social constructionism as the primary paradigm, and informed by considerations involving principles for appropriable activities and the samba school, I went to work trying to conceive of how urban village-like development might exist. Immediately I encountered enormous difficulties and discouraging signs, but as I will presently attempt to demonstrate, the hope presented by these models outweighed the inherent difficulties.

Part II — Contextual Narratives: Understanding the Urban Setting

Chapter 4: Three Perspectives on a Dream Deferred

4.1 Visions of Hope

Where there is no vision, the people perish.
Proverbs 29:18 (KJV)

It has become clear to me that during desperate times, the lack of a communicable vision that brings hope can result in utter nihilism. A person who feels trapped without the possibility of escape, can be overwhelmed with a sense of defeat and despair. I believe that many urban residents have been overwhelmed in this way. Yet, I have found that the theory of social constructionism can offer a paradigm or vision with a concrete approach that urban residents themselves can take to better their situation. Where there is a vision, there is hope.

In this section, I will discuss some of the young people that I met when I moved into a troubled inner city neighborhood in Boston. These young people became the focus of much of my research. Some of these youth were involved with gangs and illegal activity that put their lives in constant danger and moral conflict. Some of them were willing to discuss these issues with me. Some of them died during the time that I knew them, others are still fighting to survive.

Each of the ones that I will discuss here wanted to change their lives, but they had no vision for how that might be done. Still, they fought against the hopelessness of their situation. The three that I focus on in this chapter appeared to have found a way to overcome their unstable circumstances, until harsh realities came crashing back, utterly destroying their dreams.

Yet, as the dreams of these young people were deferred, I heard them cry out for a new way to make sense of it all. I saw the need for paradigms which urban residents—young and old—can employ to address their own condition more effectively. Therefore, it is my hope that the theory of social constructionism can go beyond the utility of academic research, and become a maxim of those struggling at the grass roots.

4.2 Shaping a Perspective

I have spent the past six years studying how constructionist models might apply to the inner city community in which I live, in a neighborhood in the Dorchester area of Boston. This community is facing many of the typical concerns that worry big city residents. It is an urban community that is predominantly black and Hispanic, known as Four Corners. It is primarily a low-income community marked by especially fragmented and alienated relationships among neighbors, making it very difficult for residents to pull together as concerned parties to address common issues. In Appendix A, I document some disturbing personal and statistical information about the economic and social realities confronted by this community. Here, however, I would like to describe some of the context and history that concern the

young people that I worked with while I have lived in this community because their stories have helped to shape my perspective. It is in keeping with Freire's ideal of cultural synthesis that my work first involved primarily learning about the kids that I wanted to help.

I have a great deal of affection for the young people whom I have come to know in the heart of the inner city of Boston. Their experiences testify to some of the conditions that have sadly become almost commonplace throughout urban America. Poverty and violence have had a major effect on each one of them. However, their stories also reflect what I consider to be their connection to a collective dream that has remarkably held on to life among these kids, although often in bitter deferment. It is not a dream about racial integration, but a less quarrelsome and more modest dream concerning simple freedom. They seek freedom to grow in this world. They want freedom to know it and to engage it in a meaningful way. It is the dream for a social setting in the inner city that can promote personal and collective development. It is a dream for a world that belongs to these kids, a world that means something coherent and worthwhile to them.

The hope for this type of world is not an impossible dream to fulfill. I believe kids can find a world like this in communities that share a truly collective spirit amongst the residents. Yet this is not an easy type of spirit to find or maintain in urban settings, for there are many ugly realities that war against this spirit where these kids live. Indeed, the problems have almost become cliché. For instance, one can expect there to be a great deal of crime, fear and distrust in most urban cities. Furthermore, because of the distrust it is often safe to assume that people will tend to "mind their own business,"

meaning that residents will often know very little about the lives of many of their closest neighbors. Alone and afraid, people in urban areas frequently feel that it is not even safe to be outside their homes late at night. For some, their neighbors represent more of a potential threat than a potential source of support. It is especially poignant and sad that the individuals whom people typically feel the most afraid of in their neighborhood are often the young people who live there. I have come to know some of these young people, and through their experiences with triumph and tragedy, I believe their dream still lives on.

4.3 In Charge in Four Corners

At various points during the last six years, Four Corners has seen the rise and fall of a number of youth gangs. As far as I could tell, none of these gangs ever grew very large, and none of them seemed to be very tightly organized. In fact, most of the local gangs fell apart whenever a serious crisis occurred. It seemed as though there was never more than one or two critical people holding the gang together, and if something happened to one of the critical people, or if for some reason they lost interest in their current activities, the gang would fold. Whenever gangs did form, rarely did they gain much notoriety with adults, since the likelihood of being targeted by the Boston Police Gang Unit grew if your gang had name recognition. However, even though the vast majority of the kids in Four Corners never became a part of the gangs, many of them seemed to know a lot about the gangs, and a few of the gang members gained almost legendary status among the kids. I got to know three of these better known gang members very well: Marvin,

Phil and Bo. All three of them had an impact on my work in Four Corners, although two of them are dead now and the third is in jail serving a life sentence.

I first got introduced to the gang "element" in Four Corners when I met Marvin in the spring of 1989. I was introduced to him by the pastor of my church at the time. Reverend Eugene Rivers had been involved in his own gang outreach ministry at the time, and he had targeted Marvin in this ministry because Marvin was the closest thing to being a leader of the gangs in Four Corners. There were other young men who had followers at that time, but none of them could rival Marvin. His stature had grown to the point of drawing the attention of federal investigators, which ultimately brought down his operation.

I got to know Marvin while he was at a high point in his gang activity. He and I became good friends and he began to confide in me quite openly on certain issues. It is mainly through my conversations with him that I learned certain details about how gang life was structured. He told me the reasons why he would not give his gang a name—which had to do with his fear of being targeted by the police gang unit. He explained to me why very young kids were recruited so heavily into his group—it had to do with the economics of bailing kids out of jail. He also explained to me the role of the older kids—which had to do with enforcing discipline and building up Marvin's reputation as a neighborhood leader and economic provider—a type of Godfather.

Marvin told me that his group was very disorganized and unstable because of the instability in the family life of the kids. He also told me that he occasionally would try to reinstate a new sense of family that was associated with gang life for the kids, and how this was met with mixed results. As with most of the young people in the gangs that I got to know, I found Marvin to be a very nice person, warm and compassionate, but I also realized that there was another side. When I first moved into the neighborhood, it seemed as though most young people openly acknowledged that Marvin was a young man whom everyone feared.

Since my relationship with Marvin was not based on any involvement with the gang life he was associated with, he rarely showed the more menacing side of his life to me. In fact, one of the reasons Marvin grew fond of me was because I was studying computer science at MIT and Marvin had always loved computers. He hoped one day to leave behind the life he was living and to become a computer professional of one type or another. He and I would literally spend hours at a time talking about computer journals he had bought and some of the current issues going on in the computer world. Marvin had even taken a course at a computer processing training school before he and I first met. Yet there was a time when our friendship was seriously tested. It was the time when Marvin pulled out a gun in my presence and began firing.

I was with another young man that day named Solo. Marvin had asked me to come over to his house that day, and I brought Solo with me. When we got there Marvin had been smoking marijuana and he was very high. He began talking about how angry he was at another friend of mine

who, along with me, had escorted the wife of Reverend Rivers to a birthday party the night before. The party was for Marvin's girlfriend, and as it turns out, her father had recently put out a restraining order to keep Marvin away from his daughter, so Marvin was unable to go to the party. As I found out later, Marvin was very upset at both me and my friend because we were able to go to the party when he could not. Since my friend and I were both college students and Marvin was not, Marvin thought our presence at the party could make the father want the daughter to get involved with one of us. As he was expressing his anger that day in front of me and Solo, Marvin pulled out a semi-automatic rifle (a Mac-10) and began firing a number of shots into the ground. Marvin never mentioned that he was also angry at me for being at the party, but I did assure him that neither my friend nor I went to the party for any reason other than to escort the minister's wife, and that we left when she was ready to go after a short time. This episode really helped me to understand some of Marvin's insecurities, and it also helped me to see how much he did not want to lose my friendship with him, because he avoided implicating me in what turned out to be an inquisition about my other friend.

About a year later, the federal authorities began closing in on Marvin and so he shut down his operation temporarily to protect himself. Marvin eventually worked out a deal with the feds, and many people in the neighborhood who had once feared him now saw him as a powerless "snitch." At times Marvin was afraid for his life because of this new reputation, and so some other members of my church and I got Marvin to apply to a Christian college in the south where we knew someone who had some contacts. In 1991, Marvin was accepted to this college and he agreed to

go. He did well at the school and he liked being away from all of the problems that he was facing in Four Corners, but his life was still very unstable. He stayed for a little over a year before he eventually dropped out and came back to Boston. In the spring of 1993, he died of a drug overdose while back at his home. Some say he had taken so many drugs he must have been suicidal. Others have said that the drugs may have been tampered with and he may have been murdered. He was a good friend and his life and death were a terrible mirror of what is happening in the lives of so many young people with enormous potential in Four Corners.

4.4 Headquarters Block

When Marvin shut down his gang operation because of the feds, one of the competing gang leaders named Thomas started to pick up where Marvin left off. Thomas gave his gang a name, he called it Headquarters Block or HQB. As it turns out, some of the members of HQB were trying to start a rap group. So, during this time I got to know some of the members of HQB by proposing to help them put together a rap video of their music. They had wanted to have a rap video made for some time now, so I spent about a month filming and editing a video of a song in which three of them were featured. The video was played on a local cable access channel and many of the other kids in the neighborhood saw it. They felt that the video was a big success. The three kids featured in the video had become neighborhood "stars."

The video became so popular that others members of HQB wanted to do a rap video that showcased them instead of the original three. We were right in the middle of doing a second video, when Marvin—who had not yet left Boston—tried to reestablish his gang's prominence in another neighborhood. But something went wrong. One of the kids from a gang in this other neighborhood showed up one day and killed Thomas, the head of HQB. Next, what amounted to a civil war started between members of HQB and members of Marvin's old gang. After another kid was killed during these terrible times, Marvin's old gang was finally broken up for good. The hostilities also brought an end to my video project.

However, during the video projects I had built some friendships that outlasted the killings in Four Corners. Two of the young people from the first rap video had become good friends of mine and they came by to visit me and my wife every now and then after the video project was over. Their names were Phil and Bo. Phil was Thomas' brother and he took over the leadership of HQB when Thomas was killed. But like Marvin, Phil wanted to get out of that life someday, and he asked me to help him study for the SAT exam so he could get into college. He had hoped to get into Boston College since his mother worked there and family members of employees could attend the college tuition-free.

I helped Phil with his SAT's and he did very well. He was accepted into Boston College, although he had to take part in a summer program to help him in some academic areas. However, at the beginning of the summer, right before he was supposed to go to this program, he was shot in the back while outside of his girlfriend's house in Four Corners. He was hospitalized

with a wound that the doctor said had almost paralyzed him. After a month in the hospital he was released. He had to use a cane to walk for a number of months after that. Tragically, he had missed his opportunity to go to Boston College's summer program. However, a dean at Boston College learned about Phil's story, and he decided to make an exception for Phil. The dean allowed Phil to waive the summer course and start up with just night classes the following spring. It was a close call, but Phil seemed to be making his way out of the gang life. Unfortunately, Phil's past would ultimately catch up with him.

When Phil's brother Thomas was killed, police soon arrested the suspect in the shooting on gun charges. Everybody believed that Phil was after this suspect to avenge his brother's death, but the arrest—although it was not for the murder—did lead to the suspect spending a couple of years in prison, and this ultimately protected him from any retaliation. However, in the middle of the fallout over the killing that was going on in Four Corners, another person was gunned down and murdered in broad daylight. This murder was not entirely related to Thomas' death, but police did suspect that Phil was responsible for it. During what should have been Phil's second year at Boston College, the police finally arrested Phil for this killing while he was attending a class at Boston College. Phil was found guilty of this murder, and he is now serving a life sentence.

4.5 A Tragic Hero

Bo, the other member of the rap video who I got to know very well, was perhaps the most heroic and yet the most tragic of all of these three young men. Bo was involved in HQB, but I believe he was one of the ones that tried to bring an end to the problems in Four Corners to stop the bloodshed. I believe Bo helped to talk Phil out of his role as head of the gang, and he encouraged him onto the college route. Bo brought some sanity and peace to a dangerous world, and he was loved by most of the young people who knew him in our neighborhood because of it. He was a rap musician with a kind heart, and those who loved him appreciated this aspect of his personality. Like any other true musician, Bo took his music very seriously. Even when the other HQB rappers quit after the fighting started, Bo went on writing songs and recording them on his own. Finally, his musical talent paid off one year when Profile Records liked his songs and he got a recording contract from Profile to produce an album on their label. To many of the kids in the neighborhood, Bo was the one who had finally become a big success and his life would now serve as their brightest inspiration. And then, out of nowhere, with no warning, he was dead. His life ended in tragedy early last year when he was gunned down in a bar room.

From what I heard about the circumstances, it was just a shouting match that turned deadly. Two guys in a bar got upset at Bo and they began yelling at him, and then one of them pulled out a gun and killed him. It was not related to drugs, or to his days in the gang or to anything other than an argument that got started that night at the bar. And now he is gone. Bo was

one of the most respectful young men in HQB. He was always the easiest one to get along with in the gang. He amazed me time and again by his kindness. He came over to a Bible study at my house on a few occasions, and I was continually impressed by his insights, his honesty and his friendliness. He looked as tough or tougher than any of the other kids in the gang, but once you really got to know him, you could see that he was also an exceptional friend.

Witnessing the devastation that had taken hold of Bo's life, and of the lives of Marvin and Phil, made my work very difficult from the onset. However their stories led me to understand that they all hoped to see a profound change in the world in which they lived. Their stories may be tragic, but they are also testaments to how the power of hope made them willing to try and give their lives another chance. But by itself, the hope was not enough. I have found that these kids need help bringing structure and a realizable vision to their lives. They need better relationships, they need tight-knit families, they need extended family, and they need better ways to try to make sense of what is going on in their lives. Without these types of connections, many young people feel lost, isolated and abandoned like the shipwrecked children in William Golding's *Lord of the Flies*.

In the next chapter, I will discuss a young man, whom I knew very well, who failed to find the stable relationships and the constructionist paradigms that could have helped him escape the destructive forces around him. With all hope lost, he now just wants to be left alone on his desert island. Then, in the last chapter of this section, I will describe another case where a young girl comes out of a remarkably similar devastating situation,

and yet she finds the hope that he lacked. She rallied to find herself a nuclear and extended family structure, which ultimately proved to be her salvation. I believe that what she had that he did not, was a simple, but powerful, constructionist paradigm.

Chapter 5: A Shipwrecked Family

5.1 Steel

Steel had come of age in a dangerous world when he ran away from home at the age of fourteen. His mother had fought hard to hold their world together, but as everyone in the family knows, she never had a chance. She had the first of her four children when she was fourteen, living down in the deep south. The father never acknowledged his daughter, and so began a family which would have four children with three different fathers—none of whom would stay. Steel was the third child to be born. He had two older sisters and one younger brother. Steel's mother finally decided to try her lot at life in the north when she was in her late twenties. Perhaps she should never have made this decision, for she could not afford to take her whole family with her. As she explained it to me, this was to be a bad omen ultimately predicting the destruction of her family.

She could never forgive herself for leaving her oldest daughter behind to be taken care of by family and friends, because she was unable to come back and save this daughter when she needed her mother most. After being away for years, the mother still could not afford to send for the daughter, and her oldest child finally took matters into her own hands. Steel's oldest sister got together with a friend and tried to commit an armed robbery that would provide them with the money they needed to escape to the north. She was arrested and sentenced to twenty years in prison, ending any hope at all that the children would ever see each other again in their youth and innocence.

Guilt and poverty finally led Steel's mother into a world of alcoholism and drug addiction. She became so incapable of taking care of her family that her second oldest daughter finally took over. By the ninth grade the daughter had gotten a job, which together with her mother's welfare check served to keep their family afloat. This sister of Steel became the de facto mother, and Steel learned to be strong and hard by following her example. Of course, this did not make the situation secure. Steel and his sister could not forgive their mother for her failures, and they both wanted to break out on their own.

Steel and his sister were only two years apart in their ages and they were very close, so they left home right around the same time—soon after the daughter had found a boyfriend with whom she wanted to live. At the age of sixteen, she got an apartment in her name, and since she was the only one with a job, she wound up taking care of both her boyfriend and Steel. It was hard for me to believe it when she told me that this never really bothered her, but later I began to understand that she had actually gotten used to taking care of everyone. However Steel and his sister's boyfriend did not like the situation at all. They wanted to contribute to their makeshift family and so the two of them did anything they could to get money. Out of desperation, they both became outlaws.

The boyfriend of Steel's sister was caught first, and as a result he was thrown out of high school. He did not seem to mind this since he never really liked school anyway. That may not seem surprising, but this was not the case for the other two. Steel and his sister loved school. They rarely skipped class and their teachers thought they both were exceptionally bright.

Both had been getting grades that were well above average all throughout their turbulent lives. But then Steel's sister became pregnant in the eleventh grade. She stayed in school during the pregnancy, unashamed she told me, because she was not going to let anything keep her from graduating. However, by the time she reached the twelfth grade she now had one more mouth to feed. The baby needed love and affection, and unlike Steel and his sister's boyfriend, the baby did not hold all of these needs in, but demanded that the sister satisfy these needs almost every hour upon the hour. During her senior year Steel's sister dropped out of high school and Steel grew all the more desperate.

Back when Steel was living with his mother, Steel used to live in Four Corners. When he and his sister broke out on their own they moved away, but Steel would still spend most of his waking hours when he was not in school with a young gang in my neighborhood. His gang was not a very serious group at all. They were all very young, and most of them aspired to be members of one of the older, more serious gangs someday. I had been working with some HQB members on the first rap video when I first met Steel. The occasion of our first meeting came right after he had lent a ring to one of the young kids in his gang. It turned out to be one very eventful day for me when that ring sparked an episode of violence and misunderstandings that I witnessed first hand.

The young boy whom Steel had given the ring to needed money to catch a cab to tend to some emergency that had come up. Nobody would give him the money he needed, so he offered the ring as collateral to a third older boy living one block away from where I lived. However, when he got the

money and took care of whatever the emergency was, he found that he had no way to pay the kid back who now had the ring. This was a terrible situation for the young kid to be in because Steel wanted his ring back, and everyone new Steel was a desperate and dangerous young man. Few of the kids in my neighborhood ever risked telling Steel no. So the boy told Steel that the ring was stolen by the other kid in the neighborhood to whom he had really given it to secure the loan. Since the accused boy had never hung out with the gang Steel was in, nobody among Steel's close friends was inclined to trust him, and so Steel got about fifteen kids together one night to teach the kid who now had the ring a lesson.

The teenage boy who now had the ring had always done his best to stay out of the gangs in our neighborhood. So now he had to flee for his life because the gang members would rather trust one of their own than listen to his side of the story. The young man just barely escaped by running down a street next to my apartment with the other kids right on his heels. This young man was also older than those he was fleeing from, so this represented one of the worst humiliations he could ever imagine. Running away was not a manly thing to do, and now everyone would think he was a coward. So he got a friend of his to loan him a gun, and he came back looking for Steel.

The angry boy had a sister who saw him escape and she must have known what was to come next. Alone she went and confronted some of the kids in the gang and tried to work out a peaceful settlement before it was too late. This is when I came upon the scene with a friend of mine from my church. We had developed a relationship with some of the kids in the gang and so we tried to help. Our efforts would probably have been in vain if

Marvin had not shown up. Marvin was still one of the most feared members of our neighborhood and he was our friend, and as chance would have it, it turned out to have been his ring to begin with anyway. Steel had originally borrowed it from him. So Marvin decided he would help us settle this matter, and when he stepped in the kids finally started to listen to the sister's story.

The sister explained that the ring was not stolen by her brother, but that it was used to broker a loan. She claimed that Steel had been misled by the other boy who had borrowed the ring from Steel. Marvin decided that we should find out whether what the sister was saying was true or not, but we would have to wait until the boy with the ring came back. When he did come back most of the kids had dispersed and Steel was nowhere to be found. That turned out to be quite a blessing because—although we did not learn this until later—the kid had a gun in his coat and had determined to use it on Steel. When this armed young man found out that people were now listening to his story, he began to calm down.

We stayed out on the corner of the block he lived on and talked for hours until Steel came back. A kind of street court ensued and Steel went off to get the young kid who had accused the boy with the gun of being a thief. When the young kid showed up the look on the boy's face made everything clear, and although this boy and Steel never admitted that they were wrong, the issue was resolved. Marvin paid the money back to the accused and got his ring back. He said he would deal with the kid who lied at some later time. The accused young man then admitted to me that he was armed and he told me what he had intended to do with his weapon. My church friend and I

talked a lot about God with him that night. He told us that he felt like he had just turned towards the type of evil that he had always tried to resist in our neighborhood. He was glad that he never had to use the gun, although I could not be sure that he would not turn to it again if a similar situation recurred. We never really had contact with him again, for his family moved out of the neighborhood soon after this, but my rapport with Steel and other members of his gang only grew.

I knew Steel only casually by the time he was caught with a gun on a bus and arrested. He was seventeen and in the eleventh grade. The judge had set his bail at two thousand dollars cash and no one in his gang or his family came up with the money. Since he was seventeen, they decided to try him as an adult, and he was held at a local prison facility. Around this time, Steel's mother began coming to our church, and she spoke about her concern for him and how she felt about the fact that no one was going to bail him out. I began visiting him in prison fairly regularly and I learned that he was very disappointed that his friends in the gang had never visited him and that they did not get the money together needed to bail him out. Right after he was arrested a member of another gang in Four Corners was arrested and given the same bail. This other guy was a little older and more important than Steel, so the bail money was raised by his gang immediately. Because of all of this, my visits were very important to Steel. I was from his old neighborhood and I thought it was important to make an effort to keep in touch with him. Soon he and I became very close.

