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002N Thomas Building
School of Information Sciences and Technology
The Pennsylvania State University
University Park, PA 16802

The directors of this dissertation are:

Dr. Richard Baskerville
Dr. Duane Truex
Department of Computer Information Systems
Robinson College of Business
Georgia State University
Atlanta, GA 30303-3083

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PROBLEMATIZING THE DIGITAL DIVIDE: CULTURAL AND SOCIAL REPRODUCTION IN A COMMUNITY TECHNOLOGY INITIATIVE

BY

LYNETTE KVASNY

A Dissertation Submitted in Partial Fulfillment of Requirements for the Degree of Doctor of Philosophy in the J. Mack Robinson College of Business in the Department of Computer Information Systems of Georgia State University

GEORGIA STATE UNIVERSITY
2002
ACCEPtANCE

This dissertation was prepared under the direction of the candidate's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree Doctor of Philosophy in Business Administration with a specialization in Computer Information Systems in the Robinson College of Business of Georgia State University.

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ACKNOWLEDGMENTS

Acknowledgements usually include long lists of people who have helped make the work possible. Having struggled through this Ph.D. process, I am tempted to appeal to my sense of vanity, and list the life experiences that have influenced my work. I would also like to go on about how friends and colleagues revived me from bouts of intellectual confusion and despair. But the people who have helped me know how grateful I am. They really don’t need publicity for their parts in my little drama, but I thank the colleagues that I met while on my journey – Leila Borders, Hans Klein, Katherine Kozaitis, Steve Sawyer, Jabari Simama, and Eileen Trauth. I especially want to thank my dissertation co-chairs, Richard Baskerville and Duane Truex, and the faculty of the Computer Information Systems department for cultivating and nurturing my research

habitus.

Finally, acknowledgements usually thank the people that participated in the study for their friendship and free information. Obviously their cooperation made this dissertation possible. After eight months, some are probably sick of my coming around, and some may think this research stabs them in the back. I can only hope that they will read this as a loving critique of what they accept as natural, and that some will continue to accept me as a kind of honorary “around the way girl”.
Table of Contents

ABSTRACT .............................................................................................................................................. XI

I. INTRODUCTION ................................................................................................................................. 1
  1.1 SITUATING ONESELF IN THE STUDY .......................................................................................... 3
  1.2 BRIDGING THE CONCEPTUAL FRAMEWORK TO PUBLIC DISCOURSES ............................... 7
  1.3 FRAMING THE STUDY .................................................................................................................... 10
  1.4 SUMMARY ........................................................................................................................................ 14

II. THE STUDY .......................................................................................................................................... 15
  2.1 SUMMARY ........................................................................................................................................ 16

III. STATEMENT OF INTENT .................................................................................................................. 17
  3.1 SUMMARY ........................................................................................................................................ 20

IV. THE GUIDING RESEARCH QUESTIONS ............................................................................................ 21
  4.1 SUMMARY ........................................................................................................................................ 26

V. A FRAMEWORK FOR EXAMINING DIGITAL INEQUALITY .............................................................. 27
  5.1 INTRODUCING BOURDIEU ............................................................................................................ 29
  5.2 APPLYING BOURDIEU TO DIGITAL INEQUALITY .......................................................................... 32
  5.3 SUMMARY ........................................................................................................................................ 58

VI. REVIEW OF RELEVANT DISCOURSES ......................................................................................... 59
  6.1 DISCOURSES ON THE DIGITAL INEQUALITY ............................................................................... 60
  6.2 SUMMARY ........................................................................................................................................ 81

VII. GUIDELINES FOR APPRAISING ETHNOGRAPHY .......................................................................... 83
  7.1 WRITING THE CULTURE ................................................................................................................. 83
  7.1 SUMMARY ........................................................................................................................................ 86

VIII. RESEARCH PROCEDURES ............................................................................................................. 87
  8.1 UNVEILING THE PHILOSOPHICAL ORIENTATION ...................................................................... 88
  8.2 JUSTIFYING THE RESEARCH GENRE .......................................................................................... 89
  8.3 DESCRIBING THE SETTING ............................................................................................................. 92
  8.4 GAINING ENTRY ............................................................................................................................. 93
APPENDIXES ................................................................................................................................. 275
  APPENDIX A: PERSONAL RESEARCH PROFILE ................................................................. 276
  APPENDIX B: GLOSSARY OF TERMS ............................................................................ 283
  APPENDIX C: LETTER OF INTRODUCTION ................................................................. 284
  APPENDIX D: LETTER OF RESEARCH SPONSORSHIP .............................................. 287
  APPENDIX E: CONSENT FORM .................................................................................. 288
  APPENDIX F: INTERVIEW GUIDES ............................................................................. 289
  APPENDIX G: PARTICIPANT OBSERVATION SHEETS ............................................... 294
  APPENDIX H: SAMPLE OF COMMUNITY PORTAL PROJECTS .................................. 296

REFERENCES .................................................................................................................. 308

VITA ........................................................................................................................................... 321
List of Tables

Table 1: Organization of Dissertation Chapters ......................................................... 13
Table 2: Online Behavior Statistics ........................................................................... 24
Table 3: Mapping from Literature to Study ................................................................. 35
Table 4: Barriers to Internet Usage ............................................................................ 38
Table 5: Education Statistics .................................................................................... 40
Table 6: Atlanta Population Statistics ....................................................................... 42
Table 7: Selected African American Websites .......................................................... 43
Table 8: Atlanta Household Statistics ....................................................................... 45
Table 9: Atlanta Poverty Statistics ............................................................................ 46
Table 10: Barriers to Community Based Technologies ............................................. 55
Table 11: Defining Access ....................................................................................... 65
Table 12: IT Labor Market Statistics for States in the South and Southeast ............. 75
Table 13: Guidelines for Evaluating the Study .......................................................... 84
Table 14: Methods for Collecting and Analyzing Data ............................................. 102
Table 15: Ethnographic Data Trail ......................................................................... 102
Table 16: Sample Concept Card ............................................................................. 111
Table 17: Dimensions of Ethnographic Portrayals ................................................... 85
Table 18: Atlanta Empowerment Zone ..................................................................... 135
Table 19: Grounding Grand Theory in Empirical Observations .............................. 216
Table 20: Mapping Concepts to Propositions ............................................................ 217
Table 21: Themes in IS Power and Control Literature ............................................. 242
Table 22: Publication Strategy ............................................................................... 271
List of Figures