One day while visiting Steel at the prison, I met his sister and her boyfriend for the first time. It was at this point that I began to learn more

details about what was going on in their family. I began to get involved to the point of joining with the sister to try to raise the bail money. I got about half of it and another kid in the neighborhood said he could get someone else to put in the other half. Christmas was just a few weeks away and the sister was extremely grateful since she wanted him out for the holidays. His trial was just a few days off when we got the money together. In Massachusetts you can opt to have a speedier trial if you are willing to have one without a jury. If you are found guilty by a judge you can still have a jury trial if you wish. Steel's first trial was set to happen right before Christmas, and we had not gotten the entire sum together until the day before the trial. So we waited. At the trial, the judge ruled that the gun found on Steel was discovered during an illegal search so all the charges were dropped. Steel was free to go.

In a funny way Steel felt good about his prison experience. He had been in for over two months and he found that he had not worried much about anything during his incarceration. Being free from worry was a new experience for Steel, and it bothered me somewhat when he spoke about it. It seemed like Steel wanted out of his circumstances so desperately that he was even willing to go to prison to escape them.

Once other members of my church and I found out what kind of financial burden Steel's sister was under, we bought her and her baby some presents for Christmas. She was grateful but she let us know that she really did not want our help, since she believed she could handle things on her own. She was a very proud woman. Yet I was afraid that her inability to accept help was a sign that in the future continual hardships lay ahead. The

load she was trying to carry was already almost too much for her to bear. And then one day, her mother came to live with her.

When her mother first visited our church she had just gotten out of jail herself. She had been arrested during a police raid on her apartment and charged with selling drugs out of her home. Although the case against her did not hold up, she lost her apartment and wound up in a shelter. While she was in jail and later while she was at the shelter, her youngest son stayed with Steel's sister. This son was the only one in the family who still had a good relationship with the mother, and so the mother poured her life into him. When Steel got out of prison, she left the shelter and moved in with her daughter and Steel so she could be with her youngest son again during Christmas. The reunion lasted less than a month. The daughter would not let her stay more than a few weeks. So the mother used that time to find a shelter that would take both her and her youngest son, who was now fifteen. I was amazed that she succeeded in doing this because I have seen how wary shelters are of taking in families with young men as old as her youngest son. After a few months at the shelter, the government program through which she had gotten her last apartment finally found her another apartment. For the mother, life slipped back into the way things were for the past several years before she and her older son had gotten arrested. Sadly, she found herself content with this and she no longer came to visit our church.

On the other hand, Steel's situation had taken a turn for the worse. The school he went to had heard all about his arrest on a gun charge and they decided to expel him. He was devastated by this, and the pastor of my church and I went to the school to fight for him to be reinstated. The school had not

expected a member of the clergy to get involved, and since Steel had been acquitted in a court of law there were no legal grounds on which to kick Steel out, so the decision to expel him was overturned. But the headmaster of the school warned us that he would keep a close eye on Steel and he would do his best to remove him from the school if he ever found anything wrong.

I began to search for a job for Steel and I failed to find one for him. No one would take a chance on him it seemed, so his sister went on struggling to pay bills by herself, and Steel went back to the streets. When Steel finished the eleventh grade he entered the summer more unstable than ever. He got into constant fights and at one point he injured someone so badly that he fled our neighborhood to hide out from the police. However, a few weeks later he got arrested for an armed robbery and this time he was convicted. Steel is in prison right now, no longer worrying about his mother, his sister nor himself. No longer is he worrying about anything except what will happen when he gets out.

Steel is an intelligent young man who loved school. He loved his teachers and he loved studying and doing well. He and his sister had gotten good grades and they fought hard to stay in school even when things got difficult in their lives. If you did not know any more about them, you might have imagined that things were going well for them because of their academic performance. But things were not going well for them at all. They had become like so many others suffering the fate of the kids in Golding's novel—living on an island trying to raise themselves. Early on their family was shipwrecked by poverty and misfortune, and I believe that this is what ultimately put Steel in prison.

When Steel's mother left the south for the north, she left behind a support structure of extended family members. This was never perfect for her, but it was more than she would ever find in the urban conditions to which she was moving. Can the mother be blamed for being so poor down south that she thought life in the north would be better? And can she be blamed for leaving behind the oldest of her four children to be taken care of by relatives, because she could not afford to take all of them with her? I believe she really intended to send for her oldest daughter whenever she got settled, but her daughter could not wait, and the tragedy that ensued destroyed Steel's sister and his mother. Who is to blame? Can you blame Steel and his sister for running away when their mother became an alcoholic and a drug addict? I have met other kids living in that situation, and every day can become a nightmare for them. But many of them don't want to be in foster care either and running away is a nightmare of its own. I hope that Steel and his sister can one day see the wounds in their family heal, but such healing is not easy in their urban setting, so we need to start discussing how things can begin to change.

The children are the very hope and future of a community, and yet now they are commonly perceived as being the greatest threats in urban neighborhoods. Of course this is not the whole story. Of course there are wonderful examples of children and adults in urban communities coming together to make their neighborhood a safe haven and a beautiful place in which to live. Yet all too often the ugly realities really do exist that have destroyed much of the fabric of the familial and communal life for children such as Steel and my other three young friends. However, I also know kids

who have suffered similar tragedies, and yet somehow they have survived. I think their stories can help us to understand what are some of the hopeful implications for urban social settings. In the next chapter I focus on one of these stories.

Chapter 6: One Young Girl's Social Reconstruction

6.1 Hope and Solo, and a Family in Crisis

I have known a young girl named Hope for the last six years who is an example of the hope that I believe best represents the promise of social constructionism. Her story demonstrates the potential for rebuilding one's social setting, and it points to some of the benefits that can be gained by this. However, to understand the enormity of her accomplishments, it is first necessary to understand the extreme difficulties she initially faced, especially in her own family life. But to understand this, I must discuss the circumstances surrounding her mother's family life as well, which I got to know a great deal about when I got to know her mother's brother when he was just eleven years old. Solo, Hope's uncle, is just seven years older than Hope.

In 1987, I began working with Solo in one of the elementary schools in which my group at the Media Lab is involved. At the time I began working with him, Solo was in the fifth grade and it looked like he might drop out of school. Initially, my work with Solo focused on helping him to stay in school, and our relationship has grown into a very close friendship ever since. He made it through elementary school, but he has constantly been confronted with many of the same problems that Steel was struggling with. These problems have gotten Solo kicked out of school on occasion, but back then he really wanted to do well so each time he fought to get back into school. Solo flunked the seventh grade and told me that he really felt terrible

about this. He had heard about a program which could return him to his right grade if he went through a year in a special school. I helped get into that program and he was graduated to the ninth grade on time. The problems continued however, and so he never made it through the tenth grade. In his world, school is no longer a primary part of his life.

Solo has grown up and still lives in one of Boston's low-income housing projects. The "projects" are made up of dozens of buildings clustered together that look like some bizarre cross between factories and prisons. Those who live in the projects often seem more cut off and boxed in than residents of other inner city communities. I believe that this has led to a hopelessness and despair in the projects that penetrates more deeply into the core of the neighborhood life than I have found in any other area of the city. Such a climate often leads to more violence and less trust. And this is where Solo grew up.

Like Steel's mother, Solo's mother is also from the south. She too came north looking for a better life and she too ended up with many devastating consequences. Solo is the youngest of three children. They all have spent most of their lives growing up in the projects. All of the children have different fathers. None of the fathers has been very involved in any one of their lives. The odds were against Solo's family even before the serious trouble began.

Solo's older brother was the first to run into problems. He was constantly getting into minor trouble with the law. Finally it added up and Solo's older brother was sent away to a Department of Youth Services (DYS)

facility. DYS serves as the correctional facility for children. Solo's mother told me that when her oldest son came out of DYS he began to get more involved in criminal activities than ever before. He had become hardened during his time in the correctional facility, and he immediately became one of the more dangerous young people in their housing development after his release. By the time he was seventeen he was arrested for armed robbery. He spent the next two years at a local prison, and after his release his mother could see that there was no turning back for him.

In time, Solo's brother became a prominent drug dealer in the projects, and all his mother could do is worry. She constantly worried about his going back to jail or his life being lost to the violence that surrounded him. And then, something went wrong one day. Two teenagers were killed and he was blamed for it. Solo's brother fled the city, running from the police and rival gang leaders. He was running for his life. He made it down south, but was arrested there nonetheless and eventually he was sentenced to thirty years in prison. Just as in the case with Steel's mother, Solo's mother was shattered by these events and eventually she too became an addict. The lives of Solo and his sister were also destabilized by all that was going on, and the fabric of the family life began to dissolve.

By the time I met Solo, his older sister had already had her five-year-old daughter named Hope. When things began to fall apart in their family life, Solo's sister began to flirt with the drugs that her older brother had embraced. Raising a child brought pressures into her life that seemed to make it impossible for her to turn away from the drugs once she began to take them. She quickly became an addict and eventually got hooked on crack—

one of the most difficult drugs from which to break free. For years she lived the life of a crack addict and she suffered enormously because of it. She was stabbed twice, mugged once, and scorned by folks in her own neighborhood. Her self-esteem was destroyed and she began to steal from her own family members to get money for the drugs. She even began prostituting herself. No one trusted her and everyone felt sorry for her young daughter. As a parent, she had begun neglecting her daughter in terrible ways.

Finally someone reported the mother's neglect to the Department of Social Services (DSS). After nearly a year of attempts to get her help, DSS removed Hope from her mother's custody. The only way that her mother could regain custody was to voluntarily join a drug program. At first Hope's mother agreed to do this and I was asked to drive her to meet with staff members in a recovery program that had accepted her. But on our way there, she changed her mind. She told me that she still did not want to give up the drugs. Finally, after Hope had been in her grandmother's custody for about half a year, Hope's mother began to ask for help. She wanted her daughter back, and now she seemed ready to fight against her life of addiction.

The program she joined was intended to last for the year, but the program was not working out for her. After three months she was kicked out. She tried another program and after a while they also asked her to leave. This second failure devastated her. She grew very depressed. At some point it all became more than she could bear. Soon after the second failure, Hope's mother cut her wrists in an attempt to kill herself.

Doctors got to her in time and her life was saved, but her hopes for a new life had been lost. In a desperate move she seized her daughter, and ran away to stay with friends. I believe that she was hoping to flee Boston and to live with her daughter somewhere down south. However, she could see that her drug dependency made it impossible for her to take care of her daughter and so she returned her a few days later. DSS did not pursue kidnapping charges against her but she still felt that it would be best for her to leave the city and never come back. I bought her a train ticket that would take her to relatives she had in the south, and now Solo was the only sibling left in his family. He and his mother were left to take care of his sister's daughter as best they could.

Unfortunately, Solo's mother was not able to bear the pain of seeing the lives of her children end up so tragically. In a moment of weakness she too began to turn to drugs to ease the hurt she was feeling. Fortunately, she sought help relatively soon after this began. She pulled herself together, but she remained haunted by the sense that her whole world was collapsing around her. She continues to fight a daily struggle to reject the easy way out that drugs offer.

Solo was perhaps the only one left in his family who did not seem critically wounded. He had always been a quiet child, and so at first he never seemed to complain when things started to fall apart. But the situation finally began to take its toll on him when he became the next child to suffer neglect. In fact, his mother told me that she found it hard to offer him the love and support that she had offered his older brother, since she was torn to pieces when she found that she could not save her oldest son. Because she

did not have any alternative way of thinking about the issues, she believed that the same fate awaited Solo that befell his brother. She was telling me that she did not feel strong enough to try again. Soon it became clear to Solo that she was not able to give him the emotional support that he needed from her. The two grew apart and they eventually began to argue and fight constantly with one another. Solo spoke to me about leaving home on many occasions, and I often tried to help him and his mother work it out. Even though he stayed, I do not believe the relationship has ever fully recovered.

Solo began to get involved with the gang that his brother had been involved in, and he began to experience some of the same minor trouble with the law that his brother had also initially experienced. I began to spend more time with Solo, and I went to court with him on a number of occasions over a two year period. In each case, his lawyers and I were able agree with the courts on some alternative ways to help Solo deal with his problems, other than incarceration in DYS. At the end of those two years, Solo never got in trouble with the law again. He continued to hang out with members of his local gang, but he was very careful. He learned to disappear whenever trouble started. He has spent the last four years without any legal problems, although many of his friends have gone through long incarcerations. I still am extremely worried about Solo, and I realize that at any point he might get entangled in trouble that he can not disappear from once it has started. And this time, since he is now an adult, he would not be treated as leniently by the courts.

It was clear to me that Solo was a child who felt very alone. I was a friend for him, but I was not able to provide him with the family or the sense

of community that he needed. As I got more involved with other kids, and as Solo's legal trouble came to an end, I have become less involved in his life. However, in time I ultimately became much more involved in the life of his niece.

6.2 Hope Reborn

Hope was taken from her mother and given to her grandmother when she was only eight years old. Her grandmother offered her better living conditions, but she was still unable to offer Hope much of the support and emotional intimacy that Hope clearly needed. Both Hope and Solo were yearning for a different kind of family life with the warmth and intimacy that they could only dream about. Solo never found this type of family, but Hope set out to build it on her own.

When life with her grandmother began to become unbearable, Hope began discussing the problems in her family with a counselor at her school. After awhile, Hope even began talking about suicide. The counselor immediately called in DSS and Hope was eventually removed from her grandmother's home. When my wife and I were told about what had happened, we offered to be Hope's guardians until the situation with her family was straightened out. The DSS officials agreed to this, and since Hope was so unhappy living with her grandmother, everyone now began to look toward Hope's father as a potential permanent guardian.

Hope's father had been visiting her frequently since she was first born, but he had no idea how bad the situation had gotten with her mother originally and most recently with her grandmother. He had been very young and unstable when Hope was born, but now he had a very good job and a very stable life. He was involved with a woman whom he eventually married, and he was not sure whether taking Hope into his life would negatively affect that relationship. While Hope stayed with my wife and I, he discussed these issues with his girlfriend while making certain arrangements to take care of Hope. After we had Hope for about two months, Hope's father took over and has been Hope's immediate family ever since. By her own initiative, Hope had successfully found what I believe to be a wonderfully appropriate new home for herself. And she did not stop there. Hope again took on the initiative of finding an extended family for herself as well. And I believe she was equally successful at this task.

Hope found a set of friends within the housing development she had lived in with her grandmother who became a positive circle of support for each other. Hope had known the kids before, they were her cousins, but now they were becoming her primary social group for the first time. I believe that this arrangement was instrumental in giving Hope a chance to recover and heal from many of the wounds that the past had brought upon her. One of the other girls in this group of five was living with an alcoholic mother, so she too needed these stable relationships to help her survive.

Since the time my wife and I had taken care of Hope for a couple of months, Hope began attending our church regularly. Even when she moved in with her father, who lived some distance away, Hope still had me pick her

up and bring her to church. As Hope began establishing her new social group, it became difficult for her to spend much time with these kids because of where her new home was located. So Hope invited all of her friends to church with her, and one day a week I would round them all up and help them to share a day with each other as they rebuilt a sense of family and community amongst themselves.

I think what Hope accomplished by establishing this social group was profound. Hope's social group did not just spend time with one another when they came to my church. After a while they began to get to know all of the families in my church—and since I belonged to a small church, this did not take too long. Some of the people in my church, along with my wife and I, would involve Hope's social group in our social activities from time to time. We would take Hope and her friends on trips to the movies, or to plays or to concerts. There were Bible studies, hiking expeditions, cooking lessons, and roller skating adventures that happened on a number of occasions. Less frequently, we would take them on trips to museums and amusement parks. More recently, we have gotten involved in job training programs and college fairs with them. In all, it became clear to me that Hope's group had made us a part of their social setting and they had begun to make our time with them a socially constructive experience.

Because our church was so small and did not have many resources, we did not organize predetermined social activities for the kids. Yet this meant that Hope and her friends often had to take the initiative themselves to make things happen and to keep them happening. This formed a context of adult and young people interacting together in activities in which the young people

really had some ownership. These activities were carried out within the boundaries of the practices and the social processes involved in church life, and the relationships that the kids had formed were influenced by the cultural materials and philosophies of the church. So as this context became the social setting that the kids felt ownership over, I believe that the social constructionist paradigm began to apply and the kids thereby developed internal and external constructions. The internal constructions probably involved building new cognitive paradigms for interpersonal relationships and coping strategies for managing the social crises these kids had to face. External constructions that these kids developed included various forums that were created to discuss the interpersonal issues that they faced. Other external constructions included trips and social activities they initiated, church performances they were involved in, and sociocultural exchanges and experiments, games, foods, and other things they concocted.

6.3 The Dream Lives On

I believe that Hope and her friends are quintessential social constructionists. They believe that you can actively change social realities through the power and promise of creating social constructions. They took a social setting they were given, and went about adding social activities and relations to it until it was more suitable to meet their needs. Their collective faith in taking this activist approach I believe was sparked by Hope's courage and refusal to give up after losing both her mother and her grandmother. Such infectious courage may not always be easy to find, so I believe we must also look into communicating this vision to urban communities through the

paradigm of social constructionism. In this case, a theory can perhaps serve as a vision of hope.

Hope's story is the only one I have discussed in which the dream of active and meaningful social development still vividly lives on. Yet there are many similar examples that I believe we need to learn from and seriously think about how to foster. Hope's mother is another case in point. She has done well down south where she has moved. She has found a job and has fought to remain drug-free while down there. There is a real possibility that DSS may allow Hope to be reunited with her mother if her recovery can be demonstrated to them to their satisfaction. And Hope wants a chance to build a family with her mother included once again more than anything else. With her spirit and her mother's determination, I believe that they can both succeed. But they will need help from the communities in which they live.

It often seems as though some people believe that the social context from which a student in school emerges should not matter. Yet of course it does, for the more intense the alienation and chronic the despair in the background of a child, the more likely it is that the child will not feel free to wonder about and explore the untapped potential of her or his mind. The tragedy of a child not realizing the growth that should come naturally is a tragedy that is relived in millions of children every day in this country. There are real sociocultural barriers that young people face that can only be addressed if larger social groups take an active role in construction new social alternatives.

Focusing on efforts that stress social constructionist models can help to provide new options for urban communities. Developing research projects in this area is therefore an important issue to consider, and I believe that such projects are not very difficult to conceive. Since the paradigm of creating shareable externalized constructs is of importance to constructionist theories, this is one concrete area wherein investigations can focus. Thought needs to be given to how neighbors can take advantage of some variety of methods for developing social constructions. A social construction is simply a shared artifact which can be either an object or an activity. A social construction might be anything from a wall mural, to a summer festival, to a food coop. Projects that change some qualitative aspect of the life of the community represent important areas of relevant constructions, so investigating different types of activities and tools which might become catalysts for the development of such constructions has become a clear point of my research.

Part III — Urban Field Work: Experiences and Approaches with Urban Social Projects and Developmental Activities

Chapter 7: Summer Projects: 1990 – 1994

7.1 Common Goals

I do not believe there are any magical cures to issues that face inner city communities, but in work I have done over the past five summers, I have seen some very encouraging results which I believe present important signs of hope. Each of these summers I organized a group of teenagers—many of whom were former gang members—to work and learn together with me as we sought to figure out ways that they could develop meaningful projects that helped them to find employment in their own neighborhood during the months while school was out. There is nothing new in the fact that most of these youth usually could not find jobs during the summer and that many of them had previously become involved in illegal activity to raise money during those months of the year. Each year over half of the teenage participants we worked with had extensive court records, and seemed to be in a persistent cycle of dangerous activity. In fact, most of their parents were adamant about the need for them to find summer jobs to keep them off the streets, and the results seem to bear out their parents' concerns. During the first summer of our work together, none of the youth were arrested until two weeks after the program ended, when three of the boys were locked up. The next year, none of the youth were arrested again, although one was

committed to the Department of Youth Services (DYS) by his mother because he had become too difficult for her to handle. During the third summer one young man was arrested midway through the program, but again no one was arrested during our fourth or fifth summer when we had by far our largest group of teenagers.

Since getting a job was so important to the teenagers and their parents, during each of the summers we focused on projects that addressed that issue. We sought to come up with activities that the youth could do in their own neighborhood that people would pay them for. But this meant that the young people had to learn skills that were valued by their neighbors and they had to build the kind of relationships with their neighbors that would encourage the neighbors to patronize them. Many of the neighbors also found the idea of local youth enterprises interesting because it would help encourage the young people to be more respectful and supportive of adults in the neighborhood since these adults were investing in them. The logic behind this argues that gang members would not be as hostile to those who invest in them and do business with them as willing customers. The model of youth-run micro-enterprises presented a natural sociocultural process through which young and old could work together to build better relationships.

To learn any particular skill for which a neighbor might be willing to pay them, the youth would have to find someone who was willing to apprentice them. And to help them develop that skill and develop a customer base, the youth would be best served by having a patron who was willing to vouch for the young person's work. So during the first two

summers a few other assistants and I came up with a skill that we could help the kids learn: fixing appliances. We taught the kids how to fix basic appliances, and the kids used this skill to run a business fixing appliances for their neighbors for a fee. We experienced both successes and failures during these projects, but we were encouraged enough so that we sought to expand the type of services the youth offered to their neighbors during the third summer. This led us to attempt a survey of the neighborhood to determine what other things the neighbors might be interested in having the youth do. We also wanted to find out if any other neighbors might be interested in developing apprenticeships with some of the youth to teach them other skills relevant to their services.

As time went on, we began trying to build a database chronicling the talents, resources and assets among the neighbors in the local community that might be available to the kids as they sought to offer their services. In the end, the job became too big for us to complete, although the issues we addressed were a necessary first step, and the database project continued into the fourth summer. Finally, a neighborhood computer network began to take shape from all of this work, as we attempted to find a better way for accessing and communicating the information that we were attempting to compile in the database.

In the following chapters, I detail these activities and examine their implications from the lens of social constructionism. I divide the activities into two main projects, one centered around an environment for urban apprenticeships, and the other focusing on a neighborhood computer database and network.

Chapter 8: Project I: Urban Apprenticeships

8.1 Appliance Repair Training—Samba School Style

During the first summer, the initial plan was to set up a program that helped the participants develop skills in appliance repair. But that was not all. My fellow trainers and I also wanted to engage young people in the development of their own social setting as they resolved certain economic issues that they faced. We designed the project with the model of the samba school in mind: young and old working and learning together with a common goal while remaining informal and social, and yet producing many individual outcomes and social constructions. A few other neighbors and I apprenticed the young people during the first two summers, and as we taught and learned about the basics of electrical appliances with the kids, we learned about many other things as well, as the following quote from one of the participants reveals:

well since i have been in this program i have learned alot about computers and circuits boards. for example on the computer, i learn about the mouse and how it is run. i also learnt how to move the mouse and how it is run and how it enables me to get access to certain things on the computer. i learned how to drag point and click wile using the mouse and that was kind of fun ... wile on the circuit board i learnt about wires and how to connect wires to the connectors also switches. anyway i think this program is very educational interesting and enjoying. on yesterday i learnt how to use the sourdering iron by connecting the lights and joining them together with other wires then to the battery...

—From the journal of Keneon Isaac, (July, 1990)

We worked in the basement of a local church during the first two summers. The program lasted eight weeks each summer. There were 15 participants in the first year, and 25 participants in the second, with their ages ranging from 15 to 18. During the first four weeks of the summer we focused on training in appliance repair, and during the second four weeks we focused on organizing the neighborhood repair service. We developed a loosely structured curriculum for the training phase of the project that focused on learning about electricity (current flow, voltage, etc.), circuitry (wiring, soldering, etc.) and about the mechanical components in appliances (motors, gears, etc.). In the second half of the summer, the youth made fliers and business cards to advertise their service, and the young people hit the streets in an effort to find customers.

Our goals were simple, but the implications were profound. We wanted to understand some technical material because we were developing a micro-business that dealt with that material. In this context, we were not only “learning by doing,” but we were “doing by learning.” As in the case of the samba school, the initial work of learning was intended to make us part of the world where our new skills would be useful—not simply to prepare or certify us to become a part of that world. This distinction is very important. By doing this training, we became a group *within* our community that was involved in dealing with some of the economic realities in our neighborhood. Meaningful learning and meaningful work did not have separate realities, one occurring at school and the other occurring at the job. These two realities blend when your work and your learning both occur in your primary social setting.

On the computers me and my paartner were with the mouse to try to find out how it works, and i found it to be very easy, and very suitable. The same day we worked on the board, at first i tought it was hard, but soon as we got to the board i found out that it was very easy, if you [know] what you were doing, if you don't i feel very soory for you.

Last week we also learned a little about word processing which i already know about from school, and i really like typing and i love to work on the computer. This july fourth i went to the brockton fair it was nice, but i lost my wallet i had no money in it, but I lost my liscence in my wallet. know i have to pay thirty five dollars to get it back.

—From the journal of Jean Auguste, (July, 1990)

To come up with activities to help us learn about electricity and circuitry, we used materials known as the "Mystery Boards" project, developed by Tim Barclay of the Technical Education Research Center in Cambridge (TERC), and we used a Time-Life home repair manual and a Reader's Digest Fix-It-Yourself manual. Barclay's Mystery Board project is a simple exercise designed to provide students with a tool to investigate electrical connections and simple circuits. The students built the boards in Figure 1, out of a cardboard, batteries, lights, switches and wires. Any number and configuration of batteries, lights and switches can be used. Once the students have designed their boards, they solder the components onto them, and they attach wires from one end of the power sources to the lights, and from the other end of the power sources to the switches. Next they decide on light patterns that they would like to achieve, and they must determine what type of wiring from the switches to the lights can create that pattern. The students would then challenge other participants to duplicate their patterns on different boards.

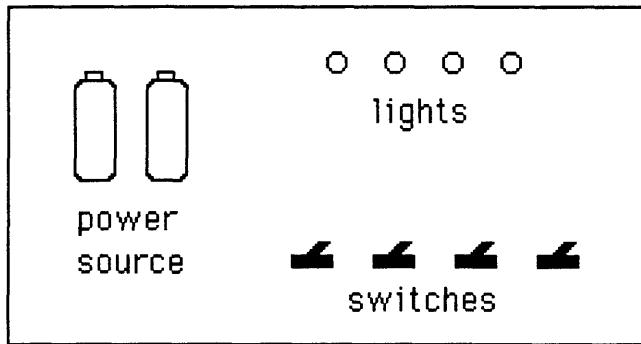


Figure 1. Mystery Board

When we started to do the board construction, first we cut the connectors, and the lights. Then we hook up the wires with the batteries and the lights. When we finished all that, we took a long black wire and connect it to the power source and the other end to each of the four parts of the connectors and the lights come on each and every time we try it. After that we knew that our connections was alright and everything was in the right place. So our next step is to connect some more wires with the switches.

—From the journal of Max Bresca, (July, 1990)

By having each student create these simple circuit boards from start to finish, we were able to make transparent the principles involved in each of the components. After a time, the basic ideas behind the flow of current through the wiring on their mystery boards was clear enough to each student to apply it to the ideas behind the flow of current through circuits and electrical wiring in home appliances. This made the Time-Life and Reader's Digest manuals easier to understand, since the most common issue that needs to be addressed in appliance repair concerns rewiring. We looked at broken flashlights, lamps, toasters and fans, and with the diagrams and step-by-step instructions in our manuals, we treated them like an extension of our mystery boards, and learned to rewire them. As in the samba school example, each of the participants developed their own constructions—the mystery boards—and they were able to play with them, change them and add their

own design and innovations to them as they saw fit. This produced an environment for learning things which could be applied to other problems that this group had come together to address, namely figuring out how to repair appliances.

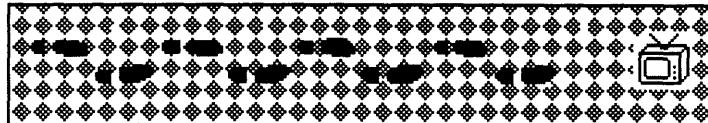
8.2 Developing a Neighborhood Service

The second half of the summer project focused on developing a neighborhood appliance repair service. The young people developed fliers and business cards announcing their service to their neighbors, and they walked around their neighborhood, going door-to-door sometimes, to get the word out. These efforts met with mixed results for a couple of reasons, one of which being that some of the kids were good at representing themselves to the adults in the community while others were not. For instance, Figures 2 and 3 are examples of some of the more successful business cards that some of the kids came up with, while Figures 4 and 5 were less successful.



Figure 2.

Cynthia G. Bodden
Electronic Engineering



380 Washington Street Phone # 436-1141

Figure 3.

KK 47 THE SNIPERS
ELECTRONIC REPAIR

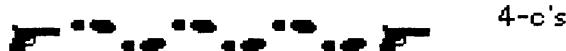


380 WASHINGTON ST.

436.1141

Figure 4.

TRICKER 
ELECTRONICS REPAIR



4-c's

380 WASHINGTON ST.
436-1141



Figure 5.

Some of the participants, particularly those who seemed to have some level of involvement with local gangs, clearly seemed to feel the need to represent some of their desire for a sinister reputation in their business cards. However, even with the cards that did not seem like they were especially useful in attracting customers, the experience of developing these cards did seem to make the whole idea of running a neighborhood appliance repair service more real and achievable to the participants.

The other reason that attracting customers seemed difficult at times was that the kids worked from 9:00 to 3:00 on the weekdays, when most of their neighbors were not home. So, during that first summer, the young people only received about 25 appliances from their neighbors and they were able to fix 15 of them. Those 15 successes over a four week period provided great moments of satisfaction, but they did not prove that this enterprise was viable, since on average there was only one successful repair per participant. The next summer, when we had 10 more participants, we actually ended up with even fewer appliances to repair since I had a difficult time finding assistants that summer, and coordinating the project for 25 teenagers proved to be too much for me.

8.3 Understanding the Lessons Learned

During the first summer, we celebrated our modest successes on the last night of the program. We had an awards ceremony to which parents and community members were invited. Each of the participants received an award identifying their particular contribution to the program, and each

participant was given a trophy. It was a very emotional night. Many of the neighbors who came did not know the kids personally, but some said they were very impressed by what they saw that night.

The awards ceremony was a good community building event. It gave a chance for neighbors to see some young people who have done something positive with their summer. And I really like that it was all home-grown. The kids were neighbors, the ones who gave out the awards were neighbors and just about everybody who came that night were neighbors. This is the type of local initiative that helps build up neighborhood pride.

—Mark Scott, a neighbor in Four Corners

However, as we discovered in the second summer, there simply were not enough adults involved in this project to give the teenagers adequate support in creating local services. Furthermore, we decided we would try to do other services in addition to appliance repair to better represent the range of interests and talents among the youth involved. We came up with a number of potential services, such as videotaping, landscaping, baking, and word processing. Yet, this just increased our need for greater involvement by other adults who could take on some of the apprenticeships. We needed to get a better sense of how many people in our neighborhood would be interested in this kind of thing, and we wanted to get a better idea of what types of talents and resources our neighbors have so that we could better conceive of the services that are possible. So, during the third summer, this is what ultimately led us to decide to try to build a directory and database of the local personalities, skills, talents and resources that existed in our neighborhood.

Chapter 9: Project II: The MUSIC Network

9.1 Neighborhood Networking and Community Building

The appliance repair service was a social construction that the kids worked on in order to improve their economic plight. Yet, by working on this project, the kids began to see the need for greater cooperation and support from their neighbors. As neighbors acted to apprentice the youth and others made use of their services, the neighbors began to create a type of interdependence with the kids which can lead to the social cohesion that Papert pointed to in the example of the samba schools. This is a model of approaches that seeks to encourage members in an urban social setting to invest in the relationships that can bring about the developmental synergy of the social constructionist paradigm.

However, as one of those neighbors, I found that it was difficult helping the young people organize effective outreach to their neighborhood with the size of the population and the complexity in peoples' lives that makes them either too busy, too distrustful or too disorganized to get involved. Some type of local infrastructure was sorely needed to assist the kids in their outreach efforts, and to make it easier for the neighbors to connect to what was going on. During the third summer, my wife and I attempted to help the participants pull together the information they might need to establish a more structured approach at outreach through surveying the neighborhood and putting the information into a directory and database.

This approach of ours was derived largely from the work of Kretzmann and McKnight (1993).

During this same summer, my wife began teaching word processing to the youth as a potential service, and I worked on teaching videotaping and computer maintenance. By the end of the summer, our surveys had not been very successful and our new services had not gotten off the ground. Once again, it was clear, we needed to get more of the adult neighbors involved. Throughout the next year, this began to happen, and we found ourselves in need of better ways to coordinate neighborhood activities and share critical information. In our work, we found that by networking computers that were placed in the homes of the neighbors and youth that were most involved, we were able to create a type of organizational infrastructure that we have just recently begun to make use of and evaluate. Many new projects and new relationships have formed because of the opportunities that this network has provided. In Appendix B, I have included certain Email conversations which document some of these new developments.

9.2 Social Constructionism and Appropriate Tools

Long ago, urban residents were more actively involved in creating social constructions. However, the rapid pace of change in modern cities has left many without a clear sense of what can be done in their current context. This lack of vision is related to a lack of appropriate tools for social constructions. The need for appropriate tools in the social settings is not a peripheral issue. In fact, it is central as indicated above in our discussion of

the power principle. A social setting can become impoverished in certain areas of activity due to a lack of appropriate tools. In fact, much of the type of work behind organizing apprenticeships and neighborhood services can be daunting without the appropriate tools. Therefore, it is important to examine various tools which are available and relevant in urban settings. In my research, I have found that one set of extremely useful tools to consider are certain telecommunications systems. One of the most difficult problems that I encountered in my work in Four Corners was the lack of organizational infrastructure in the neighborhood. My experience revealed to me how difficult it was to develop the types of social connections and networks that can be necessary to establish well-coordinated social activities in an urban community. However, neighborhood computer networks and communal databases are demonstrating that large numbers of people are able to contribute to the organization and development of very complicated systems of information while remaining informal and social. Whether it is a gaming environment, as in the case of various computer networks known as MUDs (Multi-User Dungeons), or whether it is a BBS (Bulletin Board System) developed around special interests, networking is a tool that is opening the door to new organizational potential in various social settings. Without tools like communications networks and communal databases to catalogue potential clients and resources, projects like urban apprenticeships may not be able to survive in big cities.

This issue touches on a concept adopted by the Clinton Administration in their push to develop the National Information Infrastructure (NII). The concept is called the "information commons" (National Information Infrastructure: Agenda for Action, 1993). The concept calls for establishing

local computer networks that can provide the infrastructure for online neighborhood services and electronic forums. Lee Felsenstein (1993) argues that this use of computer networks can reestablish the communal atmosphere of the village commons or the "agora" (a Greek word for the city-state's place of assembly) in urban communities. In fact, he believes that the loss of these types of spaces has contributed to the deteriorating conditions in urban settings.

The degree to which such a "village square" is unavailable to people is, I maintain, the degree to which people are strangers to each other, and this situation is directly related to the development of social pathologies such as criminality, alcoholism, brutality, and the like. I claim that we all have an inherent need for the function of the village square, which I call the "function of the agora." (Felsenstein, 1993, p. 18)

As urbanization proceeded, a somewhat similar process of privatization of the commons of information took place. The place where people could gather and exchange information began to lose its function to the gradually centralizing mass media. ... I remember the moment in 1969 when I looked out my window down the street and saw all the living room windows glowing with the blue light of TV. I realized that they were all getting their information from Walter Cronkite in New York, but that we had no ready way to get information from each other. (*Ibid*, p. 19)

In my work in Four Corners I learned that neighborhood-based electronic networks can indeed provide viable organizational infrastructures for communities that are having a difficult time pulling together. Before I learned this, I made an effort at organizing activities for social constructionism without this type of tool. The results were mixed and I definitely realized that appropriate social networks were critical to the types of projects that I worked on, whether or not computers were involved in creating such networks. Yet, I clearly came to appreciate the benefits and

effectiveness of having access to a neighborhood computer network when I finally established one.

9.3 Making MUSIC

In our social setting, I set up a computer network called MUSIC (Multi-User Sessions In Community). It is a Bulletin Board System (BBS) application that I designed, wrote and developed at the MIT Media Laboratory to facilitate sharing information and organizing projects run by neighborhood residents. The project is intended to show that a relatively inexpensive (under \$10,000) computer system can implement a community computer network that can support the local infrastructure of a typical neighborhood. The system is made up of a single desktop computer connected to a set of high speed modems and local telephone lines. Both the server and the client software were written for the Macintosh. There is not an interface available for Windows yet, but I hope to work on one soon. The system was designed to be extremely user-friendly, so that neighborhood residents without much technical expertise could operate and manage the network completely independently.

The server for the network is in my home, but it could just as easily have been placed in someone else's home, or in a community center, or a school or a church, etc. The server is connected to six phone lines linked together through a "hunter" service. With this service—which is offered by our local telephone company—I do not need my own router since each user can call one number and the "hunter" will search for the first open phone

line among the six available numbers. This allows for up to six people to have simultaneous access to the server although they all call the same number. The modems are 14.4K US Robotics Sportsters that can connect at a range of speeds from 14.4K to 300 baud. So users who dial-in with the single phone number are not restricted to a single modem speed. The server is an old Macintosh Quadra with 4 MB of RAM and an 80 MB hard drive. This is a very limited configuration since it cannot store much data, so future versions of the system should employ an Apple PowerMac 7100 or above with at least 8 MB of RAM and a 500 MB hard drive at a minimum. I also intend to use 28.8K US Robotics Sportster modems in the future and an APS DAT Backup Drive to backup the data at a minimum of once a week, and as frequently as once each day. The cost of all of this hardware in today's market is just over \$5,000.00.

The client software was put on 18 computers which were located in specific homes in the community. Some people already had computers in their homes and others were given computers so that they could participate in my research. I had 10 computers to give out, and I gave them to neighbors of mine who had already been involved in some local organizing efforts. I was interested in seeing whether those who had already shown interest in neighborhood activism could be more effective working with the network. Some 39 adults and young people are currently connected to it. As I shall discuss in more detail below, it has been used primarily for Email, but it has also been extensively used to communicate and organize around community issues—from food co-ops to crime watches, from organizing youth services to developing a neighborhood newsletter.

MUSIC has been designed in the spirit of the public market-place of ideas. There are various documents and information on the system which anyone can access, modify, remove or add. However, there are also private places to support personal communications and proprietary information. Each account has its own private electronic mailbox, and there is one set of documents put on by members of a local church that can only be accessed by members of that church. There are also news stories put on by the Boston Globe that anyone on the network can read, but only the Globe can modify them.

The MUSIC system supports real-time text and voice communications between users who are logged on concurrently. It also includes electronic mail and bulletin board facilities. The data storage and retrieval mechanism is developed around the concept of rooms filled with objects. Each of the rooms is organized around a topic which also serves as the name of the room. The topics identify the types of information in each room. The information in each room is contained in the objects in each room. There are text, graphic and sound objects. Users can enter a room and list the objects, view an object, open an object, create an object or copy an object. When an object is open, users are able to enter and edit its text, graphics or sounds. Although multiple users are allowed into the database at any time and multiple users can enter any room, only one user may open any one object at a time. However, multiple users may view an object at the same time, and these users may even view an object that is currently open and being edited by another user.

In keeping with current user-interface trends for this type of system, the database in MUSIC has been developed around certain spatial and visual metaphors. The system is designed with a graphical user interface (GUI) that is modeled after a neighborhood with streets and buildings (Figure 6). The buildings represent the neighborhood projects that are being organized on the system, and data is stored in the rooms of the various buildings.

Rooms are organized around different topics and discussions. Users can enter a room and add information to its objects (e.g. text, pictures or recordings) or they can engage in real-time text and voice communications in "chat" mode (Figure 7). When a user enters a room, his or her icon shows up in the "Insiders:" column along with anyone else's icon who is currently in that room. By clicking on a user's icon, another user can enter a chat with that user. Most people on the system have Macintosh computers with microphones built right into their monitors. So users can just talk into their screen and have their voice messages sent over to another user's computer and played on that computer's speaker. The more traditional text chatting mode is also supported.

Electronic mail and bulletin board facilities are also included. One can send text, graphics or recordings as mail. Each user has both a name and a personalized icon identifying him or her on the system. To send mail to someone, you just click on that person's icon (Figure 8). By recording a sound message with the computer's microphone, a user can send and receive voice-mail on the MUSIC system.

A special map room also exists, which allows users to get information about a resident in the neighborhood by simply clicking on that person's street—which brings up a list of names of the residents who live on that street—and then clicking on that person's name (Figure 9).