Figure 1: Reproduction in Information Technology ......................................................... 22
Figure 2: Factors for Effective Information Technology Use........................................... 35
Figure 3: Literacy Rates .................................................................................................... 41
Figure 4: Summary of Research Findings....................................................................... 115
Figure 5: The Reproductive Functions of Information Technology ............................... 215
ABSTRACT

PROBLEMATIZING THE DIGITAL DIVIDE: CULTURAL AND SOCIAL REPRODUCTION IN A COMMUNITY TECHNOLOGY INITIATIVE

By

Lynette Kvasny

January 2002

Committee Chairs: Dr. Richard Baskerville and Dr. Duane Truex

Major Department: Computer Information Systems

To promote greater access to information technology, community technology centers have emerged across the US. However, the relationships between increased citizen participation in technology-rich environments and improved life chances are not well understood. Given the situated nature of the problem, ethnographic methods are employed to develop conceptual structures around these relationships. I do so by examining a community technology initiative in a historically underserved neighborhood in an urban municipality.

As access diffuses to communities that were initially excluded, we tend to assume that information technology will naturally improve the life chances of citizens. However it is prudent to challenge this assumption, and examine unintentional effects. Emerging patterns of inequality that incited the community technology movement reflect not only
differences in the structure of access (i.e. the digital divide), but also the crucial ways in which such differences matter (i.e. digital inequality). Informed by Bourdieu’s theory of reproduction, I examine the critical dimensions of digital inequality, which include information technology, as well as cultural, social, economic, and institutional forces.

The findings suggest that community technology centers are endowed with the institutional authority to deliver basic access and training. However, because information technology engenders a monolithic culture that reproduces and privileges American middle-class competencies and ideologies, it is relatively more foreign to the native culture of the target communities. Consequently, those with the greatest training needs receive the least exposure to the technology.

*Light training* is a strategy of assimilation that delivers digital skills, but the social quality of this training leaves upon its subjects the stigmata of catching up. It is conspicuous consumption of training in which life chances tend to be structured by the cultural distance between the information technology and the user. Thus, culture is just as powerful as economic, social, institutional, historical and political forces in shaping life chances. Any effort to redress the digital divide must delve into the absence of hope, the relative economic and educational deprivation, the depression and the social despair that inhabit our inner cities.
I. Introduction

The emergence of a digital divide between information haves and have-nots in the United States has become one of the critical policy issues being raised by academic researchers (Katz & Aspden, 1997), the federal government (NTIA, 1998, 1999, 2000) and the popular press (Browning, 1997). Most of our knowledge about the divide is based on survey research on home computer ownership and Internet access. These studies have found that the divide is most related to ethnic and minority group affiliation, geographic location, household composition, age, education, and income level (Katz & Aspden, 1997); (Hoffman & Novak, 1998); (Hoffman, Novak, & Venkatesh, 1997). Citing these survey results, most of the initiatives to bridge the divide focus on providing computing resources, Internet access, and training to low-income communities.

However, focusing on physical access to technology and training is a rather narrow way to define the problem. Descriptive studies illustrate information technology diffusion patterns, but these studies do not demonstrate how and why these patterns are manifested and sustained. Factors such as sparse economic resources, restricted social networks, and limited literacy skills come to the fore when one examines the ways in which technologies can be used to enhance social practices and life chances for historically disadvantaged communities. Analysis of these factors requires a shift in focus from access to the benefits and quality of use.
Prevailing trends between technology, economic strategies, social interests, cultural values and power struggles are clouding what could be an exhilarating moment for humankind (Castells, 1989; Ellul, 1964; Postman, 1992; Schiller, 1996). While new technologies provide possibilities for material prosperity and social inclusion, deepening patterns of socio-spatial segregation in cities are ushering in new urban forms and processes that Castells (1989) identifies as the “informational city”. The informational city is one that is polarized between highly valued groups on the one hand, and devalued groups threatened with social irrelevance on the other. The information economy has little use for unskilled, uninformed populations, and institutions in low-income communities. Those without access to computers and telecommunications infrastructures, and the skills to effectively use these technologies are essentially locked out of the information society. Scarce opportunities exist to overcome the vicious cycle of poverty, illiteracy, sporadic work, racial and ethnic discrimination, and criminal activity. In the informational city, technology becomes a mechanism for reproducing and deepening social structures and power relations (Moolenkropf & Castells, 1991).

Appropriating the metaphor of the informational city, this critical ethnography examines a community technology initiative in a low-income, urban community. The intent is to broaden and contextualize our understanding of the cultural and social reproductive functions of technology. Just as people reproduce physically over the generations, they also tend to reproduce their social organization. Social reproduction is the name given to this phenomenon. Cultural reproduction occurs as institutions such as schools, families, and corporations inculcate dominant cultural values and norms to the general population, which unwittingly helps to ensure their continued dominance.
Informed by Pierre Bourdieu’s theoretical framework (Bourdieu, 1980), the study describes and explains the role of information technology in reproducing social hierarchies.

1.1 Situating Oneself in the Study

This dissertation structure departs from the traditional dissertation format and tone, but this will be justified later in the introduction. First I need to bring you, the reader, into the study by establishing the contextual background of the researcher (Barley, 1990). In interpretive research, unlike the empirical research tradition and science-based genre, the researcher does not assume a detached objective stance. Rather, the researcher is advised to consider potential biases and to adopt strategies to neutralize their impact on the study.