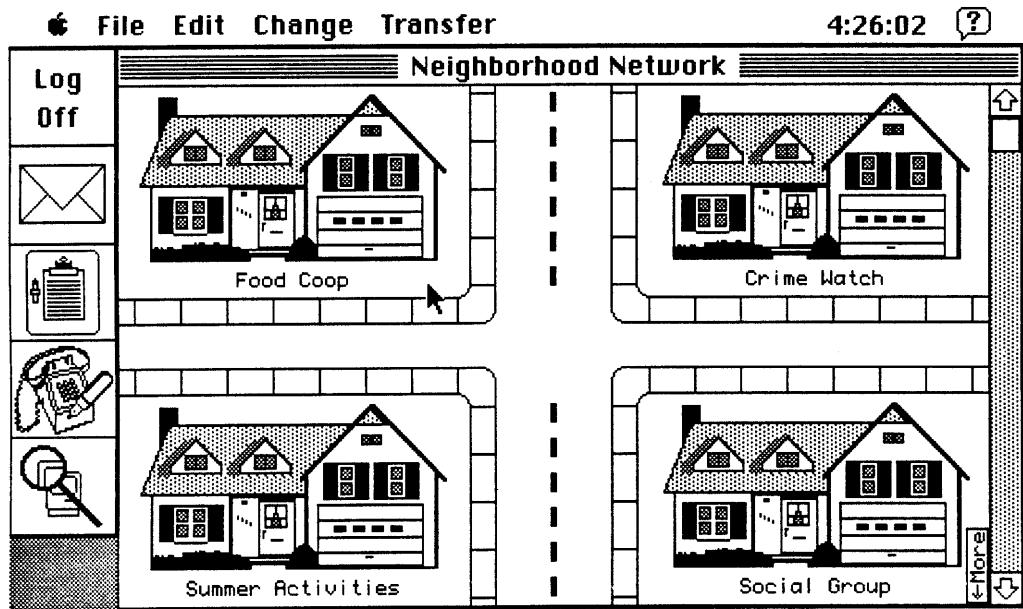


Figure 6. MUSIC's Graphical User Interface

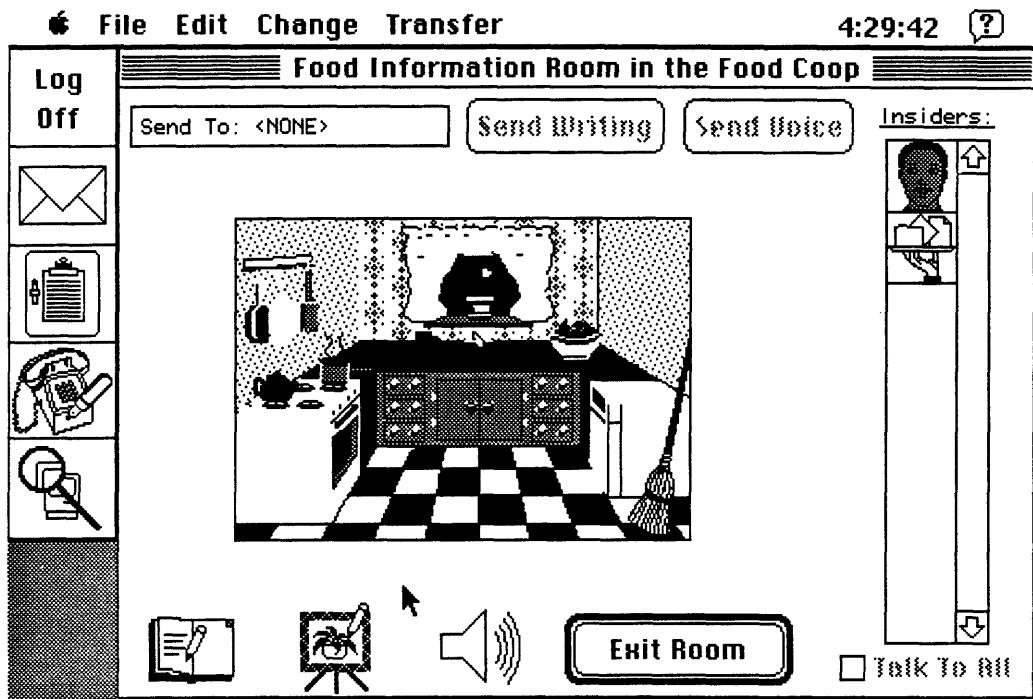


Figure 7. A Room in MUSIC

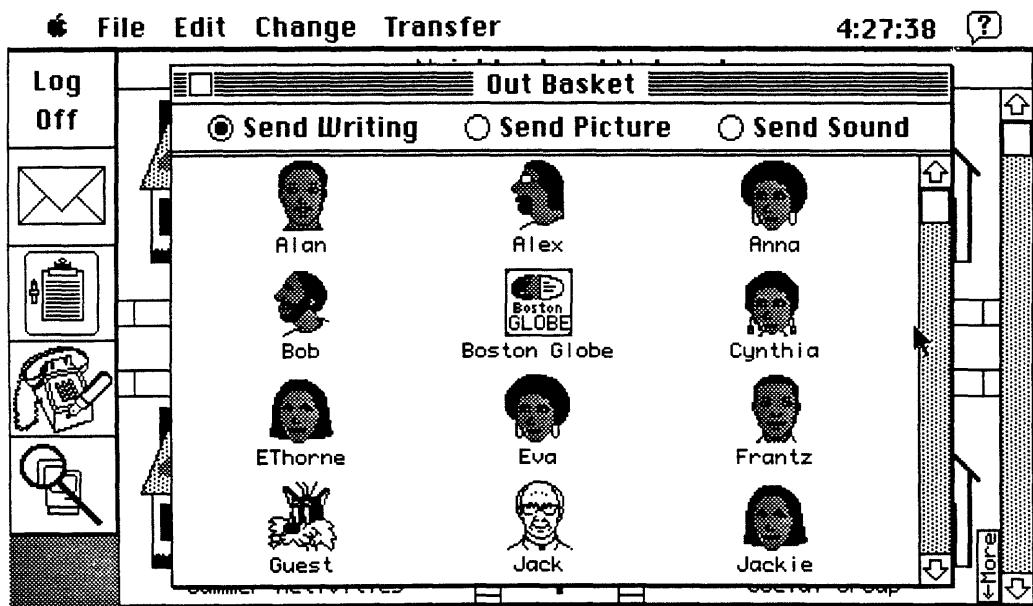


Figure 8. Icons for outgoing mail on MUSIC

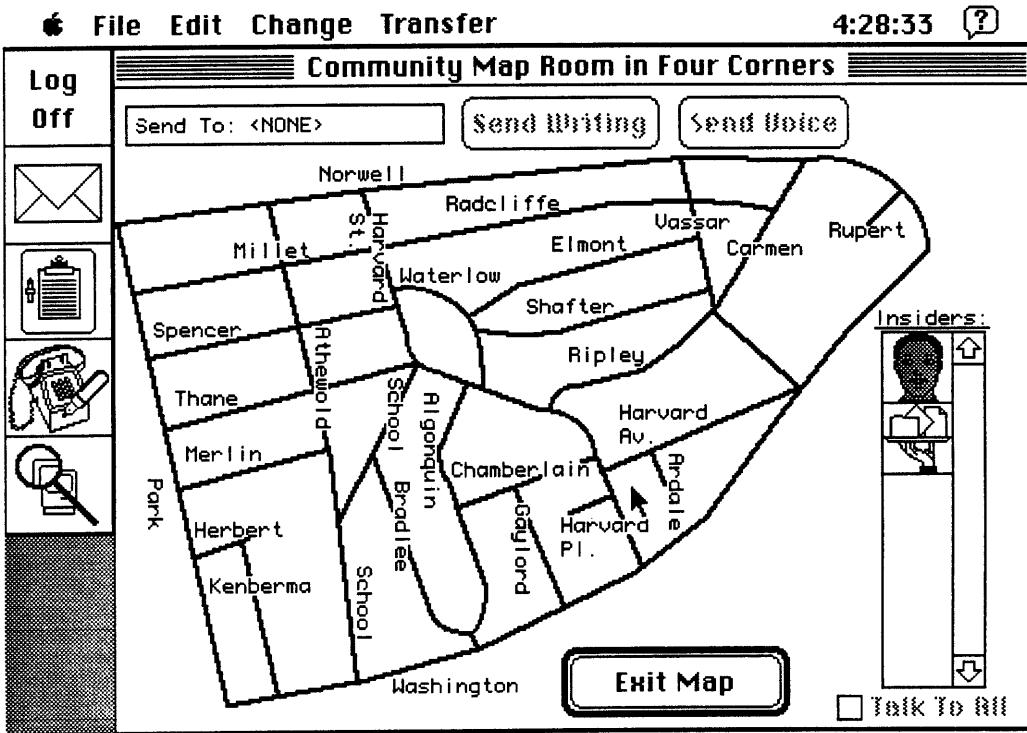


Figure 9. The Map Room in MUSIC

9.4 Using MUSIC

The neighbors who are on the network have terminals in their own homes, so they can log on at any time of the day or night. Some have used the network to discuss and debate community issues. Others have placed drawings and poetry on the network (see Appendix C). Still others have organized potlucks, group trips and various social gatherings on the network. And of course, the network is also being used to organize the neighborhood apprenticeships, as well as other projects, including a food coop and a crime watch. A few outside groups are also involved with the network. As I mentioned earlier, the Boston Globe puts daily stories onto the network which are related to topics of special interest that concern the neighbors.

Moreover, individuals from a nearby health center and members from other community agencies and churches log on regularly to promote various projects in which they are involved. During the summer of 1994, a public school in the Four Corners neighborhood was opened to the community during the day, which allowed public access to a few additional computers during this period. Twenty more people started accounts during that summer for a total of about sixty accounts. However, when the summer ended, these accounts generally could not be used any longer because the computers became inaccessible again.

It is difficult trying to determine all of the activity that occurred on the network. A record is kept of when people log on and log off, and whether or not they send mail, check the bulletin board, read news articles, modify or read documents, enter a chat with someone, or check the directory and other online information. But no record is kept of the content of any of the users' mail, chats or documents. A user must give me explicit permission to see or use any of this content. Therefore, there are probably many things which happened online with MUSIC which I do not know about. However, I did ask people to let me know whenever something that they thought was significant occurred if they did not mind me publishing it. These are the things which I will discuss here, along with some raw data about generic usage patterns.

There have been some very interesting developments in the patterns of online activity by the MUSIC users. Over a period of a year, there were many projects that were organized online, most of which were either directly or indirectly related to a few core projects. The core projects were the summer

youth programs, the crime watch, the social activities and the church neighborhood outreach activities. About 90% of the logins into the system occurred when people were involved in one of these projects. About 94% of the text documents placed on the system were created by users of the system who were participating in one of these neighborhood projects. What these two statistics told me was that most users did not login much unless they were actively involved in a social activity or project that was being coordinated online. The more involved an individual was in a project, the more likely that individual was to spend time online communicating with others about the project.

However there were some exceptions to this rule. Some users put a number of pieces of their own original artwork on the system, two users put a number of pieces of poetry online, and one user published a paper online that he had written on black theology. A number of other users posted interesting bulletin topics, one-third of which were job notices. The total number of users involved in this type of publishing activity came to about ten, or one quarter of the total number of users. This revealed that for a number of people, publishing information online did not require having some explicit connection to the ongoing projects.

In a year's time, only three extended online discussion groups were started. The most common usage of the system has been for Email. About 78% of the time users were online was spent using Email. About 16% of the time was spent browsing documents, reading news and checking the bulletin board, and only about 6% of the time was spent adding new documents, editing old documents on the system or doing other things. This medium

was used more to facilitate communications of a personal nature than for anything else. Three of the 39 users consistently sent more mail out to groups (which can be done through a "CC" facility) than to individuals. Everyone else sent mail most frequently to individuals. This particular statistic shows that just under one tenth of the users seem to have taken on the role of "information providers" for some subgroup of the other users.

The system was designed to help residents organize and manage neighborhood projects, and I believe that it was successful in this. Eleven projects that I know of were either organized primarily through MUSIC or the network was used in some significant way during their organizing effort in the last year. Two of the projects—the first two listed below—had very large budgets. It is quite possible that other projects may have happened which escaped my notice, yet thirty-nine people supporting eleven projects in the course of a year seems to be a good number to me. The eleven projects organized or supported by the network were:

- 1) a summer jobs program for neighborhood teenagers
- 2) a group trip to Jamaica
- 3) a group letter to a woman in Brazil
- 4) a poetry collection
- 5) a discussion about Black religious issues
- 6) discussions about the Black community
- 7) discussions about local neighborhood development
- 8) some potlucks and parties
- 9) crime watch information updates
- 10) a neighborhood food cooperative project
- 11) an online newsgroup with the help of the Boston Globe

In Section 2.2, I outlined the following five types of social constructions: 1) social relationships; 2) social events; 3) shared physical artifacts; 4) shared social goals and projects; and 5) shared cultural norms and

traditions. Of these five, all were represented in some form in the way that MUSIC was put to use. However, in two cases, it was not the group in my Four Corners neighborhood in Boston wherein a particular type of usage appeared, but instead in a different community in a low-income housing development that is using MUSIC in Newark, New Jersey.

Certain people used MUSIC to develop new *social relationships* by introducing themselves to people they had not known previously. I highlight an example of this below involving a four year-old child and his mother. Much of the child's activity in keeping in touch with his neighbors came from his own motivation—his mother told me that usually she did not initiate it. There were *social events* such as potlucks and parties organized by MUSIC participants. There were no *shared physical artifacts* in the projects organized in my neighborhood with MUSIC, but one such project—a community garden—is being organized by MUSIC users in Newark. There were *shared social goals and projects* represented clearly in the Four Corners MUSIC project through the youth economic enterprises and the crime watch. And lastly, there were no shared cultural norms and traditions which I can speak of in the Boston MUSIC project, but in Newark this has shown up with the residents who are using the system now referring to themselves as "MUSIC Families." Furthermore, some young kids have developed a rap about MUSIC and a young woman who sings has shared a musical refrain about MUSIC online with the other residents.

Of course, the online activity of the MUSIC users has not been uniformly distributed. In fact, five of the people in Boston with accounts never logged on even once. Another six only logged on two or three times.

About fifteen of the users logged on about twice a week on average for about three months and then slowly dropped off to about once a month. However, seven users continued to log on about once every two weeks, and five users continued to log on once or twice a week. Two of the users who became "information providers" logged on and still log on almost every other night during certain weeks.

Most of the users of the MUSIC system in Boston were African-American adults between the ages of eighteen and forty. Only six users were under eighteen, and four users were over forty. One white female and two white males were involved. Twenty of the thirty-nine users were females and nineteen were males. Eighteen of the users were married. The individuals who were married tended to use the system less than those who were unmarried by about one third fewer logins per individual. I do not have any data about the participants' economic status, but everyone appeared to be either working class or middle class. None of the participants was unemployed. Of those who never logged on, two were married women, one was a married man and two were children. In each of those cases, it was clearly the spouse or the parent who was primarily involved with the system, and the other family member in question was invited to participate but chose not to get involved. Women appeared to use the system as much as men. In fact, two of the four most active users were women. Of the two most active users, one was a man and the other was a women.

As it turns out, those who used the system the least either did not have their own computers or they generally lived furthest away from the central area. About two-thirds of the users had computers in their homes and about

half of these lived on the edge of Four Corners or somewhere just outside of its boundaries. I had so few computers to work with initially (only 10) that I finally included people who lived further away from the center of Four Corners than I had initially planned. These users became the ones least likely to get involved in the online activities.

The fact that most of the users of the system were economically stable adults reflects two other issues that I faced. The computers that I gave out were not owned by the neighbors who received them, and the neighbors were required to sign a contract and place them in a secure and stable location. This was an easier arrangement for the middle and working class residents, and so this process selected out the more underprivileged members of my community. The younger members of the community never really became involved for a different reason. Since I was already working with many youth in Four Corners I was hoping to use the network to organize amongst the adults, and eventually involve them in the youth projects. Although this approach did meet with some measure of success, the network took a decidedly adult focus. Neither of these two factors is at work in the Newark MUSIC project, since the entire housing development where the network is set up is intended for low-income residents and there is already a security system in place for all of the tenants. Furthermore, the MUSIC network in Newark is connected to a school across the street from the housing development, which should ensure greater usage of the system by some of the youth in that setting. However, the Newark project has only been active for a little over a month, so concrete statistical information about that project is not yet available.

The different usage patterns in the Four Corners project reveal that the users of MUSIC were involved in many different levels and types of activity. Some were very seriously involved, while others were relatively serious, and still others were not at all serious about using the system. Natural roles developed within the system based on the interest level of the various users. A good percentage appreciated and applied MUSIC's organizational potential, while others did not. But just about everyone enjoyed using it as a medium for interpersonal communications.

From: Tiffany
Date: 12-01-93, 10:07:40 PM
Title: Network ?
Sent to: <The Server>

Hi, Alan, Michelle and Chinua!

My first full-time MUSIC experience! I love it. Thanks so much, Alan, this is such a wonderful way to communicate with everyone.

I have a small technical question, Alan (or Michelle - my deaconness is BAD). How do I change my icon (Tara and I look like twins)? No rush, get back to me when you can. God bless.

Tiffany

Figure 10. Email from an appreciative MUSIC user

9.5 Making Beautiful MUSIC

On the average day throughout the year that I monitored the network, nothing remarkable happened. However, every now and then there were some especially exciting experiences which I could never have predicted. In one instance, within weeks of setting up the network, a four year old son of one of the women on the system learned how to log on and began sending Email to various people at random. He could hardly read, and he did not even know most of the people to whom he sent his Email. In light of the

theory of social constructionism, this activity helped him to develop new internalized conceptual relationships and new externalized social relationships. MUSIC was an appropriate tool sitting on his mother's desk in the right place at the right time.

From: Cynthia
Date: 10-01-93, 1:54:41 PM
Title: hi al
Sent to: Alan

Hi Alan,

We are having fun already. Omari has sent out about 6 messages and helped me to give my icon a hair cut. We also introduced ourselves to Bob Thornell and told him about the paintings we made with ink berries from the edge of his yard-sticking out of the fence.

Omari already can recognize two new words "send" and "log on". This is going to be helpful for his reading skills as he sends his messages and dictates messages for me to send. Thanks again!

Cynthia and Omari

Figure 11. Email about four year-old Omari's progress

On another occasion, a group of neighbors began to discuss starting a crime watch and using the network to promote discussions about the issue and to keep each other informed. Within days after this conversation began, one of the people discussing the idea was robbed. Yet, one of his neighbors saw the thieves breaking into his home and this neighbor knew who to call because of the recent discussions about the crime watch. The thieves attempted to steal one of the computers which is connected to the MUSIC network, but they were caught and the equipment was returned within an hour after they had departed from the scene of the crime. This was an amazing example of how effective the social construction of a crime watch could be, and how useful online discussions were concerning this topic. In the following example, five days after Mark asks people to start thinking about a date for a crime watch meeting, he reports that it is a success.

From: Mark
Date: 10-06-93, 10:50:46 PM
Title: Crime Watch
Sent to: Alan
CC: Michelle, Mike, Anna, Valerie, Frantz, Michael, Bob, Tiffany,
Theresa, Rocklyn, Eva, Jay, Gene, Cynthia

Crime Watch

When and where do we want to have our next crime watch meeting?

Mark

From: Mark
Date: 10-11-93, 7:55:13 PM
Title: Crime Watch Working
Sent to: Alan
CC: Michelle, Jack, Anna, Valerie, Veronica, Frantz, Michael, Bob,
Tiffany, Theresa, Rocklyn, Eva, Jay, Rivers, Cynthia

Neighborhood Notes

An example of a crime watch working!

My apartment was burgulized!!!! Three men went into the window at about 1:00 PM during a week day. My neighbor saw was standing on the porch and saw them go through the window. She called me at work and sent someone around the corner to a local Minister. I called the police and headed home. By the time I arrived the Minister and the police were on the scene. We got a describtion from the witness. And we found out they went "that-a-way".

The Minister went with the police in the direction of the suspects. One of them and the stolen goods were found around the corner. The police helped me carry the goods back home. I was back at work within the hour. Home secure and one suspect under arrest.

That is only half of the story!!!! To finish the job you have to work with the court. Last week this young man case came before Dorchester District Court. The Minister, the witness, and I were there to make sure the suspect received justice. Justice in this case is get the young man attention and push him into taking responsiblity for his life.

Stay tuned for more information on the other two suspects.

Mark

Figure 12. Email about the success of the Crime Watch

Another inspirational activity that occurred came about when ten users organized a group letter that they sent to a woman in Brazil once a month for five months. The woman was only in Brazil temporarily, but she

said she was extremely homesick for her family and friends. So a group letter was organized to maximize the amount of people that would keep in touch with her. Anyone in the group could add to the letter anytime day or night during the period before the letter was sent, and only one person was needed to mail out the correspondence at the end of the month. The shared document was sent by snail-mail (ordinary transport mail) since the woman did not have access to Email herself, but each person did their writing online. A novel combination of both Email and snail-mail gave a solution to the lonely neighbor, and the woman was extremely appreciative when she got back. She said that she believes that she would not have heard from so many people so regularly without the MUSIC network.

Another clear demonstration of the utility of the MUSIC system came from how it benefitted a local neighborhood association in Four Corners. This group was involved in various community organizing projects, and the MUSIC system was often used as a tool for developing, communicating and managing the ideas and proposals that these neighbors decided to work on.

From: Mark
Date: 03-06-94, 10:58:22 PM
Title: Neighborhood Notes
Sent to: Alan
CC: Alex, Bob, Cynthia, Eva, Frantz, Jackie, Jay, Jeff, Karen, Mark, Michael, Michelle, Mitchel, Rivers, Rocklyn, Theresa, Tiffany, Valerie, Vanessa

Neighborhood Notes

I. I think the last meeting of the Harvard Street Neighborhood Council was a success. It was a JUST US meeting. No police, politicians, or leaders to talk at us. It was us talking with us. We are developing a MO and an agenda for the group. The task before us is to refine the MO and execute the agenda.

II. The MO. Residents talking to each other. Trying to find ways to work together. I thinking of things like: pot lucks, street cleaning, taking children to the park during school vacation, this computer network you are reading ...

III. The agenda. All the things that need to be done. I am overwhelmed at this! There is the stop signs, the traffic light, the sidewalks, the bridge, the crime, the fundraising, the youth programs ... We need help!

IV. The Follow-up committee. The next meeting would have been March 7, the first Monday of the month. But a few folks can not make that date. We would like to move the meeting. We would meet with the Officer Anderson Initiative (OAI) for this month. OAI is an effort to combine neighborhood association work with street work. More details to come. The meeting is on March 14 at 6:00 at Greenwood, 380 Washington.

V. Next meeting. March 28, 6:00, the Holmes School.

Mark

Figure 13. Email about community organizing

It is clear to me that for many neighbors, MUSIC was an important tool for organizing social constructions. I will look more carefully at how this system differs from other approaches in the next chapter, but the following Email addresses the advantages of this type of system in the words of two of the most active neighbors.

From: Cynthia
Date: 01-30-94, 11:06:28 PM
Title: Re: Meeting Review
Sent to: Mark
CC: Alan, Alex, Anna, Bob, Eva, Frantz, Jackie, Michelle, Mitchel, Rivers, Rocklyn, Tiffany, Valerie, Vanessa, Veronica

***** Responding To: *****

From: Mark
Date: 01-30-94, 3:33:12 PM
Title: Meeting Review
Sent to: Alan
CC: Alex, Anna, Bob, Cynthia, Eva, Frantz, Jackie, Jay, Jeff, Karen, Michael, Mike, Mitchel, Rivers, Rocklyn, Theresa, Tiffany, Valerie

Neighborhood Notes

The Harvard Street Neighborhood Council has its second meeting last Monday. I feel it was an OK meeting. We have a real problem with time. There is not enough of it!