The first step of this reflexive process is presented as a personal narrative in which I recount the life experiences that piqued my interest in the unintended negative consequences of information technology. Appendix A provides an early writing in which I passionately wrote about my interest in the topic. This exercise provided initial clues that guided the cycles of deliberation that led to the dissertation thesis. Through this discussion, the reader will come to understand how an information technology professional with over ten years of industry experience came to adopt a disenchanted view of technology. This personal account is then linked to broader public discourses to provide a sense of which discourse communities would find the study interesting and why.

Bourdieu states that "a research presentation is in every respect the very opposite of an exhibition, of a show in which you seek to show off and to impress others. It is a
discourse in which you expose yourself you take risks. The more you expose yourself, the greater your chances of benefiting from the discussion and the more advice you will receive. " (Bourdieu & Waquant, 1992, p. 219) Taking Bourdieu's advice, what follows is a personal account that describes how I came to this study.

I was employed as a computer programmer at AT&T during the early 1990’s when the company initiated massive layoffs. In the media, the company came to symbolize the dark side of capitalistic firms - the quest for profits at the expense of workers. This experience profoundly influenced my critical perspective of information technology and business firms. While total classes of workers were put "at risk", the jobs of technologists were protected. Our jobs were so much protected that we were not even offered the "voluntary separation" package. It was extremely disconcerting to arrive at the workplace and see picketers outside of the building protesting the job cuts. I can vividly remember standing at the 6th floor window with my colleagues as we gazed down upon the picketers. The symbolism of it all was awesome. The privileged technologists, sales personnel, and managers both symbolically and physically elevated above the clerks, technicians, and administrative staff. This space between us and them, the consecrated and the condemned, was my first recollection of the digital divide.

While differences in wages and job skills are expected in our highly stratified society, the disconcerting factors were the degree and speed at which technology increased this disparity. Once I became aware of the powerful influence of technology on the life chances of workers, I began to see similar effects in more mundane practices. In my personal life, for instance, I saw an elderly neighbor with a PC and Internet access become crippled because she inadvertently deleted the email icon from the desktop. On
other occasions, neighbors could not load new memory intensive software on their old computers. I also had a neighbor who was given a PC but was not able to afford Internet access or software. While all of these people have the technology, they don't have the requisite skills or economic means to maintain it. Sure the computer manufacturers provide toll-free numbers, but do people with mediocre computing skills have the gumption to call a hotline? Would they have the technical competency to effectively communicate their problems? Based on my experience, they seem to rely on a social network of friends to support their computing activities. However it occurs to me that many people may not have a local support network.

Another personal incident that raised my consciousness occurred as I drove to work one morning. A radio personality on a nationally broadcast urban contemporary radio station was joking about the falling prices of computers. The essence of his joke was that even if companies gave computers away, he (and people like him in the audience) would still not want a computer. The idea was that computers just were not for "people like us". This notion was brought home when I visited a library in downtown Atlanta and found no public computing terminals. However, the public library in my suburban neighborhood has over a dozen public terminals. Adults and children alike walk up to the computers and independently search for materials. Is this just an issue of economics or is this the outcome of more profound cultural proclivities and structural barriers? I began to wonder if inner city residents believe that computers are not for "people like us", would simply installing computers and providing training in their local communities make them haves?
In both the personal and professional realms, technology access did not necessarily equate to being a have. There is something much deeper going on. To date, surveys have framed the digital divide as a technology access problem, but this position often overshadows scrutiny of social, cultural, and institutional structures and practices that might serve to inhibit technology design, acquisition, access, and use.

It is my contention that information technology is a cultural commodity whose influence is spread through economic and political action. As vendors develop new technologies and services, institutions such as government, media, and education play important roles in popularizing them and in giving meaning to them. These are the symbolic politics of information technology in which policies regarding resource allocations, discourses that naturalize the need for technology advancement, and information technology funding and training are being managed globally by government and business leaders. The cultural representations of technology legitimized by the elites seriously influence and structure practices, meanings, usage patterns, and likely impact of information technology for individuals, communities and entire countries.

When discussing cultural representations of technology, Tyler describes culture in the wide ethnographic sense as "the complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society" (as cited in Bohannan & Elst, 1998). Culture is the innate capacity of human beings to define, practice and create a shared way of life. Thus culture is human agency and it helps to shape and explain the human condition. Culture also has deterministic tendencies for how people behave and what people believe. It determines stratification because groups that historically hold resources have been socialized to
manage the distribution of resources in natural and unconscious ways that protect their privileged status. These resources not only include the material computers, networks and data but also symbolic resources such as discourses, decision-making and ideologies about technology. The elite therefore share a common core belief of a ranked society based on criteria aligned with their interests and competencies, and a thirst for wealth and control of these symbolic and material resources. Thus they are best poised to reap the benefits of technology. This is "survival of the fittest" to the extreme.

This line of reasoning suggests questions such as why are stakeholders in powerful positions now deciding to distribute technology to the masses? Whose interests are being served or underserved? Why do people feel compelled to adopt technology even when it doesn't fit their cultural needs? What are the social costs to those who find themselves either unwilling or unable to adopt Internet-based technology? This is the intellectual puzzle that brought me to study the digital divide.

1.2 Bridging the Conceptual Framework to Public Discourses

The term “digital divide” has become popularized and takes on several meanings. Tapscott (1998a), for instance, uses this term to describe the social space between those who have access to computers and those who do not. The digital divide has been used to define disparity in access to Internet-based technology (Daley, 1999), broadband digital services (O'Malley, 1999); (Stepanek, 1999), and content (Tuckett, 1999); (Anonymous, 1999c). The term has also been used to describe "digital third world countries" that lag in information technology penetration (Jarrett, 2000). In business contexts, the digital divide has come to describe the brick and mortar businesses that lack services offered by
online firms (Yang, 1999), and the wage differential between those making their fortunes through technology and those who are losing out (Holstein, 2000).