Possible solutions

1. shorten the agenda - BUT REMEMBER

people have a lot say (which is good!)
we need to promote conversation
we are never able to start on time

2. make the meeting longer - BUT REMEMBER

it is not fair to keep people in meetings
too late

3. have two meetings a month - BUT REMEMBER

too many meetings is time consuming

4. have a follow-up committee deal with details and save the larger
meeting for discussion and education

ALSO ANOTHER THOUGHT

How about splitting the meeting in half -

Part I Information and discussion
Part II Discussion

Any items requiring follow up go to the follow up committee.

What do you think? These ideas are not mutually exclusive.

Mark

hi.

I thought the meeting went well too. but i agree with alan that the city people have too much to say. i wonder if we could figure out a way to give tony fonseca his 45 minutes. just before alan made his comment about neighbors needing air time, i commented to val that it was a little odd that at both meetings the people who were doing the most talking and volunteering were police people. i'm glad that they are enthusiastic and want to be helpful. judy roderick also asked me if we would ever be having meetings without police there. i told her i didn't know and to talk with you. i would guess that it might be helpful from time to time.

as for the business of meeting length, i think that having a definite ending time is a good thing. i don't think we can start much earlier, though we could poll people about that before the next meeting. i also think that having snacks and baby sitting is good.

we might need to shorten the agendas and figure out a way to get people who come regularly hooked up to MUSIC. that way we could get out info, such as what is happening with the bridge, etc. before a meeting and use the meeting time to decide what we should do about the information. i know this might present practical (\$) problems, particularly if the group grows, but i think that the more info people can review before the meeting, the more meeting time can be spent on deciding things.

sending out notices/mailings might be another way but i know that would take more time and resources than sitting in front of the terminal and sending off a memo every so often.

i think that 2 meetings per month would be too much. but, again, if we could get things going electronically, we might be able to get work done in between meetings. That might also be a way for people to "caucus" about particular issues/activities in between meetings. (we might assign different topics to different people to ensure that you don't have to do all the initiating of conversation.)

i'll copy this note out to folks to see what they think. if anyone has comments, you can respond to me and also cc: your comments to Mark.

until later,
cynthia

From: Mark
Date: 02-24-94, 5:45:58 PM
Title: MUSIC IS GOOD
Sent to: Alan

Alan,

I was just thinking about what makes MUSIC so great! It is better than other networking schemes (like the Internet and CompuServe) because it is actually based in a real community, neighborhood, and village. The virtual network is just that - virtual, not real. Then the faces, homes, and maps brings you closer to the people you are talking to.

When I am sending stuff to Azusa folks it just like a fellowship gathering. Sending this note to you is like talking to you. I would say this system makes a major contribution to building community.

Mark

Figure 14. Email about the utility of MUSIC

The MUSIC network provides an electronic infrastructure that is locally situated. When people in the neighborhood put it to use as an organizational tool, they demonstrate ownership over their own social setting in a way that can serve as a catalyst for new, neighborhood-based leadership and development. This project is attempting to address specific difficulties faced by the underprivileged as they relate to their own community and as they deal with information technologies. The project is also raising important questions concerning how the same computers that

enhance the independence of the individual might also be used to help the local community stay interdependent.

9.6 MUSIC as Social Constructionist Praxis

MUSIC is a practical demonstration of how technology can be shaped around constructionist principles. Rather than using it as a system that provides direction and answers to the user, MUSIC shows how networking is also a tool that can serve as infrastructure for the direction and answers that come from within local neighborhoods. Neighbors can use this technology to coordinate and develop their own programs, expand their communications, and begin forums and social activities that are hard to organize without these types of tools. This can help those who otherwise would only use such a system as a consumer, to instead produce their own content on the information superhighway.

Unfortunately, as we shall see in the next section, discussions about information technology usually focus primarily on how the networks can give people access to resources and people that are far away and not to those that are near at hand. The issue is usually the global village and not the local village. Global village issues are not bad issues to address, but they are not the whole story. Many of the most devastating problems people face (especially in inner city communities) have to do with local issues. So working on these kinds of issues requires straightforward village-building at the local level, and I believe that technical support from systems like MUSIC can help.

As I mentioned above, there is already another MUSIC network in place in Newark, New Jersey, and I am in the middle of discussing getting the system into Chicago and some rural areas in Mississippi. I have found that there is a great deal of interest in this type of system in other communities that are not urban, be they rural or suburban. As a shared resource in a community, a network can serve as a system for promoting local leadership and neighborhood activism. Getting communities engaged in addressing their own issues again is a prospect that many people find very compelling about this type of use of networking technology. Instead of allowing national, state and city government to be the only arenas where policy issues are debated, with neighborhood networks, small, de facto neighborhood-level government might be fostered. Instead of people feeling like they cannot effect change in the large bureaucracies in their cities, states and nation, people can more likely get involved and affect change at the local level if there is infrastructure to support their activities.

I contend that in the past this type of local governing infrastructure was a common part of village social networks, but as more people moved to cities, and as cities got more complex and residents became more mobile, the demographics began to change relatively rapidly. The infrastructure needed for local village-like government became too difficult to maintain. MUSIC is helping people address this by helping them to put up "fences" in the world of information systems. In other words, residents can stake a claim to some territory in cyberspace and develop a sense of ownership and community using that as a shared resource. I think wider Internet access (off and on ramps to the superhighway) is also important, but this issue is not being addressed by my system. People should be able to publish their work on Web

pages, and they ought to be able to browse and surf to see what else is out there. But the browsing and surfing is not the same as developing one's own system. It is not very difficult to add Internet access to a neighborhood network, but I am not focusing on that issue so that I might concentrate on issues concerning local infrastructure. MUSIC represents a type of praxis for social constructionism. It is about mastering the art of producing locally rather than consuming globally within the social environment of your own backyard.

Part IV — Project Discussion and Analysis

Chapter 10: Stumbling Blocks to Social Constructionism

10.1 The Problem with Program-Based Approaches

My work with the young people that I live with in Four Corners has taught me to believe in the village. The power of shared relations, shared cultural processes and shared outcomes and social constructions, I believe, can be a force for healing in the face of the social upheaval that is often apparent in urban America. However, I believe that we have forgotten this power as we have attempted to keep up with our rapidly changing world. We have begun to believe that schools and social service agencies can play the role that our extended families and communities used to play.

Our modern experiences are being made up of a growing number of pre-packaged commodities. As Illich puts it, "Learning by primary experience is restricted to self-adjustment in the midst of packaged commodities" (Illich, 1970, p. 73). It is no secret that creating and delivering pre-programmed services has become the driving force in many commercial markets, but what may not be as well known is that the same is happening in the public sector markets of health, education and welfare. Pre-programmed services rarely make room for the initiative and creativity of the recipient of the service, since they cannot rely on that variable and remain effective. Thus, such services are not helping to foster active and engaged communities. Instead,

through the help they offer, they often make the recipients feel inadequate and unable to help themselves. Yet, ending these services would be devastating to many communities racked with economic difficulties, social afflictions, inequities and misfortune. However, such services by themselves are simply not enough. We need to find more ways to encourage leadership and innovation from within communities, instead of relying only on the program-based sources that come from outside. This balance is what Illich's convivial society is all about.

What is fundamental to a convivial society is not the total absence of manipulative institutions and addictive goods and services, but the balance between those tools which create the specific demands they are specialized to satisfy and those complementary, enabling tools which foster self-realization. The first set of tools produces according to abstract plans for men in general; the other set enhances the ability of people to pursue their own goals in their unique way. (Illich, 1973, p. 37)

It is no secret that urban public schools in this country often resemble factories both in their form of architectural design and in their purpose to process a large unrefined resource—our children—and produce a product—the certified learned—ready for the market place or for more schooling if greater refinement is desired. I am still astonished when I reflect back on my own experience in a high school of three thousand students. I am shocked when I recall the sheer number of students there and realize that all of them were trying to cope with passionate and pivotal experiences that characterize adolescence while the school for the most part sought to keep as impersonal and detached a face as it possibly could. What has gone wrong with modern society? Are our kids now simply raw material to be shaped into functional units for their own good?

Although the public schools serve a very important function in this society, the school system cannot possibly satisfy all of the personal and interpersonal developmental needs of our children. We need to be careful not to rob our children of rich creative and constructionistic experiences which are not pre-programmed, since these experiences can be very profound and critical to social, cultural and intellectual growth and development.

A second major illusion on which the school system rests is that most learning is the result of teaching. Teaching, it is true, may contribute to certain kinds of learning under certain circumstances. But most people acquire most of their knowledge outside school, and in school only insofar as school, in a few rich countries, has become their place of confinement during an increasing part of their lives.

Most learning happens casually, and even most intentional learning is not the result of programmed instruction. (Illich, 1970, p. 18)

We need to believe again in the power of "incidental or informal" experiences. We will not do all of our learning in schools, and we will not see our neighborhoods develop into wonderful communities by waiting for some programs to arrive that can make a difference. We must begin to believe that we can become the active forces that can make the most important growth and improvement in our lives come about.

10.2 The Program-Based Approach in Four Corners

There have been many programs that I have seen come into Four Corners with the "someone-else-has-the-answers" model in the past year alone, and they each appear ready to "fix" and "save" this community, rather

than attempting to help foster its own developmental cycles and social processes. The following programs are some examples that I know of that have good intentions, but that ultimately focus more heavily on outside ingenuity and intervention than they do on the neighborhood's own abilities, creativity and genius.

The City Year program recruits high school graduates (and on occasion high school dropouts) to serve in neighborhoods and social agencies throughout the city of Boston for a year, before they go on to college or other educational endeavors. In many ways, the program is patterned after the Peace Corps, which sends volunteers to other countries temporarily to help those countries develop themselves. I firmly believe that City Year and the Peace Corps do provide important aid and support to their target groups. So I am by no means suggesting that such programs should not exist. They are good and very important. But they cannot help but be programs that rely most heavily on what comes from outside of the communities that they wish to serve. Ultimately, the recruits that are sent in get more out of the experience in terms of social constructionism's model than those who actually live in the communities to be served.

As Freire puts it, "the actors draw the 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." Their mission is to save, not to become a part of the developmental life-cycles that are already involved. They want their intervention to be critical and constructive in that setting, but if they succeed then the indigenous members of that setting must conclude that the critical and constructive forces still come from outside of

their community, not from the shared relations, shared cultural processes and shared outcomes of those who live there. This is not a destructive result in and of itself, for there can still exist other initiatives which are internal to the community which encourage associating social constructions with the community's own actors and activism. But without these types of activities, the communities own developmental opportunities will be lost to the passive models that are already fully entrenched in many social settings.

It is difficult to convince children who have given up on being considered "smart" in school that they can once again believe in the potential of their own intelligence. Such children often give up applying themselves to those areas of intellectual activity that they believe requires "smarts." In a similar way, I have found defeatist internalized models causing disadvantaged communities to give up believing in themselves.

I saw a particularly stark example of this a number of years ago at a food pantry organized by certain members of my church, including myself. The pantry was run by an entirely black staff for over ten years, and it relied heavily on student volunteers from local colleges. I had been involved with it for over four years when the first white volunteer that I had ever seen joined the staff. Within weeks of the volunteer's arrival, it came to my attention that some of those who were receiving food from the program believed that the white person must have been a representative from some organization that was the "real" force running the program. I was shocked, because never once had anyone let on that there were any doubts that my black church was fully responsible for the program. But as I came to consider it, the nature of a food pantry puts the recipients in such a helpless model,

that it was all too easy for them to assume that the helplessness they felt extended into the entire black community in one way or another as well. In the eyes of many blacks who have lost all hope, only whites are capable of doing anything of any significance.

This is not an argument against the white volunteer, nor is it an argument against programs like food pantries that work to address difficult and distressing crises in underprivileged communities. What the Peace Corp, or City Year or my church food program are attempting to do is not a bad thing. It is just grossly insufficient. There needs to be a focus on activities that are not about outsiders coming in to save the day, but instead about communities finding internal forces that can work to develop themselves.

This past summer, another program called Boston Freedom Summer '94 came to Four Corners to help the community, and this program provides another case in point. Relying heavily on college student recruits, Boston Freedom Summer '94 defined itself as a continuation of the civil rights movement, making a particular connection to the Mississippi Freedom Summer activities of 1964. Here was a group that defined itself as a movement not because of any activities in which the long-time residents of Four Corners were involved, but because of the presence of a new group of outsiders to that community. These outsiders were only going to stay in the community for the summer, yet because they called themselves a movement, they focused a type of attention on themselves which suggested that their short-lived presence and efforts were more significant than the presence and efforts of the true residents of the neighborhood. Such an approach robs the neighbors of the chance to be the critical focus, and instead it bestows on the

college students an elite status which cannot help but be out of reach for the majority of the residents in an underprivileged social setting. However, it is important to note that in 1995, the Boston Freedom Summer program will not focus on college students any longer as it takes volunteers from any background, and they will no longer call themselves a movement unless the long-time residents decide on that designation for themselves. As I understand it, the organizers of Freedom Summer are trying to move away from a "culturally invasive" approach to one of "cultural synthesis" and cultural sensitivity.

More recently, a group called ACORN showed up at a neighborhood organizing meeting. Their message was that they could do organizing and leg-work for our neighborhood that could more effectively address the concerns that some of our residents expressed. They could do it *more* effectively and they could do it *for us*. I believe that their intentions were good, but their effect was not, since they wanted to take over active roles that the neighbors themselves were trying to fill. If they were interested in helping get projects started that no one else took an interest in, that would be one thing, but they wanted to take over the few areas of activism that did exist.

I believe it is important to state again that the activity of outside groups can be helpful. It is important that any efforts be informed by models such as social constructionism which argue that the most critical actors are the ones who are indigenous to the social setting that is targeted. One should not ignore or replace the activity of the residents, but instead try to foster it. It is important to recognize that as an outside agent this is not going to be easy. It

will require sensitivity and care, and the ability to be very critical and unassuming in one's own activity as an outside agent. As in Freire's "cultural synthesis," to become one who learns with the residents and not simply their teacher is an important maxim to follow.

10.3 The Program-Based Approach in Computer Networks

The concerns that I have raised about social service programs also applies to interventions that focus on introducing new technologies. Like social programs, new technologies should not be viewed as the most critical force in a community's development. Instead they should be seen as simply supportive elements in approaches that attempt to support the effect of internal forces. Technology should be seen first and foremost in its role as an enabling tool for a community's developmental cycles, not as a source of quick answers from the outside. If new technologies are not seen in this light then they can become forces that dictate new approaches, rather than means for investigating new relationships and opportunities. Rather than dictation, we need the role of new technologies to provide access to negotiation and collective development if it is to benefit urban social settings.

One might think that this would be the focus of computer networking projects that target urban populations, since networking is mainly thought of as a communications medium, and communication is often synonymous with negotiation. However, computer networking projects often take more from the model of saving the community by providing ready-made pre-

packaged answers, than by helping the community find new strategies for internal negotiations.

There are literally thousands of other BBSs. In 1993, one estimate put the number at 45,000—and growing—that are accessible to the public through dial-up connections (Lambert and Howe, 1993, p. 23). This estimate also states that there are over 10,000,000 active users on these BBSs, with the number growing at a rate of over 9,000 per day. Most of these systems focus mainly on servicing users from a local telephone area code which usually incorporates many municipalities, but a large number of BBSs also provide services to users at the national and international level usually via Internet-access. The vast majority of these systems are designed for people who have a particular shared interest or association that does not include living in proximity to one another. These types of users make up “virtual” communities. A limited number of other networks are designed to address the needs of a constituency in a particular city, but rarely do they focus exclusively on a particular neighborhood, and it is even more rare when the neighborhood of focus is economically disadvantaged, as is the case in MUSIC’s target group.

MUSIC is a type of network that is best described as a “Neighborhood Network.” Anne Beamish (1995) recently described this type of network in the following way:

A second model for community networks, of which there are few examples, is the small-scale bulletin board which usually focuses on a particular neighborhood rather than a city. These bulletin board systems (BBSs) are frequently scaled-down versions of city networks and can either be stand-alone systems or parts of larger city-wide networks. They are usually established by an individual who runs the system from their home with a modest investment in hardware and software, or

they can be run by a small group of community activists. Neighborhood BBSs focus on an even more local level of information and discussion and emphasize community development; they have the advantage that participants often know each other personally. Their disadvantage is that the system's existence often depends on a single individual. (Beamish, 1995, p. 75)

Even though there are an enormous amount of BBSs in existence, there are few that focus on the type of neighborhood approach that typifies MUSIC. As Beamish points out, since these types of system usually depend on a single individual or a small number of individuals, their existence is usually tenuous. This also implies that information about them is not as accessible as it would be if a larger group were involved or if the critical individuals took it on themselves to publish their work widely. However, even though this situation has disadvantages, if we approach the issue from another angle this situation also has its advantages.

When a network's existence is dependent on the support of individuals at the neighborhood level, it can become more connected to the neighborhood's personality and internal dynamics. This can foster more neighborhood ownership over the network, which is an important part of the "information commons" ideal. In fact, this is what connects the MUSIC network to the model of social constructionism. The social relations and cultural materials in a particular neighborhood must be rallied through various sociocultural activities and processes to keep the network alive.

Almost all BBSs provide a method for people to communicate via Email and discussion groups, and usually they provide some type of access for people to a database or some other store of information. As long as people see

these as valuable services people will continue to use these types of networks. However, this type of usage is not necessarily functioning to improve the social setting in which the users live. For that to happen, the networks must take an approach which supports their users developing active social constructions in their neighborhood setting. The commonly used networking paradigms of “information highways” and information “surfing” or “browsing” do not necessarily support this type of focus.

When a BBS is run by a large organization or by a group of professionals who can better guarantee its continued existence, the BBS starts to acquire the status of an institutional entity that is supplying something to the constituents who take advantage of it. Unlike the information commons model, this institutional model of network providers does not encourage those who use these BBSs to see themselves as the defining entity and driving force behind the networks existence. This raises the problem of the network providers becoming outside forces in the lives of the people who use the systems. These outside forces become the expert fixers or the active producers on the system, while the users become the passive recipients or consumers of a product. This is not a model that can foster active and engaging urban communities.

10.4 The Content-Free Approach in Computer Systems

Computer systems which focus on pre-programmed, pre-packaged applications will continue to foster feelings of helplessness and intimidation in people without technical backgrounds unless they change their focus.

However, the tool is not the problem, it is focus that is offsetting. A different type of approach to using computer technology has resulted in more widely received applications. This different approach involves “content-free” applications. These are applications like word processors and spreadsheets, whose primary function is to provide a context for the user of the system to put her or his own content. Unlike programs that lead the user through many pre-determined steps for a pre-determined purpose—like educational software or expert-systems—content-free programs can often become valuable enabling tools for both the technical and the non-technical user. The user, and not simply the programmer of the system, is a creative force when at work with the application.

The Logo programming language is a type of content-free application. Some educators have expressed frustration at this because educational objectives often rely on pre-packaged learning materials. But Logo’s advocates argue that such a feature makes the system especially powerful as an epistemological tool that can support any learning style. The fact that it is driven by the creative endeavors of its users—which is what constructionism is all about—is what makes Logo such a success among children of just about any age.

Many find in Logo their first opportunity to work with mathematical ideas in the kind of broad brush intuitive style that comes naturally to them. They are not led by Logo into conforming to the planning style even more closely than school already tries to make them do. On the contrary, in Logo they find liberation from a style that distorts their natural way of being as surely as forcing left-handed children to use their right hands. (Papert, 1985, p. 59)

The MUSIC systems relies most heavily on the content-free approach. The system is made up of word processors, chat and Email tools and data storage facilities. The system relies on the user to fill it with the important content to be shared among the local community. It is this type of approach that often makes computers accessible to just about everyone who can manage the keyboard. Yet, with MUSIC, if the keyboard is a barrier, then you can use it by just talking into the microphone. How to use the tool is a technical contextual question. What the tool is used for is an issue determined by the context of the individual user and the sociocultural factors involved.

The context for human development is always a culture, never an isolated technology. In the presence of computers, cultures might change and with them people's ways of learning and thinking. But if you want to understand (or influence) the change, you have to center your attention on the culture—not on the computer. (*Ibid*, p. 54)

10.5 Resisting Program-Based Trends in the Age of the NII

Recently, Mitch Kapor (1993) and others have raised questions about the proposed National Information Infrastructure's (NII) potential effects on the direction of our society. Will it bring more democracy or less, and how can we make sure it does not divide us into information haves and have-nots? These questions require serious considerations about the forces and philosophies driving the development and dissemination of new information technologies. Furthermore, research investigating the effects of these systems on disadvantaged individuals and communities is urgent.

The NII may redefine what it means to be a part of this society. What, then, will happen to those who have already become alienated from it? Today, if you are without a high school diploma, without a phone, or credit card or bank account, you are excluded from opportunities and activities available in the broader culture. Now, the NII may add even more hoops for the underclass to jump through and dances for them to perform.

Living up to the ideals of true democracy is more than simply a matter of providing access to voting booths and information about candidates or issues. If a large number of the people choose not to vote, something is wrong with the system. If those who do vote do not feel that their issues are being adequately addressed, or if they feel that voting is the limit of their involvement, something is wrong with the system. Democracy is more than just a matter of voting; it is also about people engaging issues collectively and wielding influence as groups with particular interests.

In this country, haves and have-nots are divided by their disparate collective organizational capacities. Sometimes the haves are the middle and upper classes who come together to fight against higher taxes; sometimes they are the technological enthusiasts who come together to push NII in directions that most people do not even know exist. But the poor are always the have-nots and they rarely come together at all for technological, political or economic objectives. Suppose the NII brings with it new patterns for organizing information and labor, and suppose these changes are influenced primarily by the lobbying efforts of the haves. Then there is likely to be a

large group of have-nots who will be even more disempowered than they were before these systems were in place.