In each of these definitions, the digital divide assumes a dichotomous view. This is problematic for several reasons. Public policy informed by research that adopts this digital divide philosophical orientation is likely to subside once the technology gap has been narrowed through various programs and policies designed to distribute these resources more evenly. In addition, sole emphasis on quantitative descriptions of who has and who lacks access fuels debates about the degree to which the divide is temporary or permanent, whether the divide is widening or narrowing, or whether a divide exists at all. We have already seen the initial have / have not thesis superseded with the more complacent have now / have later prediction. Proponents of the have now/have later position argue that given enough time, competition will eventually alleviate any natural disparities in the marketplace. From this perspective, such a non-problem as the digital divide would not warrant long-term policy remedies. High profile, short-term injections of government, foundation, or corporate assistance will occur until such time as the technology distribution problem is lessened. Once near universal access occurs, further critical attention to social inequalities that are deeper than descriptions of technology access and use may be stifled.

This type of short sightedness may occur because surveys are not the best tools for answering how and why types of questions. Left unaccompanied by other types of research, quantitative evidence will be used to bolster claims about a closing gap and universal access. The issue however is that the current debate is based on raw numbers devoid of context. Attention must also be given to social constraints such as workforce
literacy, wage differentials, and the inevitable household tradeoffs required in making a PC purchase.

In addition, survey research is crucial for measuring the penetration of computing technologies and access to Internet services (Anderson, Bikson, Law, & Mitchell, 1995; NTIA 1999, 2000); (Bertot, 1997);(Hoffman et al., 1997), but it typically confounds access and use. The question is not “who is online?” but “what are people doing and what are they able to do when they go online”? For instance, the computing experiences for persons relying solely on the computing resources provided by libraries are structured by institutional constraints such as filtering software and impose time limits on computer usage (Lentz, Straubhaar, LaPastina, Main, & Taylor, 2000). Participants are expected to be able to work on the PC independently, which implies some minimal level of digital literacy skills. Thus, while someone has access, what that person can do while online is structured by both individual and institutional factors.

These new patterns of digital inequality will reflect not just differences in the structure of access, but also the way in which economic and political factors make such differences matter. As access diffuses to parts of the public who were initially excluded, dimensions related to the quality of use become important bases by which the benefits of the technology are stratified and exacerbated (DiMaggio & Hargittai, 2001), (2000). People are not treated as equals in the institutional spheres that affect their life-chances: in their education, in their work, in their consumption opportunities, in their access to social services, in their domestic relations, and so forth (Outhwaite & Bottomore, 1993). It is therefore naïve to just assume that information technology will overcome age-old problems of social stratification.
The theoretical framework that informs this social inquiry is Bourdieu's theory of practice. This framework provides a set of “thinking tools” for uncovering the most profoundly buried organizational structures and mechanisms that are used to ensure the reproduction of social order. Rather than suggesting hypothesis for empirical testing, this theory provides concepts that can be used to uncover mechanism which reproduce inequality. Chapter 5, A Framework for Studying Digital Inequality, details this theory.

### 1.3 Framing the Study

With the context of the study established, this section provides an overall sense of the organization of the dissertation. This dissertation presents my clearest articulation of the research process. The research genre and the topic did not lend themselves to a tightly structured study that could be fully designed \textit{a priori}. Instead these research components suggested an emergent design in which I was forced to adjust the research approach based upon the incremental knowledge gained during fieldwork. Emergent design strategies are especially common in qualitative studies in the critical and interpretive tradition when the goal of the research is to demonstrate the intricacies of a social phenomenon (Schwandt, 1997).

Other authors also attest to the difficulties inherent in conducting ethnographic research. For instance, Stewart (1999b) states that formalization of ethnographic inquiries is radically limited by the flexibility of the investigative process and by the uniqueness of each research situation. The major difficulty stems from the fact that the ethnographer initially assumes the role of a learner (Agar, 1996). The informant acts as the teacher providing guidance, instruction and evaluation of the ethnographer's performance. Even when the ethnographer wants to test hypotheses, she just doesn't
know the variables and operationalizations up front. They must grow from an understanding of the local group. She can't specify an interview guide because she doesn't yet know how to ask the questions. She can't define a sample because she doesn't know the range of social types and which ones are relevant to the research topic.

As stated previously, there is relatively little empirical research literature on the digital divide. Hence most of the literature used to support the study is not contained in peer-reviewed academic journals. For a novice researcher, this lack of prior research is a double-edged sword. On the one hand, I am able to establish a distinct research niche. On the other hand, the complexity of the dissertation process increased because there was scant research on which to build. Thus, situating the study in relevant information systems research stream was quite problematic initially. It was not until the data analysis began that I was able to draw linkages between this study and the information systems literature.

For these reasons, crafting the dissertation was extremely tenuous but this did not preclude me from conducting a well-executed study. This dissertation must convince the reader of the importance of the topic, the appropriateness of the theory base and research genre, and the significance of the contribution to knowledge. While I address all of the critical issues found in traditional dissertations, the thesis is presented in a format more conducive to qualitative inquiry. Because qualitative research is unstructured, the results unpredictable, and the outcome uncertain, I could not write a WYSIWIG proposal or dissertation (Morse, 1998). For instance, in the early stages of the research, I couldn't project what the outcome would be or to promise exciting results. As an ethnographer, I assumed the role of the learner, not the authority in the study. I was also the primary
research instrument and as such I had to adapt to situations that I found in the field. The actual data collection and analysis techniques employed in the field differed from the proposed research approach. Therefore, to present this dissertation using the standard chapters such as Statement of Problem, Methodology and Review of Relevant Literature was inappropriate because these suggest formalisms such as research models, hypothesis and operational variables that did not exist until late in the study. The actual results emerged over time from my learning and growth during the study. Like most ethnographers, I embarked on this project with little more than a handful of general questions and no strongly articulated hypothesis. Far more important for determining the study’s focus were personal interests and the circumstances of my location in time and space (Barley, 1990).

The general structure for this document (see Table 1) follows from this evolutionary process. Adapted from The Qualitative Dissertation: A Guide to Students and Faculty (Piantanida & Garman, 1999), this framework guides the reader slowly into the study, starting with a broad picture of the research intent, moving on to the details on how the inquiry was conducted, and concluding with a portrayal of the results. With this approach, the reader can better follow how the actual research emerged from a personal interest. In order to complete a dissertation, I had to start with a topic that roused a passion and that was social relevant. This provided me with the staying power to complete a long-term field project. In addition, this work was done rigorously and ethically because I was genuinely interested in the welfare of my informants, and I was dependent on their participation. Without the cooperation and trust of the people in the field, I could not have completed the study. I had to do right by them if I was to gain
their trust and build rapport. And perhaps, in some small way, this work might touch their lives.

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<td>A Framework for Examining Digital Inequality</td>
<td>Provides a summary of the theoretical constructs that inform the study</td>
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<td>Connects specific aspects of the inquiry to broader bodies of knowledge</td>
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Table 1: Organization of Dissertation Chapters
1.4 Summary

This chapter provides an overall summarization of the study. The study is brought into context by introducing the author to the reader through a reflexive account of how the researcher came to study digital inequality. The research topic is motivated through a personalized account, which is then linked to broader conceptual models of reproduction and public discourses about the digital divide. Once the context of the study has been established, the author provides an overall sense of the content and organization of the remainder of the document.
II. The Study

The digital divide is often used to describe the differences between those who do and those who do not have access to the potential economic prosperity fueled by great advances in information technology. To help close this gap and promote access to new media and Internet-based technologies, community technology centers have emerged across the United States. Community technology centers are public facilities that provide basic access and technology training to local residents. However, the relationships between community technology centers and increased citizen participation in technology-rich environments are not well understood.

Given the situated nature of the problem and the lack of real understanding of the phenomena, I employ ethnographic methods to develop some conceptual structures to help understand this relationship. I do so by examining a community technology initiative being launched in economically depressed neighborhoods in a large urban city. This study examines one of the first and perhaps the largest effort to be mounted by a municipality to redress the digital divide. The city’s strategic focus on information and communication technologies provides an advantage in developing new technologies and attracting new businesses. Consequently, it is important that all citizens have the knowledge and tools to become skilled in the use of these new technologies.
Informed by Bourdieu’s theoretical framework, the study goes beyond describing the digital divide to analyzing digital inequality. The concept of digital inequality was appropriated to signify a shift and distinction in focus from access to use of information technology. Digital inequality helps to explain how disempowerment, poverty, political inequality and, ultimately, social disenfranchisement are reproduced through information technology access and use. This is critical research that presents a multi-voiced account of the nature of digital inequality and what it means to be a user.

The study unveils the critical cultural, social, economic, historical and technical dimensions that contribute to digital inequality, demonstrates how and why these critical dimensions vary among social groups, and theorizes the mechanisms by which these critical dimensions reproduce existing social hierarchies. In addition, the study explores the role of institutions and actors in shaping these outcomes.

**2.1 Summary**

This chapter provides a concise synopsis of the study. Through an ethnographic account of a community technology initiative in a large urban city, this social inquiry contextualizes digital inequality, a social phenomenon that is typically analyzed quantitatively and from a non-theoretical perspective. The intent is to provide deeper insights into how the technical apparatus as well as cultural perceptions and practices regarding technology may unwittingly reproduce inequality under the aegis of universal access and use.
III. Statement of Intent

This study problematizes the received discourse regarding the digital divide through an analysis of the relationships between a community technology center and increased citizen participation in technology rich environments. By problematize, I mean to question and consider how digital inequality is both a cause and symptom of larger social problems. I want to complicate the received wisdom regarding the digital divide, to show that this definition is not self-evident, and to unveil assumptions that need to be reconsidered. I want to shift the focus from disparity in access to disparity in use of information technology.

For instance, much of the extant literature unproblematically equates access with use. The theoretically universal competence granted to the users of information technology is in reality monopolized by a privileged few. Competent actors are able to derive greater profit from information technology because they have a practical mastery of the dominant culture that can be tacitly adjusted to reproduce their relation to power. Hence, it is problematic to confound access and use because employing technology is not simply the execution of pre-existing domain knowledge. It is a much more complex and creative activity than existing models of the digital divide would suggest. An advertisement produced by the Turning Point Project captures this ethos of information technology as a tool to further empower the powerful.
The Internet and computers may help us feel powerful, but while we’re emailing and networking among our virtual communities, global corporations use these instruments at a scale that makes our use pale by comparison. When they hit their computer keys, they can move billions of dollars instantly from banks in Geneva to, say, Sarawak, and a forest gets cut down. Or, they may buy billions in national currencies only to sell them again a few hours later, causing wild market fluctuations and currency crashes…. While we move information, they express power. There’s a difference. It’s not just who benefits from this technology; it’s who benefits most. (The Internet & The Illusion of Empowerment)

Thus power and empowerment do not reside in access to information technology but rather they are defined in and by the macro level institutions that create belief in the legitimacy of the technology. An institution is not an organization per se, but the set of relatively durable social relations that endows individuals with power, status, and resources (Bourdieu, 1999). Select actors such as change agents and champions discussed in the information systems literature, are authorized by institutions to manage and produce the local digital culture, and are recognized as such by others. It follows that technology is not just a device; it is a mechanism through which all actors attest to the authority of the institution. This research provides an account of the complicated ways in which the forms of power and inequality that pervade our capitalistic institutions are reproduced in local technology practices, services and products.
The differential benefits derived from information technology use is a neglected phenomenon (Van Dijk & Hacker, 2000). Because public policy, especially in the area of education, presumes information technology use is a free choice, there is a strong material or hardware orientation to these approaches. There is this common social and political opinion that the digital divide problem is solved as soon as every citizen has access to a computer and the Internet.