Empowerment is not simply a matter of access. Important social and cultural factors help to explain why people may choose not to take advantage of crucial resources even when those resources are accessible. Voting is one example of a missed opportunity that can be extremely consequential. Missed educational opportunities which consistently plague poor communities are another. When NII is in place the question may be, "Why do so many people pass up the opportunity to get involved with these networks and take advantage of resources that are available to them only through the networks?"

Part of the answer is that many people think that advanced technology—like the political and academic opportunities they avoid—is for elites, and that only the exceptionally talented need to think about its ramifications. Others have come to believe that they have little to offer, or simply are technologically incompetent. I doubt that this will change with the introduction of the information "superhighways."

To talk about how things might be different we need to look at how the poor have pulled together in the past. The civil rights movement in the South in the 1960's provides a case in point. Thirty years ago, civil rights workers from the North joined together with poor people in the South to make voting rights a reality in a system that was openly hostile to blacks in particular and the poor in general. Southern blacks had been disempowered for so long that many had come to believe that they were not qualified or

competent enough to vote, and many doubted that their vote could succeed at bringing about any real changes.

Yet, after generations of frustration and despair, things changed. In places like Mississippi, where blacks had been especially abused and terrorized, northerners from the Student Nonviolent Coordinating Committee (SNCC) sought to encourage local communities to develop their own leadership, platforms and programs. As southern blacks began to see their own initiatives bringing them together, the act of voting took on new meaning. Voting was not just an attempt at accomplishing something; voting showed you already had accomplished something. Voting was not just to become involved; voting was because you were involved.

As a racist system provided enormous barriers for southern blacks, an elitist system now provides enormous barriers for the poor all over this country. If the have-nots are to believe that their vote counts, that they should take advantage of academic opportunities, or that should deal with the information technology that is rushing towards them, they will have to overcome these social and cultural barriers. They will have to overthrow the idea that experts or professionals are better equipped than they are for making decisions about their lives. The have-nots will have to believe in their own leadership, platforms and programs. With this mind-set, they will not be using the networks to become involved, they will use them because they are already involved.

Proponents of electronic networking have been focusing almost exclusively on how these networks will make it easier for people to get access

to the broader national and international scene. But for fragmented and alienated communities, local issues are often the most essential for pulling together. If networks focus the attention of the poor outside their community, then the networks will provide just one more obstacle to addressing local concerns.

To make the information superhighways of the future more democratic, we need to think like SNCC. We need to look for ways to make networks helpful in promoting local issues and local leadership. We need to try to discover ways that this technology can help neighbors work on projects that affect their lives together. Networking should help people tell their own stories and develop their own programs, not simply help them to consume more of the stories and programs that come from the experts. In this way, networking can help people recapture the magic of a community where everyone is important and each has something to offer.

The future of networking can either continue to disempower the have-nots or it can help turn the tide in their favor. Ultimately, however, the technology itself will not make the difference. Instead it will be the attitudes and philosophy that guide the use of the technology.

What can happen is a technical question. But what will happen is a political question, depending on social choices. (Papert, 1980, p. 27)

If the system is geared toward national issues and away from local concerns, then networking will only be for the experts. If the system is geared toward providing services, rather than helping neighbors provide those services to one another, then it will be used by professionals to produce and

by the rest of society to consume. But if networking can support shared local initiatives, then the information highways of the future can help the have-nots to find their individual and collective voices in a world that seems intent on drowning them out.

10.6 Public Policy Implications

If information technologies are going to raise important questions about formal and informal communication and citizen participation at the local and national level, then clearly these are issues which have critical public policy implications. There is a growing consensus that these issues are similar to those faced early on with the development of the telephone a century ago. The telephone industry was eventually heavily regulated to support a policy of “universal service,” which represented a goal that was never quite completely attained.

As it came to be understood in the 1950s, universal service offered to everyone communications by telephone from their homes (Mueller, 1993). As a new information infrastructure emerges, access to the network is once again on the policy agenda. Yet, while most of the participants in this discussion focus on the technological fog that enshrouds the future, the old question of universal telephone service—who has it and who doesn’t—remains unsettled. (Schement, 1994, p. 2)

Jorge Reina Schement points out that 94% of homes have telephones, and although that number seems acceptably high, the remaining 6% represents 5.8 million households and 15.3 million individuals (*Ibid*, p. 2). Of these, the vast majority are poor, and many are women with small children who suffer excessively from their isolation. If the issue of telephone

penetration is still experiencing these difficulties, one can imagine what barriers will lie in the way of getting people connected to computer networks. Nonetheless, the concept of "universal access" is being debated to address concerns regarding how to ensure that all citizens share some equitable ability to interact with the emerging NII. However, I believe that this is not just an issue that concerns national information infrastructures, but local information infrastructures are at issue as well.

As I mentioned above at the end Section III, we should not allow national, state and city institutions to be the only arenas where participatory government exists. We need to reconsider neighborhood-level government again. In this light, we need to develop public policy that attempts to ensure that local communities will get needed technical and financial support if and when they decide to establish community networks for the purpose of developing local neighborhood infrastructure.

Community network developers speculate that community networks in the twenty-first century will become as common as public libraries are now. Currently they are available only in a few locations and accessible to relatively few users. To promote universal use, community networks must be easy to use, easy to access, and free of structural barriers to their use. In addition, the systems must be reliable and responsive, the user interface intuitive and nonintimidating, and special-purpose interfaces must be developed for those with special needs.

While public terminals are critical, penetration into the home is also important. People must be able to easily and inexpensively participate using one or more delivery channels. Telephone, cable television, and radio as well as other approaches are all possible delivery channels and a certain percentage of any spectrum should be reserved for public use. Community networks must also be able to communicate with one another and with other electronic services using high-quality, low-cost technology. (Schuler, 1994, p. 48)

I think that this outline by Douglas Schuler concerning what community networks are going to have to focus on is a good one. We must attempt to develop public policies that help community groups resolve these types of questions in each of their own unique ways. Finding funding sources is likely to be a critical issue for underprivileged communities, and so it is important that public policies address this concern. In a 1994 telephone survey conducted by the Benton Foundation of 1,000 likely voters it was determined that 76% of this group believes that "Government should require companies that profit from the new [information] technologies to dedicate a part of their resources to supporting community uses and community access to government information." 18% opposed this and 6% expressed no opinion.

Of course, this only scratches the surface of the many concerns that will come up as the networking movement continues to grow. So, in short, I agree with Schement's assessment:

Universal service is so important to the information society that it might be better understood as an information bill of rights. In a democratic society, we might ask what rights to information, and protections from information, belong to all Americans, regardless of their wealth, position, or language. If we direct our energies to answering that question, it should become evident that universal service is not a single policy to be written by a government agency. It is rather a guiding principle of the information society. And, as such, always debated, always tested, and always pursued. (Schement, 1994, p. 7)

Chapter 11: It Takes a Village To Raise a Child

11.1 Remembering the Village

To get at the questions of learning and growing in a healthy context, we must get at the issue of reestablishing the connections and relationships in urban communities that provide an environment that it is more natural for a child to be a child in. Children want to grow up in safe neighborhoods. Children want to know and understand who the adults that live around them are. Children want to know and understand who the other children who grow up around them are. All this can go into helping children to understand who they themselves are. Yet for some reason things do not work this way. Children grow up learning that distrust runs rampant and dangers abound. They learn early on to bond quickly with a few other children who they feel they can trust and then they close ranks to protect themselves. Yet who can blame them, for we have yet to offer them a world where it is safe to build deeply meaningful relationships.

There are a growing number of families which have no father in the household. One might think that the children in such a family would have a difficult time finding an adult male figure to serve as a close friend or a role model. And indeed, it is probably true that it would be very difficult, but not because the right men do not exist. In fact, every child has male and female adult neighbors living nearby who could be deeply involved in that child's life, but they simply are not. Why? No one has time. Everyone is supposed to mind their own business. The kids are not a priority. The results are

devastating, especially for the young fatherless male children, whose sense of themselves and what it means to be a man can be extremely and tragically distorted.

The African proverb, "It takes a village to raise a child," is especially meaningful in this light. Without the context of many deep and meaningful relationships within a family and with other families and other individuals, a child's growth can be impaired. Obviously children need more than simply a great curriculum to develop themselves. They need a healthy social context. As parents and schools blame each other in the current debate over who is failing to properly "raise" the children, I would rather blame the lack of true cohesive communities, which we might as well call villages.

11.2 Children as Social Theorists

Why did so many relationships break down in the first place in urban communities? It could have to do with the requirements of new modes of production in our rapidly changing world, such as the need for increased mobility in the work force and the growing population in urban centers. For the underprivileged, the economy has not provided stable living patterns and perhaps this is also a factor. Incidence of crime, violence and drug addiction are generally on the rise. Whatever the causes, certain breakdown in relations among the young and the old, and between one neighbor to the next, has had devastating effects on social environments. And in turn, these environments are robbing young people of rich developmental opportunities and activities.

How can this be changed? Social constructionism stresses an active model of the subjects who make up the social setting. Passive models that exist tend to de-emphasize the role of the subjects in the development of the social environment. Passive models often focus on prescribing outside interventions which are intended to act as a type of balm in times of social distress. Most neighborhoods include settings where both active and passive models are applied, and there can even be some healthy balance that can be maintained between the two models. For if the residents are passive in areas that are not very critical to the life of a community, that does not necessarily imply that those same residents are passive when the issues are critical. Yet clearly in urban settings, passive models dominate in a disproportionate way, ruling over both critical and less-important concerns. Rather than settings where members see themselves as agents of change, urban communities often represent conditions where residents are looking for extensive outside intervention usually in the form of prescribed services delivered by agencies that are not connected to their neighborhood. As in the constructivist critique of corresponding educational settings, the subject is a passive receptor, rather than an active constructor, which disrupts both the development of the individual and the setting.

Urban residents do not have to be helpless in the face of an unstable social setting. The neighbors can be active forces in their own setting's development, even as they develop themselves individually and interpersonally. If neighbors were able to view themselves as social constructionists, they would be active in developing new social alternatives as they engage in dialogues about their social realities. This would begin to

develop their neighborhood into a community which is empowered to develop its own social theory. Both young and old can develop intellectual models which will inform their sociocultural endeavors. We can begin to see the young people, like Hope, becoming profound social theorists. This is the hope and promise of social constructionism.

11.3 A Retrospective on Hope

Although Hope has overcome enormous odds against her by developing an extended family of her own, her odyssey has not been without continuing difficulties. As a little girl, all Hope had that she could count on was her mother. When her mother's life began to fall apart she tried to hold it together. I believe that she cannot help but feel sometimes that she failed her mother, as little kids who grow up too fast often do. If only she could have been more streetwise and stopped her mother from being stabbed or assaulted. If only she could have kept her grandmother from turning her mother in to DYS. If only she could have figured out how to escape from Boston with her mother when her mother tried to kidnap her, maybe then she and her mother could have stayed together. But none of these issues should have been faced by a seven year-old girl. I am afraid to imagine what abuses Hope faced during those years that I don't even know about yet. But surviving the past does not mean erasing it, so Hope must still find ways to deal with her painful memories and the loss of her mother.

However, on a very hopeful note, I learned somewhat recently that Hope's mother has been drug-free for over a year now in her new life down

south. As I mentioned earlier, Hope has always wanted to be reunited with her mother. Her father did arrange a visit with her mother once, but it lasted only a couple of hours. Hope's father got married to someone else soon after that visit, and this seemed to make Hope feel that her mother would never again be a regular part of her life. So she asked my wife and I to see if we could arrange a longer visit with her mother. Her father consented to my wife and I taking Hope to spend a few full days with her mother, and we made the trip just a few months ago. In my opinion, her mother's recovery was amazing. She was very open about the past, and how far she had fallen, but she was putting her life back together one day at time. She showered love on Hope, but she let Hope know that she could only manage taking care of herself for now. She could not be a full or part-time mother for the time being and she was proud of the fact that Hope's father had come through for their daughter. She knew that many people still refused to believe in her or respect her because of her past, but she still found the strength to be respectful of others and to maintain her own self-respect. I told Hope that I don't know of many people who have mothers who have been able to recover from so much destruction and devastation in their life and still offer so much love and hope. Like Hope, I really believe her mother is going to be all right.

Chapter 12: Epistemology and the Village of Hope

12.1 Laying the Groundwork for the Urban Village Mindset

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 one another and about what their neighborhood has to offer. For example, a family whose oil heater is broken may go cold for lack of knowledge that someone just down the block knows how to fix it. (Resnick and King, 1990)

In this section, we have seen that some of the most serious stumbling blocks to social constructionism in urban environments is the model of program-based intervention that does not make room for neighborhood-based activism, leadership and creative initiatives. Yet, we have also seen that even without the program-based model as a stumbling block, urban communities would probably still lack the cohesiveness of the village model because passive, defeatist attitudes already dominate in the typical instance. I have already suggested that we need to advocate for social constructionism's paradigms in urban settings, but I am also convinced that more than this needs to be done. Before social constructionism can offer an effective vision for how things might be changed, I believe new thought must be given to the empirical nature of the social realities found in any community.

I believe that there is a ontological flaw in thinking that concludes that some neighborhoods are "bad" and some are "good," or that some neighborhoods "work" and that others are somehow "broken." What if the

existence of any particular urban community is a neutral issue, it is neither good nor bad? Instead, what if the good and bad comes only from the projections and impressions embedded in personal opinions? What if it takes only a change of opinion to make a neighborhood that once was thought of as bad turn into a good neighborhood? Then the goal of social constructionism would not be to make neighborhoods good, but instead to encourage neighbors to be more actively involved in the good that exists in their social setting. When a neighborhood is thought of as bad, just as when a child is thought of as dumb, the stigma can be a difficult one to shake. Any social constructions in a "bad" neighborhood are likely to also be thought of as "bad" or at least inferior.

Communities should be thought of as settings with developmental processes that support lifelong growth, learning and problem solving. They are never perfect, like us they are always changing—being born, thriving, struggling, and even dying. And like us, they should not be defined by what they are not, but rather by what they are. As with any person, you can always see rich potential if you are willing, but if you are not, you can always find problems on which to focus. However, negative approaches rarely bear positive results. So why define any neighborhood in purely a negative light? Anything done that is viewed in absolute negativity can be disregarded no matter how many positive outcomes it produces. Papert has argued that many children make breakthroughs in Logo when they stop thinking of a problem in their programs as something wrong, and instead think of it as an opportunity to fix something and learn new things in the process (Papert, 1980, p. 23). Neighbors who have learned to see their own neighborhood as a broken or a bad social setting, have learned to be defined mainly by their

neighborhood's inadequacies, rather than by the positive experiences and future potential in their neighborhood. In this scenario, social constructionism is a useless model.

Our need to be able to face challenges without being overwhelmed by setbacks is why we cannot let any problems exclusively define us. Yet, much of our common understanding of what defines underprivileged communities is determined by what we consider to be going wrong in those communities, rather than by what is positive. This mindset needs to change, for it is extremely disempowering.

In response to this desperate situation, well-intended people are seeking solutions by taking one of two divergent paths. The first, which begins by focusing on a community's needs, deficiencies and problems, is still by far the most traveled, and commands the vast majority of our financial and human resources. By comparison with the second path, which insists on beginning with a clear commitment to discovering a community's capacities and assets, and which is the direction this guide recommends, the first and more traditional path is more like an eight-lane superhighway. (Kretzmann and McKnight, 1993, p. 1)

The fact that the deficiency orientation represented by the needs map constitutes our only guide to lower income neighborhoods has devastating consequences for residents. We have already noted one of the most tragic—that is, residents themselves begin to accept that map as the only guide to the reality in their lives. They think of themselves and their neighbors as fundamentally deficient, victims incapable of taking charge of their lives and of their communities future. (*Ibid*, p. 4)

Kretzmann and McKnight are arguing that rather than evaluate communities based on their perceived problems and needs, we should define communities based upon their positive assets. But we must go further than

simply using assets evaluations to define social groups, we must also begin to look closely at our own definitions and expectations concerning social development if we are going to be free of the false associations that we make when we want to be involved in supporting a social setting. We need to question why we internalize various viewpoints and assumptions which can create positive or negative affectations. We need to addresses whether the activity of neighborhood development is really about focusing on the good in a neighborhood, or simply addressing the problems we want to "fix." How can we ask these questions adequately? How can we think about this type of thinking? This is a question about epistemology, and it is a question that needs to be at the center of urban dialogues.

12.2 Developing a Concrete Epistemological Base

Individual conceptual constructs are influenced by the cultural context of particular social groups, as Papert argued earlier (Papert, 1980. pp. 7-8). Since social constructionism is simply another conceptual construct, the epistemological basis for it must be appropriable across cultural norms if it is to play a viable role in urban dialogues. Furthermore, I believe that this is the case, since the theory is deeply connected to basic developmental experiences that do cross all cultures. The need for conceptual material to draw on such connections was pointed out by Uri Wilensky (1991) when he discussed how concepts develop a more concrete basis for a subject.

The above discussion leads us to see that concreteness is not a property of an object but rather a *property of a person's relationship to an object*. Concepts that were hopelessly abstract

at one time can become concrete for us if we get in the “right relationship” with them. (Wilensky, 1991, p. 198) [emphasis his]

He then compares these relationships in the cognitive domain to social relations between people:

It is through people's own idiosyncratically personal ways of connecting to other people that meaningful relationships are established. In a similar way, when learners are in an environment in which they construct their own relationships with the objects of knowledge, these relationships can become deeply meaningful and profound. (*Ibid*, p. 202)

In this view, developing personal cognitive constructs and shared social constructs are both a function of building relationships. One is internal, the other is external. In one case “objects of knowledge” are involved, and in the other case additional subjects are involved. However, both cases involve profoundly meaningful experiences, and so the mechanisms through which such experiences happen within any given environment are very consequential. These mechanisms are involved with the sociocultural activities and processes in which the members of a setting are engaged.

It has become too easy for us to separate the issues of development in a social setting from the sociocultural realities of the setting itself. When one regards development as more than just getting the right answer, one can understand why a constructivist view would argue that you cannot pour knowledge into a child's head. In a similar way, if social relations and cultural processes are critical to personal and social development it might become clearer why one cannot pour constructionistic relations and processes into a community's social setting. To better understand this, it is important

that we employ theories which address issues concerning the social context of the subjects in question as John Dewey explains in his remarks on the potential for a compelling philosophy of education:

And before we can formulate a philosophy of education we must know how human nature is constituted in the concrete; we must know about the working of actual social forces; we must know about the operations through which basic raw materials are modified into something of greater value. (Dewey, 1964, pp. 3-4)

Yet it often seems to be the case that insights into epistemology often attempt to achieve their formulations in an improbable separation from the realities of the social settings. Evelyn Fox Keller drew attention to one particular case of this when she discussed a branch of psychoanalytic theory known as "object relations theory."

The very choice of the name *object relations* [her emphasis] for a theory concerned with the development of self-other relations, particularly in the context of the mother-child relation, itself reflects the specific failure that this theory attempts to analyze: the failure to perceive the mother as subject. The fundamental flaw reverberates in the theory's preoccupation with autonomy as a developmental goal and its corresponding neglect of connectedness to others. It underlies the tacit implication, common to all psychoanalytic theory, that autonomy can be bought only at the price of unrelatedness. (Keller, 1985, p. 72)

She goes on to suggest that "'objects' need to be redefined as other subjects, and autonomy needs to be reconceived as a dynamic condition enhanced rather than threatened by connectedness to others" (p. 73). In my opinion, the problem Keller identifies within the object relations theory is part of a more general problem existing within many academic theories concerning the 'mind,' 'knowledge' or other things like 'virtues.' Keller offers what to me is a radical model for changing a long-standing false assumption

that these intellectual endeavors often fall into. That assumption is one of 'objectivity' or 'disconnectedness.' I am not implying that objective and disconnected experiences do not exist, instead I am arguing that they cannot be defined in a completely static sense. Keller understands objectivity, like autonomy, as a dynamic process. This has very important significance even for urban social theories, as I shall try to show following certain additional considerations.

12.3 Masculine Bias

Carol Gilligan's work further clarifies and accentuates Keller's point. She examines developmental theories in child psychology, and finds that they overemphasize the form and importance of a certain type of detached reflection in the progressive growth of the child. This unbalanced treatment is a biased reduction which is not at all uncommon in the field as she shows its presence in theories developed by Freud, Erikson, Kohlberg and Piaget.

Attachment and separation anchor the cycle of human life, describing the biology of human reproduction and the psychology of human development. The concepts of attachment and separation that depict the nature and sequence of infant development appear in adolescence as identity and intimacy and then in adulthood as love and work. This reiterative counterpoint in human experience, however, when molded into a developmental ordering, tends to disappear in the course of its linear reduction into the equation of development with separation. (Gilligan, 1982, p. 151)

What causes psychologists to collapse this life cycle of emergent "attachment and separation" into a "linear" theory of "development with separation"? Gilligan shows that it can be traced to an unbalanced emphasis

on the development of the male child. By examining early childhood development through the eyes of object relations theory, it is possible to explore gender-based differences concerning identity formation in a child.

Given that for both sexes the primary caretaker in the first three years of life is typically female, the interpersonal dynamics of gender identity formation are different for boys and girls. Female identity formation takes place in a context of ongoing relationship since "mothers tend to experience their daughters as more like, and continuous with, themselves." Correspondingly, girls, in identifying themselves as female, experience themselves as like their mothers, thus fusing the experience of attachment with the process of identity formation. In contrast, "mothers experience their sons as a male opposite," and boys, in defining themselves as masculine, separate their mothers from themselves, thus curtailing "their primary love and sense of empathic tie." Consequently, male development entails a "more emphatic individuation and a more defensive firming of experienced ego boundaries." For boys, but not girls, "issues of differentiation have become intertwined with sexual issues." (*ibid.*, pp. 7-8)

She then focuses and reiterates:

For boys and men, separation and individuation are critically tied to gender identity since separation from the mother is essential for the development of masculinity. For girls and women, issues of femininity or feminine identity do not depend on the achievement of separation from the mother or on the progress of individuation. (*ibid.*, p. 8)

So masculine assumptions have been involved in a one-sided viewpoint in developmental theories in child psychology. The male child and his progressive conflicts were studied and maintained to represent the universal child—or the abstract child. Since the male child undergoes a prolonged struggle with detachment in identity formation, so too was it inferred that the universal child experienced this. Since the male child did not achieve as stable an internalization of social attachments in identity formation as the female child, this potential was devalued by a field which

neglected the feminine variations. Inevitably a hierarchy was established, and the male tendency to focus on separation and its derivative assumption of disconnected objectivity was valued above the female tendency for attachment and its derivative valuing of proximal or situated reflexivity.

12.4 Dynamic Objectivity

This problem associated with developing a balance between separated/objective and situated/subjective reasoning, was not solely manifest in the area of developmental psychology. For it reached into almost every field of inquiry touched by the scientific method, a paradigm that went far beyond the natural sciences to influence fields such as philosophy and psychology as well.

Beneath these variations, the primary question for all visions of science is how we can know. This question takes two forms: first theoretical—what makes knowledge possible—and second practical—how we are able to achieve that knowledge. Inevitably, the answers to both are linked by the underlying images of mind and nature, subject and object. These underlying images dictate the relation between mind and nature that must be assumed in order to account for knowledge; once assumed, that relation inevitably guides inquiry. Without mediation, commonality, or intercourse between subject and object, knowledge is not possible. (Keller, 1985, p. 18)

This brings us back to Keller's formulation of a dynamic objectivity. We must now recognize that "objective" knowledge about the world cannot be conceived without some connection to that very world of objects. This does not deny separation, but it does deny the view that there can be anything

called complete separation. For a subject to reflect on her or his separation from an object, the subject must still have some connection to the object.

Dynamic objectivity aims at a form of knowledge that grants to the world around us its independent integrity but does so in a way that remains cognizant of, indeed relies on, our connectivity with that world. In this, dynamic objectivity is not unlike empathy, a form of knowledge of other persons that draws explicitly on the commonality of feelings and experience in order to enrich one's understanding of another in his or her own right. (ibid., p. 117)

And again:

Dynamic objectivity is thus a pursuit of knowledge that makes use of subjective experience (Piaget calls it consciousness of self) in the interests of a more effective objectivity. Premised on continuity, it recognizes difference between self and other as an opportunity for a deeper and more articulated kinship. The struggle to disentangle self from other is itself a source of insight—potentially into the nature of both self and other. (ibid., p. 117)

Keller now has offered us a way of seeing a more complex world yet within a more coherent light. Our search for understanding can and must continually be a quest to comprehend what the 'it' is and who the 'I' is. One question begets the other. Both must be a part of the answer to either one. Understanding more deeply the world around us should involve a deeper understanding of ourselves as well.

12.5 A Cognitive Dance

Perhaps it is still unclear why these reflections should be important to social constructionism in urban settings. Social constructionism involves a subject learning to relate something new to something the subject has already

experienced. This learning about things should not be at all disconnected from learning about oneself. As children grow, their ability to understand externally should be informed by their internal searchings. These two quests need not be in opposition to one another, in fact, they form a life-long dialogue which can help us “find that more fulfilling and meaningful type of learning.” The synthesis of these ideas into the form of a dialogue was suggested by Edith Ackermann as she discussed at length the “decontextualized” and “situated” divide. First, Ackermann draws on the strengths involved in striving for separation:

My own perspective is an integration of the above views. Along with Piaget I view separateness through progressive decentration, as a necessary step toward reaching deeper understanding. I see constructing invariants as a flipside to generating variations. Distancing oneself from a situation does not necessarily entail disengaging, but may constitute a necessary step toward relating more intimately and sensitively to people and things. In any situation, it would seem, there is a moment when we need to project part of our experience outwards, to detach from it, to encapsulate it, and then, to reengage in dialogue with it. Separateness and objectification, in this sense, can be seen as provisory means of gaining closer relatedness and understanding. (Ackermann, 1990, p. 9)

Next she acknowledges the benefits to embeddedness:

This view does not preclude the value of being embedded in one's own experience. I share Papert's idea that diving into unknown situations, at the cost of experiencing a momentary sense of loss, remains a crucial part of learning. It is only once a learner has actually travelled through a world, by adopting different perspectives, or putting on different “glasses,” that a dialogue can begin between local and initially incompatible experiences. (*Ibid*, p. 10)

Finally, she demonstrates the need for both:

My claim is that both “diving in” and “backing up” are equally important in getting such a cognitive dance going. How could anyone learn from their experience as long as they are totally

embedded in it? There comes a time when one needs to translate the experience into a description or a model. Once built, the description gains a life of its own, and can be addressed as if it were "not me." From then on, a new cycle can begin, because as soon as the dialogue gets started (between me and my artefact), the stage is set for new and deeper connectedness and understanding. (*Ibid*, p. 10)

Learning should always strive for this "new and deeper connectedness and understanding." In fact, I believe that children who find it difficult to build relevant social connections to the structures or institutions around them, also have a difficult time finding rich developmental experiences which are associated with those structures or institutions. This just goes to reemphasize the point that connections and learning about oneself must coexist with "outward" learning and understanding about anything else.

12.6 Epistemological Pluralism

It has not been my intention in the preceding formulation to reduce female and male experiences to simplistic and opposing conceptual paradigms. I do not wish to appear polarized in my thinking. There are many different styles of interacting and many different personalities shared by both men and women. Yet, when we realize that those who are extremely empathetic and relational as well those who are extremely detached and formal both need relevant social connections, perhaps then we can see why it is so important that learning should always strive for "new and deeper connectedness and understanding." Sherry Turkle and Seymour Papert suggest that in order for this to be possible for all children, style and

personality differences should be embraced and supported. This is what they term “epistemological pluralism.”

The concerns that fuel the discussion of women and computers are best served by talking about more than women and more than computers. Women's access to science and engineering has historically been blocked by prejudice and discrimination. Here we address sources of exclusion determined not by rules that keep women out but by ways of thinking that make them reluctant to join in. Our central thesis is that equal access to even the most basic elements of computation requires an epistemological pluralism, accepting the validity of multiple ways of knowing and thinking. (Turkle and Papert, 1990, p. 345)

In the work of Turkle and Papert, epistemological pluralism is cast in the light of accepting both “hard” and “soft” learning styles. Yet here, we can understand it to mean supporting disconnected objective thinkers and situated reflexive thinkers and everything in between. Different learning styles are equally valid, and they inevitably overlap. Even extremely detached thinkers develop connectedness. Similarly, extremely situated thinkers develop certain disconnectedness. We know this because if a situated thinker were always to stay totally embedded in an experience, as Ackermann shows us, there would be no reflection and no built-up models to apply to other situations. However, as Gilligan demonstrates in her work, situated thinkers do develop rich models and apply them very analytically in real and hypothetical cases. Clearly there is some equally valid range of styles that we all experience in our various intellectual searchings:

To recapitulate, a dynamic conception of autonomy leaves unchallenged a “potential space” between self and other—the “neutral area of experience” that, as Winnicott (1971) describes it, allows the temporary suspension of boundaries between “me” and “not-me” required for all empathic experience—experience that allows for the creative leap between knower and known. It acknowledges the ebb and flow between subject and object as the prerequisite for both love and knowledge. (Keller, 1985, p. 99)

Chapter 13: Conclusion

Our most profound needs involve being able to interact with others and with our environment. As we do this, we grow and develop throughout our entire lives. This growth and development can unite diverse communities through our common struggles to know and to be known. Our different circumstances simply provide us with different contexts to shape and direct our searching. But no context is completely inadequate or lacking, since the power of the subject to find fulfillment in her or his own quest is always within reach.

Fulfillment is in the hand of communities whose residents are active in shaping their own social setting. Encouraging active social models within urban communities, rather than passive ones is what the model of social constructionism is all about. The MUSIC system is an example of a social tool that is consistent with this model. During my use of this and other tools, I have seen many disappointments that have been outweighed by the many signs of hope. The most important signs I saw were the beginnings of better relationships forming between the youth and some of their adult neighbors. As I saw these relationships form, I saw more trust and hope awaken in both parties. From the perspective of a social constructionist, these relationships are clearly a key part of any solution to the problems that exists in urban social settings. As stated earlier, social relations are critical to the development of both the individuals in the social setting and to the setting itself.

This research project has gone through a developmental cycle of its own. The early work centered around apprenticeships, and I structured my work around the model of the samba school. The successes and failures of this project led to new initiatives among the kids which we found difficult to manage without more support from the neighbors. It became clear that to reach out to the neighborhood more effectively and to support the kids' initiatives we needed better tools for building social constructions. Tools for constructionism are simply the technology used to organize activities and create the constructs with which the subjects of a social setting are involved. So the development of adequate tools—such as neighborhood-based telecommunications systems—is key to opening the door to new potential.

In conclusion, social constructionism can help bring to light some of the factors which are involved in deteriorating conditions in many urban settings. With a better sense of the critical role that social relations and cultural materials play, and with models of sociocultural activities such as the samba school where cohesive interactions and activism can exist, it is possible to begin to look at new approaches that support social development in the urban setting. Furthermore, it is essential that these approaches come with appropriate tools that allow both young and old in these settings to be as constructive and as creative as possible.

Life is about exploring and interpreting our inner and outer boundaries. As we internalize and externalize our individual and collective explorations we discover and rediscover ourselves and our combined existence. We find the 'I' as well as the 'We,' and in this discovery, we do not leave what we find unchanged. Instead, cognitive, social and even

technological development takes place. However, to focus this development in the most constructive direction, we need to constantly look for better ways to share and connect together our individual and varied experiences. This is to say that we must always take more seriously the act of building social constructions and we need to take more seriously the act of developing our social settings. For as we do this, we will be helping to develop and renew the potential that abounds within us all.

Appendix A: Statistical data about the Four Corners neighborhood (January, 1995)

An article in the Boston Globe (Luz Delgado, "Restoring Neighborhood Pride in Four Corners," City Weekly, September 26, 1993) revealed the following statistical data about my neighborhood:

- Nearly 20% of Four Corners residents, about 1,350 people, live in poverty.
- 37.5% of the neighborhood's families with children under age 5 live below the poverty line.
- Nearly one third of families with children under age 17 live below the poverty line.
- At 12.4%, the unemployment rate is double that of the city of Boston (6.1%) and 25% higher than that of Dorchester (8.2%).
- Nearly 2,000 residents, 40% of adults in the area, do not have a high school diploma.
- Statistics from Boston police Area C-11 showed that from December 1992 to July 1993 there were 15 aggravated assaults, 35 auto thefts, 15 robberies, 13 burglaries, 10 larcenies and two rapes in the portion of Four Corners that C-11 patrols. (Parts of Four Corners are covered by Area B patrols. Data on Area B was not included in the article.)

A resource assessment recently conducted by a local neighborhood health center revealed the following about Four Corners and the larger Codman Square community that surrounds it:

- The median age of the population is 29.6 years, suggesting a high concentration of young people. In fact, 30% of residents are under the age of 18. A full 42% are under the age of 25.
- Thirty-four percent of households are headed by single parents.
- While the mean household income is \$35,000, some 48% of households have incomes of less than \$20,000.

Officials at a local court that incorporates Four Corners gave the following two statistics:

- Seventy-two percent of juvenile cases live in families that receive public assistance.
- Fully seventy-nine percent of adult cases have less than a high school diploma or GED.

Furthermore, this neighborhood has seen an increase in violence that has resulted in killings over the last year. In fact, just about a year ago one of the young people in Four Corners who was a good friend of mine was shot to death.

During the past six years that I have lived in Four Corners I have seen these problems from the position of one of the neighbors. The devastation I have witnessed is appalling. I personally know eight teenage boys who have been shot and survived since I have lived there. Three others were shot and killed in my neighborhood during the same time. One adult male was stabbed to death during that period. The rapes and domestic violence are less openly discussed, so I do not know much about those occurrences, but most statistical reports suggest that such instances are growing. A year ago a bullet was shot into my car, and three years ago three bullets were fired into the home of the pastor of my church. More bullets were fired into his home this past month. I know some of the boys who sell drugs and I have come to know many of the addicts. Two women who are good friends of mine have had their children taken away by the Department of Social Services (DSS) because they were involved in prostitution and led drug addicted lifestyles that actually endangered their children on occasion. Two other women I knew died of alcoholism—cirrhosis of the liver—and one man I knew well and another who was the father of a friend of mine died of AIDS recently. Another friend and neighbor of mine is currently HIV positive. I know countless young boys and a few young girls who have been frequently arrested, and I know many who are in jail right now. And of course, I know many who have dropped out of high school and seem to have nowhere to go.

Appendix B: Sample messages from the community computer network

From: Cynthia
Date: 10-01-93, 1:54:41 PM
Title: hi al
Sent to: Alan

Hi Alan,

We are having fun already. Omari has sent out about 6 messages and helped me to give my icon a hair cut. We also introduced ourselves to Bob Thornell and told him about the paintings we made with ink berries from the edge of his yard-sticking out of the fence.

Omari already can recognize two new words "send" and "log on". This is going to be helpful for his reading skills as he sends his messages and dictates messages for me to send. Thanks again!

Cynthia and Omari

From: Mark
Date: 10-06-93, 9:47:23 PM
Title: Fix It
Sent to: Alan
CC: Michelle, Boston Globe, Jack, Mike, Anna, Valerie, Frantz, Michael, Bob, Tiffany, Theresa, Rocklyn, Eva, Jay, Gene, Cynthia

I noticed the street lights were out in Four Corners the other night. Spooky. They are fixed now.

The police have a new deal where you call them to report basic neighborhood problems. They fill out a report and fax to the appropriate city agency.

Call the Community Service Office at B-3 343-4700 to make a report.

Lets see how well this service works.

Mark

From: Mark
Date: 10-06-93, 10:50:46 PM
Title: Crime Watch
Sent to: Alan
CC: Michelle, Mike, Anna, Valerie, Frantz, Michael, Bob, Tiffany, Theresa, Rocklyn, Eva, Jay, Gene, Cynthia

Crime Watch

When and where do we want to have our next crime watch meeting?

Mark

From: Mark
Date: 10-11-93, 7:55:13 PM
Title: Crime Watch Working
Sent to: Alan
CC: Michelle, Jack, Anna, Valerie, Veronica, Frantz, Michael, Bob, Tiffany, Theresa, Rocklyn, Eva, Jay, Rivers, Cynthia

Neighborhood Notes

An example of a crime watch working!

My apartment was burgulized!!!! Three men went into the window at about 1:00 PM during a week day. My neighbor saw was standing on the porch and saw them go through the window. She called me at work and sent someone around the corner to a local Minister. I called the police and headed home. By the time I arrived the Minister and the police were on the scene. We got a describtion from the witness. And we found out they went "that-a-way".

The Minister went with the police in the direction of the suspects. One of them and the stolen goods were found around the corner. The police helped me carry the goods back home. I was back at work within the hour. Home secure and one suspect under arrest.

That is only half of the story!!!! To finish the job you have to work with the court. Last week this young man case came before Dorchester District Court. The Minister, the witness, and I were there to make sure the suspect received justice. Justice in this case is get the young man attention and push him into taking responsibility for his life.

Stay tuned for more information on the other two suspects.

Mark

From: Mark
Date: 10-20-93, 10:54:28 PM
Title: Jobs
Sent to: Alan
CC: Michelle, Jack, Mike, Anna, Valerie, Frantz, Michael, Bob, Tiffany, Mitchel, Theresa, Rocklyn, Eva, Jay, Cynthia

JOB POSTINGS

1. Youth Worker. 10 hours/week for 10 weeks. Work with youth who learning computer skills. Some of the training happens a the Computer Mus. You need to be quick on your feet and good at working with youth. Computer skills nice but not required.

2. Cheif Opperation Officer at Codman Square Health Center. Ideal person has:

understanding of how a clinic operates
STRONG!!!! management skills
culturly appropriate
lives in this community

Contact Bill Walczak 825-9660.

Mark

From: Mark
Date: 11-06-93, 5:22:07 PM
Title: Our First Meeting
Sent to: Alan
CC: Michelle, Billy, Mike, Anna, Valerie, Frantz, Michael, Tiffany, Mitchel, Theresa, Rocklyn, Eva, Jay, Karen, Rivers, MGills, Cynthia

Neighborhood Notes

SAVE THE DATE!

11/22 seems to be the best day for the Harvard Street Neighborhood Association meeting.

That makes the 4th Monday the regular meeting date.

Stay tuned for proposed agenda, time, and location.

Should we name it Harvard Street Neighborhood Association or Harvard Street Neighborhood Council?

Mark

From: Omari
Date: 11-15-93, 5:22:34 PM
Title: hi auntieeva
Sent to: Eva

Hi Auntie Eva

If you get some blocks you can have fun too. My mom and i are working on my blocks. What are you doing today? Are you going to do children's church on Sunday? I think so. I hope you have fun.

love omari

From: Eva
Date: 11-11-93, 10:52:04 AM
Title: hi
Sent to: Omari

Hi Omari,

Thank you for sending me mail. I hope you have fun making blocks with your mommy.

From: Tiffany
Date: 12-01-93, 10:07:40 PM
Title: Network ?
Sent to: <The Server>

Hi, Alan, Michelle and Chinua!

My first full-time MUSIC experience! I love it. Thanks so much, Alan, this is such a wonderful way to communicate with everyone.

I have a small technical question, Alan (or Michelle - my deaconness is BAD). How do I change my icon (Tara and I look like twins)? No rush, get back to me when you can. God bless.

Tiffany

From: Michelle
Date: 12-14-93, 5:16:46 AM
Title: Keep an eye out
Sent to: Bob

Hi Bob,

I haven't written for awhile. It's almost Christmas time. We are going on vacation from December 19 through December 30. Jay will also be gone during most of that time. Can you keep an eye on the house for us? If there is a problem you can call a friend of ours who lives on Wheatland. Her name is Valerie, she is also on the network. She will know how to reach us. Thanks. Merry Christmas.

From: Jay
Date: 12-14-93, 11:26:32 AM
Title: OH!OH!OH!
Sent to: Bob

Hi Bob

Seasons Greeting, I trust we will see you at the Christmas party on saturday at the Holmes School. Oh! my main reason for writing you was to tell you about the packages the UPSman dropped off at our house. The packages are in the front entry-way you can ring the first floor or send floor door bells to pick them up.

Omari would like to send you a message also. Omari is a four year old system user.

oh! oh! oh! oh! oh! MERRY CHRISTMAS MR!THORNELL

From: Valerie
Date: 12-14-93, 10:54:41 PM
Title: PRE-CHRISTMAS GET TOGETHER
Sent to: Alan
CC: Michelle, Ranica, Omari, Anna, Veronica, Jeff, Mark, Rocklyn, Eva, Rocky, Sharon, Jay, Kaye, Ethorne, Karen, Rivers, Cynthia

Praise the Lord! There will be a Pre-Christmas celebration on Thursday. All are welcome, but don't feel obliged. The fun begins at 6pm. Hope to see you! Love, Peace and Blessings!

From: Cynthia
Date: 01-30-94, 11:06:28 PM
Title: Re: Meeting Review
Sent to: Mark
CC: Alan, Alex, Anna, Bob, Eva, Frantz, Jackie, Michelle, Mitchel, Rivers, Rocklyn, Tiffany, Valerie, Vanessa, Veronica

***** Responding To: *****

From: Mark
Date: 01-30-94, 3:33:12 PM
Title: Meeting Review
Sent to: Alan
CC: Alex, Anna, Bob, Cynthia, Eva, Frantz, Jackie, Jay, Jeff, Karen, Michael, Mike, Mitchel, Rivers, Rocklyn, Theresa, Tiffany, Valerie

Neighborhood Notes

The Havard Street Neighborhood Council has its second meeting last Monday. I feel it was an OK meeting. We have a real problem with time. There is not enough of it!

Possible solutions

1. shorten the agenda - BUT REMEMBER

people have a lot say (which is good!)
we need to promote conversation
we are never able to start on time

2. make the meeting longer - BUT REMEMBER

it is not fair to keep people in meetings
too late

3. have two meetings a month - BUT REMEMBER

too many meetings is time consuming

4. have a follow-up committee deal with details and save the larger meeting for discussion and education

ALSO ANOTHER THOUGHT

How about splitting the meeting in half -

Part I Information and discussion
Part II Discussion

Any items requiring follow up go to the follow up committee.

What do you think? These ideas are not mutually exclusive.

Mark

hi.