For example, many stakeholders predict that the expected efficiencies garnered from the integration of network technology, telephones, and computers will further revolutionize the finance, manufacturing, and advertising businesses. New technologies will stimulate economic development and facilitate electronic commerce; enhance educational pedagogy and service delivery; extend health care to remote locations; and provide the impetus for electronic democracy. Access to networks will increasingly determine the ease with which we can conduct and control financial affairs; pursue an education; and acquire the skills to become employable. Networks will also improve our ability to call for emergency police, fire, or medical assistance; apply for a job; work at a distance; or participate in the political process (Hammond, 1997).

While these grand visions of the future roles of technology clearly demonstrate the need for access, the digital divide rhetoric and policies must go beyond access to computers and the Internet, and begin to address the relative differences in use between categories of people. It may behoove the private sector, educational institutions, and government entities to reach out to underserved communities to diversify consumer markets and political constituencies, increase the pool of employable workers, and reduce
costs of social programs. Municipal governments, in particular, have a moral and ethical obligation to provide services to improve the democratic participation of their citizens.

3.1 Summary

This chapter communicates the purpose of the study - to problematize the digital divide through an examination of the relationship between community technology centers and increase participation in information technology rich environments. The digital divide discourse is problematic because much of it focuses on material access to computing resources, and assumes universal competence and benefits from information technology use. Moreover, it largely ignores the influence of institutions in creating and legitimizing a digital culture that favors the interests of the dominant.

The chapter also alludes to the significance of this study for the discourse communities of governments, corporations, civic organizations, and concerned citizens working together to alleviate digital inequality. As we bring high technology to low-income communities, we tend to assume that computerizing things automatically improves them. But what this study asks is “under what circumstances is this founding assumption not true”? 
IV. The Guiding Research Questions

Spradley (1979) defines the grand tour question as a descriptive query that takes the researcher through a sequence of events and addresses a large unit of cultural experience. The grand tour question that guides and fulfills the intent of this critical ethnographic inquiry is “how can one go beyond the binary view of a ‘digital divide’ to a more sociologically informed conception of ‘digital inequality’?” Focusing on digital inequality leads to five broad and interrelated questions that guide the research design, and the relationship between these questions are expressed in Figure 1.

The label and number on each of the components in the figure corresponds to a research question. This is a cyclical model that suggests the movement of time, technology change, but the permanence of social organization. While there are antecedents that directly lead to and consequences that derive from digital inequality, there may also be institutional and social group aspects that may moderate this relationship.

1) What are the critical dimensions of digital inequality?

Digital inequality demands a shift from descriptions of who is online to what are people able to do when they are online. Disparities emerge when actors from historically underserved communities begin to use information technology, and these sources of variation are termed “critical dimensions”.
dimensions go beyond the conventional focus on access to explore the relative
dissimilarities in the technical, economic, cultural and social resources required
for effective computer use.

Figure 1: Reproduction in Information Technology

2) What are the antecedents of these critical dimensions?

This study focuses on a historically underserved community, which
suggests that time is central to this study. When actors decide to engage in a
practice such as developing digital skills, they consider the opportunities that
digital skills may provide in the future as well as past experiences in the
educational and economic spheres. These past experiences impose on the present
to influence the dispositions and ultimately the social destiny of actors. These
dispositions inculcated from the past are internalized by the actor, and help to shape their attitudes about information technology. Thus past experiences greatly influence whether information technology use is seen as a possibility or impossibility, an opportunity or a prohibition, a freedom or necessity.

3) How and, if they do, why do these dimensions vary among social groups?

Statistical evidence suggests that information technology use varies on dimensions such as ethnicity, age, education, income, and gender. In the case of income, for instance, the National Telecommunications and Information Administration (NTIA, 2000) reports that lower-income and less-educated Internet users are more likely than wealthy users to use the Internet to find jobs. Spooner and Rainey (2000) reported differences with respect to ethnicity (see Table 2). They found African-American Internet users are more likely than their White counterparts to use the Web for major life issues such as researching new jobs and finding places to live. Knowledge of these disparate usage patterns are crucial for the development of programs and services provided by community telecenters, and for firms seeking to market products and services to these communities.

While the statistics tell us how computing practices differ with respect to social groups, they do not tell us why. What logics are actors employing to determine how to use information technology, what are actors able or unable to do when using the technology, and how might the technology itself shape use?
The percent of Internet users in each race who have ever used the Web to…

<table>
<thead>
<tr>
<th>Activity</th>
<th>Blacks(%)</th>
<th>Whites(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Browse just for fun</td>
<td>73</td>
<td>61</td>
</tr>
<tr>
<td>Do school research</td>
<td>65</td>
<td>54</td>
</tr>
<tr>
<td>Use video/audio clip</td>
<td>60</td>
<td>47</td>
</tr>
<tr>
<td>Listen to music</td>
<td>54</td>
<td>32</td>
</tr>
<tr>
<td>Look for job information</td>
<td>51</td>
<td>37</td>
</tr>
<tr>
<td>Send an instant message</td>
<td>51</td>
<td>44</td>
</tr>
<tr>
<td>Play online game</td>
<td>48</td>
<td>33</td>
</tr>
<tr>
<td>Participate in chat online</td>
<td>38</td>
<td>23</td>
</tr>
<tr>
<td>Look for a place to live</td>
<td>35</td>
<td>27</td>
</tr>
<tr>
<td>Seek religious information</td>
<td>33</td>
<td>20</td>
</tr>
<tr>
<td>Download music</td>
<td>29</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 2: Online Behavior Statistics

4) How do institutional factors shape these critical dimensions?