I thought the meeting went well too. but i agree with alan that the city people have too much to say. i wonder if we could figure out a way to give tony fonseca his 45 minutes. just before alan made his comment about neighbors needing air time, i commented to val that it was a little odd that at both meetings the people who were doing the most talking and volunteering were police people. i'm glad that they are enthusiastic and want to be helpful. judy roderick also asked me if we would ever be having meetings without police there. i told her i didn't know and to talk with you. i would guess that it might be helpful from time to time.

as for the business of meeting length, i think that having a definite ending time is a good thing. i don't think we can start much earlier, though we could poll people about that before the next meeting. i also think that having snacks and baby sitting is good.

we might need to shorten the agendas and figure out a way to get people who come regularly hooked up to MUSIC. that way we could get out info, such as what is happening with the bridge, etc. before a meeting and use the meeting time to decide what we should do about the information. i know this might present practical (\$) problems, particularly if the group grows, but i think that the more info people can review before the meeting, the more meeting time can be spent on deciding things.

sending out notices/mailings might be another way but i know that would take more time and resources than sitting in front of the terminal and sending off a memo every so often.

i think that 2 meetings per month would be too much. but, again, if we could get things going electronically, we might be able to get work done in between meetings. That might also be a way for people to "caucus" about particular issues/activities in between meetings. (we might assign different topics to different people to ensure that you don't have to do all the initiating of conversation.)

i'll copy this note out to folks to see what they think. if anyone has comments, you can respond to me and also cc: your comments to Mark.

until later,
cynthia

From: Mark
Date: 02-24-94, 5:45:58 PM

Title: MUSIC IS GOOD

Sent to: Alan

Alan,

I was just thinking about what makes MUSIC so great! It is better than other networking schemes (like the Internet and CompuServe) because it is actually based in a real community, neighborhood, and village. The virtual network is just that - virtual, not real. Then the faces, homes, and maps brings you closer to the people you are talking to.

When I am sending stuff to Azusa folks it just like a fellowship gathering. Sending this note to you is like talking to you. I would say this system makes a major contribution to building community.

Mark

From: Mark

Date: 03-06-94, 10:58:22 PM

Title: Neighborhood Notes

Sent to: Alan

CC: Alex, Bob, Cynthia, Eva, Frantz, Jackie, Jay, Jeff, Karen, Mark, Michael, Michelle, Mitchel, Rivers, Rocklyn, Theresa, Tiffany, Valerie, Vanessa

Neighborhood Notes

I. I think the last meeting of the Harvard Street Neighborhood Council was a success. It was a JUST US meeting. No police, politicians, or leaders to talk at us. It was us talking with us. We are developing a MO and an agenda for the group. The task before us is to refine the MO and execute the agenda.

II. The MO. Residents talking to each other. Trying to find ways to work together. I thinking of things like: pot lucks, street cleaning, taking children to the park during school vaction, this computer network you are reading ...

III. The agenda. All the things that need to be done. I am overwhelmed at this! There is the stop signs, the traffic light, the sidewalks, the bridge, the crime, the fundraising, the youth programs ... We need help!

IV. The Follow-up committee. The next meeting would have been March 7, the first Monday of the month. But a few folks can not make that date. We would like to move the meeting. We would meet with the Officer Anderson Initiative (OAI) for this month. OAI is a effort to combine neighborhood association work with street work. More details to come. The meeting is on March 14 at 6:00 at Greenwood, 380 Washington.

V. Next meeting. March 28, 6:00, the Holmes School.

Mark

Appendix C: The Collected On-Line Poems of Kaye Evans-Lutterodt (Age: 13)

SEASONS GREETINGS

By Kaye Evans-Lutterodt

Sitting with my back
to the old oak tree

In the spring time
I always feel free

Underneath the leaves
that are held by the trees

It is summer
that fills me with glee

Is it because of the cool green
that lay between
my hot and sweaty toes

Or is it because of the hot sun
that beats upon
my head and my old oak's toes

Whatever it may be
that fills me with glee
and makes me feel free

I'm glad it has come to me

WAITING HERE FOR YOU

By Kaye Evans-Lutterodt

Lying here tonight
Lying hear waiting for you
For you to bring me
The golden sun instead of
The cold blue moon

Waiting here tonight
waiting here for you
For you to bring me
The warm sweet kiss the kiss of
The golden moon

Sitting here tonight
Sitting here waiting for you
For you to bring me
The spring time now please hurry
I'm in a bad mood

Not because of the dark
Nor because of the snow
But just because of the cold
So I'm begging you now
O don't you see

I'm begging you
Please come for me

SPRING MORNING

By Kaye Evans-Lutterodt

This morning
I wake up with
the sun in my face

This morning
I ran out the door
in my night clothes

This morning
I rolled around in
the cool green grass

This morning
I sat up against
my old oak tree

This morning
I decided to
write about thee

This morning
I pulled out
my paper and pen

This morning
I wrote about
This morning

LOOKING UP

By Kaye Evans-Lutterodt

Outside it is only
the humming of car engines
that I hear

The cool wind
blows against my face
with the smell
of fire wood in the air

And when I look up
I see small bright sparkles
in the sky

As if someone
spilled silver glitter
on navy blue velvet

GOOD AND BAD

By Kaye Evans-Lutterodt

A blue bird is at my window
where the other birds use to be
Is it good or is it bad?

People going to fight
to fight for the freedom of others
Is it good or is it bad?

Killing tall green beautiful trees
to smug on graphite
Is it good or is it bad?

A rich man trying to ignore
the starving bums
Is it good or is it bad?

Calling the death of an animal a tragedy
when children are dying every day
Is there a good or is there a bad?

SAFENESS WITHIN DARKNESS

By Kaye Evans-Lutterodt

Walking into darkness
into the loneliness

I can't explain my feelings
as I step into the mist

Safeness within darkness
at an unexplainable depth

Do you understand me
I beg you please say yes

Walking into darkness
into the loneliness

Cold and sweeping darkness
with warmth and safeness

Someone can you tell me
how something like this could be?

Do you have the answer?
or no is it within me?

Darkness
O cold darkness
that dances in the wind

Dancing with my safeness
my warmth and lovingness

O I'm walking into loneliness
sadness and despair

But I will not find my darkness
for it is no longer there

My darkness is with safeness
together in the wind

There dancing with my happiness
they're all a friendly kin

So I'm
Walking into darkness
into the safeness

Have you seen three nesses
dancing in the wind

Appendix D: Interview with Mark Scott, a community organizer in Four Corners

Q: What types of organizing activities in Four Corners are you involved in?

A: I am a member of the Harvard Street Neighborhood Council, which is basically a group of neighbors who live on either side of Harvard Street who want to try to improve life in Four Corners. I am also a member of the Azusa Christian Community, which is a church in the neighborhood that is involved in street ministry and evangelizing this neighborhood for Christ. I also do community outreach and education for the Codman Square Neighborhood Health Center, and I work with a number of groups outside of Four Corners as well. And I am on MUSIC, which has been one of my organizing modes also from time to time.

Q: Could you explain how MUSIC has been of use to you and how it has not been of use?

A: Well, I like the idea that I can just log on and send information out to people one time, and it reaches fifteen or twenty neighbors. And I like the fact that people will get back to you when you send them a message and instead of just some quick two-word response, they will write an in-depth response. Basically, MUSIC really has the potential for making my work a lot easier. The only problem is, I can never know when people will log on, so a message that I might send them can sit waiting in their mailbox while the event I wanted them to come to is already happening. At times I will use it a lot, but we have to get more neighbors online and more people using it to really get the benefit from it.

But I think even with the small numbers who use it now, I can tell someone who has an account on MUSIC that I will get back to them with the information they might want online, and then just log on and send Email and not have to worry about tracking them down later. Or if I know about a job or a new program, I can put the information online and whenever I see someone who may be interested I can tell them they can get more details by getting online.

Q: Are there any other ways MUSIC has been helpful to you?

A: Yeah. When people send me mail about something that went on in a neighborhood meeting or about something they want to see happen, then they're letting me know something that I might not hear otherwise. A lot of times people won't let me know what they liked or didn't like at a

meeting and so they just stop coming. But when they can easily drop me a note online about a concern they had, since they're talking to me about their concerns, they're more likely to come next time. It's a great tool to get people communicating more.

Q: How else does communication make your life easy or hard.

A: It's really basic. When I organize a meeting, if I don't know what people are interested in talking about, I can lose people's interest and maybe lose their participation in the next meeting. However, it's always difficult when you wait until a meeting has started already to get everyone's issues discussed. I need to know beforehand in order to set an agenda that has the best chance of letting everyone get heard. And people's feelings get hurt very easily. If they feel they were not contacted beforehand and someone else was, people feel slighted. And I could have just forgotten or lost their phone number or something. But the hurt feelings don't go away that easily. MUSIC makes it possible to let everyone discuss what's going to happen at a meeting before the meeting.

You know that's another thing MUSIC makes easy. I can create a list of people I want to send information to and then each time I send stuff out to the people on that list, I know each one of them will get the message sooner or later and my chances of messing up are smaller.

Q: Do you have a vision for how to get more people involved in community organizing?

A: Well, people have different roles to play, and I have found that a lot of people want to know what's going on, but they don't want to be the ones organizing things. So I don't believe you can ever get everyone to come out to meetings and participate. But that depends on what you're trying to do. More people will come out when there's an issue involved that they feel really affects them. But no matter what, everybody still wants to know about what's going on.

Basically, it's important to get information out to as many people as you possibly can. Some will respond and some won't, but you just got to get it out there and then see what happens. Once you share some information and it's in a lot of people's hands, I think it gains more value and the neighborhood is better off. Since MUSIC helps us get out information to each other, I think it makes our neighborhood a better place.

Q: What types of issues have you seen that have sparked a lot of neighborhood activity?

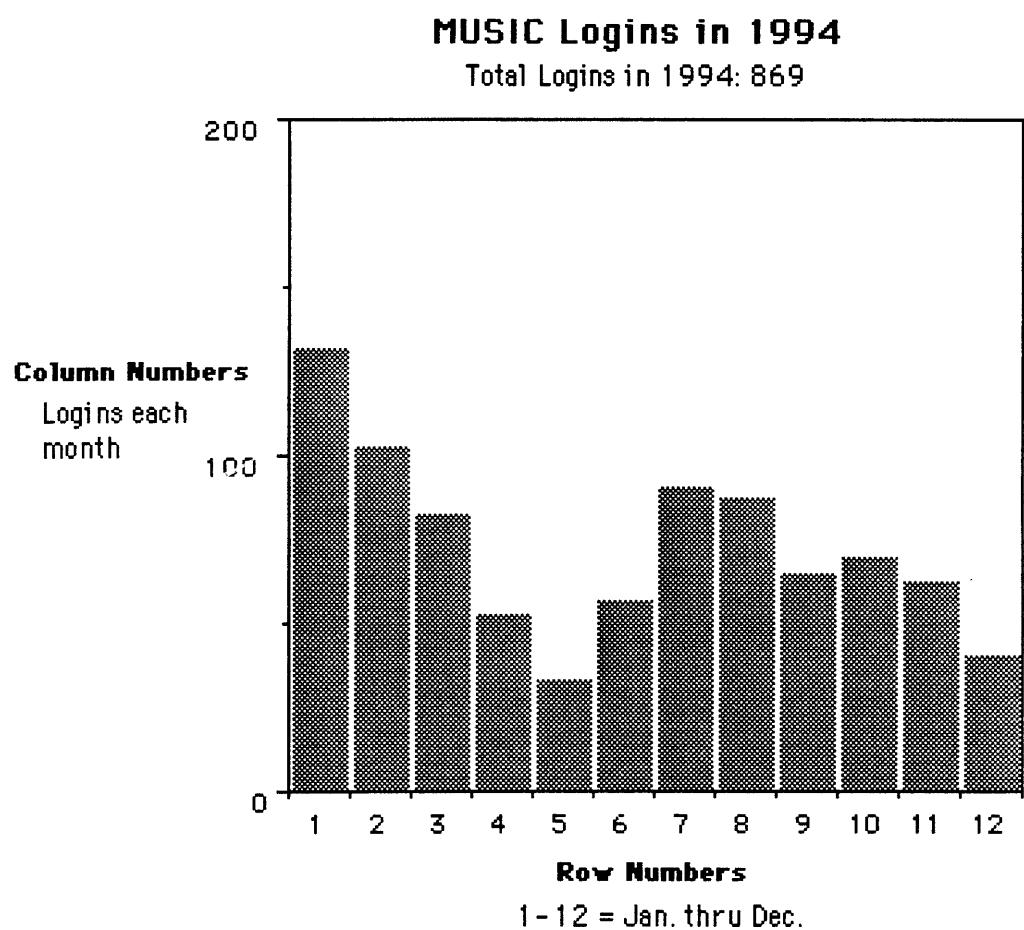
A: Whenever there's some kind of trouble, that's when we'll get the largest turnout. Like if the police mess up, that always brings out a lot of people to community meetings. And the bridge is down, so some people will come out to hear about how the bridge is doing. I haven't seen a lot of other issues that get a lot of people out to a meeting. The normal positive stuff like "let's clean up this lot" or "let's get out the vote," that's just not going to fill a room up with people who want to help.

Q: Do you have any stories about real things that happened during organizing in the community that can help us understand the points you've raised?

A: Oh sure. At a Codman Square meeting a while back people wanted to get a meeting together to talk about the revival of the neighborhood. But the meeting took a long time to happen because the main organizer had problems getting information from people about what they wanted to talk about at the meeting. It took weeks and there were all of these logistical problems to solve too. And people had to wait until they could get together to solve those problems, before they could get together and have the meeting. It's the kind of problem that makes you see you can't solve all of the problems by waiting for the next meeting. We need better ways of communicating with each other inbetween meetings. On MUSIC, one afternoon of Email could have gotten the word out and people could have gotten right back with their concerns and their logistical information. Although something good did come out of all the work put in before the meeting happened, it could really be done a lot easier.

Another time, some people from a cellular phone company and from the city came to tell us they were going to put up all of these relay stations around the city to handle the cellular phone transmissions. And they told us we shouldn't be worried about the concerns some folks had raised about whether the powerful magnetic fields around their antenna's could cause health problems. They said only about 100 watts would be generated and that wasn't a significant amount at all. But then a woman in the community checked up on them and found out that in fact their antennas generate 100 watts *per channel*, and they support as many as 100 channels at these relays. So they misled us at the meeting, but the meeting was over now and she didn't have a good way to get this new information out to people, until a month later when a lot of people had already lost interest. It's that kind of thing MUSIC can help us with. We can't always wait until next month's meeting before we talk about something, but people are really busy and they resist extra meetings, so we need some other ways to get the word out. I think MUSIC is one of those ways.

Appendix E MUSIC Logins in 1994



References

- A Nation At Risk (1983). National Commission on Excellence in Education. Washington, D.C.
- Ackermann, Edith (1990). From Decontextualized to Situated Knowledge: Revisiting Piaget's Water-Level Experiments: *Constructionist Learning*. Idit Harel (ed.). Cambridge, MA: MIT Media Laboratory.
- Beamish, Anne (1995). *Communities On-Line: Community-Based Computer Networks*. Masters Thesis: Massachusetts Institute of Technology, Department of Urban Studies and Planning.
- Bereiter, Carl (1994). Constructivism, Socioculturalism, and Popper's World 3. *Educational Researcher*. 23(7).
- Bott, Elizabeth (1971). *Family and Social Network: Roles, Norms, and External Relationships in Ordinary Urban Families*. New York: The Free Press.
- Carey, Susan and Gelman, Rochel (1991). *The Epigenesis of Mind: Essays on Biology and Cognition*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Chapman, Tracy (1989). SubCity. *CrossRoads*. New York: SBK Record Productions, Inc. (A Music Cassette and CD.)
- Cobb, Paul (1994). Where Is the Mind? Constructivist and Sociocultural Perspectives on Mathematical Development. *Educational Researcher*. 23(7).
- Cole, Michael and Scribner, Sylvia (1974). *Culture and Thought: A Psychological Introduction*. New York: Wiley.
- Delgado, Luz and Buse, David (1993). Shaw & Family Helping to Build Tight-Knit Community: *The Boston Sunday Globe*. Boston: September 26, City, p. 6.
- Dewey, John (1934,1964). The Need for a Philosophy on Education: *John Dewey on Education*. Chicago: University of Chicago Press.
- DiChristina, Mariette (1994). Digital Neighbors: *Popular Science*. October, p. 49.

Felsenstein, Lee (1993). The Commons of Information: A computer pioneer looks at where we've been and where we might be going. *Dr. Dobb's Journal*. May.

Fjermedal, Grant (1995). The Tomorrow Makers: *NetGuide*. January, p. 56.

Freire, Paulo (1982). *Pedagogy of the Oppressed*. New York: Continuum.

Gay, John and Cole, Michael (1967). *The New Mathematics and an Old Culture: A Study of Learning among the Kpelle of Liberia*. New York: Holt, Rinehart and Winston.

Gilligan, Carol (1982). *In a Different Voice: Psychological Theory and Women's Development*. Cambridge, MA: Harvard University Press.

Golding, William (1954,1975). *Lord of the Flies: A Novel*. New York: Aeonian Press.

Gould, Stephen Jay (1980,1982). *The Panda's Thumb: More Reflections on Natural History*. New York: W.W. Norton & Company.

Heilbrun, James (1981). *Urban Economics and Public Policy*. New York: St. Martin's Press.

Illich, Ivan (1970,1971). *Deschooling Society*. New York: Harper & Row.

Illich, Ivan (1973). *Tools for Conviviality*. London: Fontana.

Jones, Quincy (1995). Superhighway links Boston streets: *San Jose Mercury News*. San Jose: February 26, Living, p. 6.

Kapor, Mitchell (1993). Democracy and the New Information Highway. *Boston Review*. October/November.

Keller, Evelyn Fox (1985). *Reflections on Gender and Science*. New Haven, CT: Yale University Press.

Kretzmann, John and McKnight, John (1993). *Building Communities From the Inside Out*. Evanston, IL: Center for Urban Affairs and Policy Research, Neighborhood Innovations Network. Northwestern University.

Kuhn, Thomas (1962,1970). *The Structure of Scientific Revolutions*. Chicago: The University of Chicago.

Lambert, Steve and Howe, Walt (1993). *Internet Basics: Your Online Access to the Global Electronic Superhighway*. New York: Random House.

- Minsky, Marvin (1985,1986). *The Society of Mind*. New York: Simon and Schuster.
- Mueller, M. L. (1993). Universal Service in Telephone History: A Reconstruction. *Telecommunications Policy*. 12 (July), 352-369.
- National Telecommunications and Information Administration (1993). *National Information Infrastructure: Agenda for Action*. Washington, D.C.: United States Department of Commerce. September 15.
- National Telecommunications and Information Administration (1994). *1994 TIIAP Grant Awards: Press Release*. Washington, D.C.: United States Department of Commerce. October 12.
- Papert, Seymour (1980). *Mindstorms*. New York: Basic Books.
- Papert, Seymour (1985). Computer Criticism vs. Technocentric Thinking. *Logo 85 Theoretical Papers*. July, Cambridge, MA: MIT.
- Papert, Seymour (1990). Introduction: *Constructionist Learning*. Idit Harel (ed.). Cambridge, MA: MIT Media Laboratory.
- Papert, Seymour (1993). *The Children's Machine: Rethinking School in the Age of the Computer*. New York: Basic Books.
- Piaget, Jean (1954). *The Construction of Reality in the Child*. New York: Ballantine Books.
- Radsken, Jill (1993). One Man's Computer Project MUSIC to Community's Ears: *The Boston Sunday Herald*. Boston: November 28, p. 4.
- Resnick, Paul and King, Mel (1990). The Rainbow Pages—Building Community with Voice Technology. In *Proceedings of Directions and Implications of Advanced Computing (DIAC-90) Symposium*. Boston: July, 28.
- Rogoff, Barbara (1990). *Apprenticeship in Thinking: Cognitive Development in Social Context*. Oxford: Oxford University Press.
- Rosenfeld, Edward (1995). Insights & Implications: Bringing the Net into the Neighborhood: *Intelligence*. February, 11(10).
- Ross, Elizabeth (1994). Computer Network Links Up a Disadvantaged Neighborhood: *The Christian Science Monitor*. July 18, p. 13.

- Schemert, Jorge Reina (1994). Beyond Universal Service: Characteristics of Americans without Telephones, 1980-1993. *Communications Policy Working Paper #1*. Washington, DC: Benton Foundation.
- Schuler, Douglas (1994). Community Networks: Building a New Participatory Medium. *Communications of the ACM*. Douglas Schuler (ed.). January, 37(1).
- Shaw, Alan (1994). Neighborhood Networking and Community Building. *Ties That Bind: Building Community Networks*. Steve Cisler (ed.). May 4-6, Cupertino, CA: Apple Computer.
- Sherman, Ted (1995). Electronic Neighborhood: Experiment in Inner City Aims to Replace Plight with Byte: *The Star-Ledger*. Newark, NJ: March 29, p. 3.
- Turkle, Sherry and Papert, Seymour (1990). Epistemological Pluralism: Styles and Voices Within the Computer Culture: *Constructionist Learning*. Idit Harel (ed.). Cambridge, MA: MIT Media Laboratory.
- Utne, Eric (1995). Networks Are Not Communities. *Utne Reader*. March/April (68).
- von Glaserfeld, Ernst (1994). Sensory experience, abstraction, and teaching. *Constructivism in Education*. L.P. Steffe (ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Vygotsky, Lev (1978). *Mind in Society: The Development off Higher Psychological Processes*. Cambridge, MA: Harvard University Press.
- Vygotsky, Lev (1986). *Thought and Language*. Cambridge, MA: The MIT Press.
- Wertsch, James (1990). The Voice of Rationality in a Sociocultural Approach to Mind. *Vygotsky and Education: Instructional Implications and Applications of Sociohistorical Psychology*. Luis C. Moll (ed.). Cambridge: Cambridge University Press.
- Wilensky, Uri (1991). Abstract Meditations on the Concrete and Concrete Implications for Mathematics Education. *Constructionism*. Idit Harel and Seymour Papert (eds.). Norwood, NJ: Ablex Publishing Corporation.
- Winnicott, D. W. (1971). *Playing and Reality*. London: Tavistock.