History informs us that the relationship between technology and people is never unidirectional. Rather technologies are often developed in response to the agendas of powerful institutions and their agents (Boland, 1979) (Eisenhardt, 1985) (Henderson & Lee, 1992) (Kirsch, 1996) (Kirsch, 1997) (Kling & Iacono, 1989) (Markus, 1983) (Orlikowski, 1991). The ensuing struggles among groups seeking to turn technologies to their own interests may lead to digital inequalities. So it is technology’s management in a given social context, not just its inherent qualities, that is important for determining effective usage. Special priority

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1 Source: Pew Internet & American Life Project March-August 2000 Poll
should therefore be placed on factors such as government intervention, policies, procedures, and practices.

5) *How do these critical dimensions reproduce inequality?*

This question looks at the forms of inequality as well as outcomes. Generalizing the findings for the preceding research questions will lead to the development of a theoretical framework for explaining digital inequality. Through a system of propositions and glosses\(^2\), the cultural and social reproductive function of information technology will be explored.

Bourdieu’s analytical methodology (Bourdieu, 1993) was used to frame the exploration of these research questions. In short, this method encompasses the set of social conditions of the production, circulation and consumption of cultural goods such as technology. This methodology calls for the analysis of three levels of social reality:

1. the position of the agents within what Bourdieu calls the *field of power* (i.e. the set of dominant power relations in a society or, in other words, the ruling class);
2. the structure of the field (i.e. the structure of the objective positions occupied by agents as well as the objective characteristics of the agents themselves);
3. the genesis of the actor’s habitus (i.e. the structured and structuring dispositions which generate practices).

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\(^2\) A gloss is a brief explanatory note or interpretation of a difficult or technical expression inserted between each proposition.
The complexity of this model ensures that the researcher does not fall into a purely internal reading of the text (i.e. content analysis) or an external mode of analysis of cultural artifacts (i.e. structuralism). The full explanation of information technology can neither be explained in the text itself nor in some determinant social structure. Rather, it is found in the history and structure of the social setting, and in the relationship between the social setting under investigation and its social relations to broader corporate market institutions. Bourdieu challenges the researcher to “think relationally”, and to perform internal and external analysis concurrently. Hence to account for differentials in information technology diffusion, acceptance and use, the technology has to be placed into the system of social relations that define and sustain its cultural meanings and intended uses.

4.1 Summary

These research questions suggest that digital inequality is not just about technology. Rather digital inequality is conceptualized as the result of contextually embedded factors such as the rules, policies and initiatives developed by institutions, as well as prevailing economic, political, social, linguistic and cultural disparities. The five research questions that were empirically investigated included the critical dimensions of digital inequality and their antecedents, the role of institutional forces in perpetuating inequality under the aegis of a community technology center, and differences in the benefits derived from information technology use by various social groups who visit the community technology center.
V. A Framework for Examining Digital Inequality

This chapter presents a conceptual framework for examining digital inequality. For the purposes of this study digital inequality is defined as “social stratification that results from the unequal ability to adopt, adapt, and use information and communication technologies to improve life chances”. Parsing this definition, social stratification results from the unequal distribution of valued resources, with the most privileged individuals or groups enjoying a disproportionate amount of property, power, or prestige (Tumin, 1985). And life chances are those events that form the most important opportunities, achievements and experiences in life such as physical and mental health, socially valued occupations, and educational opportunities (Tumin, 1985). The task of stratification research is to specify the shape and contours of social groupings, to describe the process by which individuals are allocated into different social outcomes, and to uncover the institutional mechanisms by which social inequalities are generated and maintained (Outhwaite & Bottomore, 1993), (Grusky, 1994).

In this study, social stratification suggests that historical patterns of inequality are reproduced in the context of information technology. In other words, information technology forms a life chance that is not equally distributed. Digital inequality and its embedded difficulties did not suddenly appear in contemporary society. Entire communities in the US, particularly in the inner cities, are not only economically, but also historically disadvantaged. From this perspective, digital inequality cannot be
explained solely as a technological artifact. Attention must also be paid to the broader social and cultural inequalities that exist in our society. Dr. Armando Valdez, Chair of the California Telecommunications Policy Forum, echoes these sentiments when he cautions,

Be wary of some of the digital divide hype that claims that certain racial and cultural groups have fewer computers than their White counterparts. Keep in mind that they also have fewer IRAs, summer homes, and other assets than their White counterparts. The sociological data demonstrate clearly that a Latino or Black with comparable education and experience earns less than their White counterparts. Family sizes are also larger and thus the per capita income is significantly lower. Most of the people talking about the digital divide are narrowly informed, yet one cannot adequately understand the lack of access in one arena outside of the broader context of social and economic stratification (Becht, Taglang, & Wilhelm, 1999).

French sociologist Pierre Bourdieu provides a theoretical framework that can be used to dissect the relationships among systems of thought, social institutions, and different forms of material and symbolic power that exist in all cultural practices. His wide-ranging work cuts across many domains such as linguistic exchanges, the political uses of language, marriage rituals, museum attendance, and the social origins and trajectories of French university students, academics and intellectuals. In his work, he combines rigorous empirical analysis with rich theory development. One of his central
concerns is the role of culture in the reproduction of social structures (Bourdieu, 1993). The following sections outline the central concepts and explain how digital inequality is related to historical systems of stratification that are perpetuated by national ideals of technological progress.

5.1 Introducing Bourdieu

The notion of a field, together with the notions of habitus and capital form the central organizing concepts of Bourdieu’s work. The habitus represents human agency. It is sometimes described as a “feel for the game” or a “practical sense” that guides the actions and reactions of actors in a manner that is not calculated or rule based. Rather, it is a set of dispositions that are learned over one’s life history which generate perceptions and guides practices. These dispositions are learned, reflective of social conditions in which they were acquired, endurable through the life history of the individual, generative of multiple practices, and applied in fields other than those in which they were originally acquired. This accounts for the similarity in the habitus of actors that occupy similar social positions. Thus a habitus is applicable to both individuals and social groups.

All practices are seen as the product of the relation between the habitus and specific social contexts known as fields. Therefore fields represent the objective social relations and structures that govern the actions and reactions of actors in concrete social situations. Society is comprised of many relatively autonomous but structurally homologous fields, and the relations between actors determine the structure of the field. Thus fields are dynamic social structures. Actors within the field compete for control of interests and resources that are specific to the field in question. So, for example, actors in
the academic field engage in competitions for publications and research grants. The interests and resources at stake within a field are both material (i.e. salaries) and symbolic (i.e. prestige), and the competitions amongst the actors are not always strategically calculated. However all actors agree, by the mere fact of engaging in the field, in their belief (i.e. doxa) in the field and investment in the game and its stakes. This collusion forms the very basis of competition.

A field is a structured space of positions with each position determined by the distribution of different kinds of power resources or capital. Bourdieu introduces the concept of capital to describe the material and symbolic resources that are both stakes and weapons in the competition. There are four basic forms of capital: symbolic, cultural, social and economic. Symbolic capital refers to accumulated honor and prestige. Cultural capital concerns forms of cultural knowledge, competencies and credentials. Social capital refers to social networks that one employs to improve social standing, and economic capital refers to monetary resources such as property, stocks and money. Each form of capital is unequally distributed amongst social groups, but the different forms of capital can be converted under certain circumstances. For example, one can convert economic capital (i.e. tuition payments to a university) into cultural capital (i.e. a Master’s degree). While conversion between the forms of capital can occur, the forms of capital are not reducible to each other. Therefore, possession of economic capital does not necessarily imply possession of cultural capital (i.e. the Beverly Hillbillies).

To enter a field and engage in competition, one must possess the habitus that predisposes one to enter that field. In other words, there is an illusio that draws actors

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3 Homologous fields are those social contexts with corresponding or similar positions, values, structures, or functions.
into the field. There is also a minimal requirement of capital in the form of knowledge, skill or talent to be accepted as a legitimate contender in the field. Furthermore, investing in the field means that one will attempt to use their capital in such a way as to derive the most benefit or profit from participation.

A field is always a site for struggles in which actors seek to maintain or alter the distribution of capital in their favor. Historically dominant actors use strategies aimed at preserving the status quo while new contenders typically adopt strategies aimed at social change. There are also different chances of winning or losing based on the actor’s position within the field. As less competent actors struggle within a field, a system of evaluation works against them. This general phenomenon is described as symbolic power or symbolic violence. This is an aspect of most forms of power in which overt force is not used. Rather, power is exerted in symbolic forms that are less visible. Power is misrecognized as such and is thereby recognized as legitimate. This signifies that power exerted through symbolic exchanges is always based on shared beliefs. All actors tacitly acknowledge the legitimacy of power and the hierarchical relations of power in which they are embedded. Thus they fail to see that the hierarchy is an arbitrary social construction that serves the interests of some groups more than others. Moreover, symbolic power requires that those subjected to it believe in the legitimacy of power and the legitimacy of those who wield it.

These power relations are built into institutional processes such as decision making, budgeting and training, and provide a practical justification of the established order. They enable those who benefit most from the system to convince themselves of their own intrinsic worthwhile preventing those who benefit least from grasping the basis
of their own deprivation. Hence, to understand the ways in which symbolic power is exercised and reproduced, one must look at how institutionalized mechanisms have emerged which tend to fix the value accorded to forms of capital, to allocate the capital differentially, and to inculcate a belief in their value.

While Bourdieu borrows language from economics, the intent is not to suggest that all actions are economic transactions. Rather, practices concur with a logic that is economic in a broad sense because they are oriented towards the increase of some kind of capital (material or symbolic) or the maximization of some kind of profit (honor or prestige). Hence there is a link between actions and interests. What these interests are can only be determined through empirical investigation into the distinct properties of the field.

5.2 Applying Bourdieu to Digital Inequality

Prior studies on the digital divide often focus exclusively on demographic, geographic and socio-economic characteristics of users as they relate to levels of access to these technologies. More recent studies, while acknowledging that these factors have a meaningful role, have developed broader frameworks for examining disparity in technology use. These more expansive frameworks can therefore provide policy makers and researchers with tools and information on how to increase participation of citizenry in the digital era.

For instance, one report (Digital Georgia: A White Paper on Information and Communication Technologies in Georgia, 2000) presented a framework which included the three A’s - awareness, application, and access. Awareness refers to the motivation and competency of a person to use technology. Digital training and education also fall
into this category because they raise the awareness of the usefulness of these technologies. *Application* refers to how an individual integrates the content and services when using information and communication technologies. An application must be relevant, meaningful, and valuable to their experiences and the experiences of their peer user base. *Access* refers to the actual physical assets available to use information and communication technologies such as the networking infrastructure and computer hardware. Access also describes any issue of speed or bandwidth.

While this framework includes psychological concepts such as motivation and competence, it does not take into account sources of social stratification. DiMaggio and Hargittai (2001) and Warschauer (2001) offer sociologically informed conceptions of the critical dimensions of inequality of technological opportunity. First are the *technical means* or the hardware, software and communications networks by which people access the Web. The second is *autonomy* or the extent to which people exercise control over their Web use. An important aspect of this dimension is where people get their access. Since most low-income people do not access the Internet at school or work, they must discover their own reasons to use this technology as well as a place to use it. This leads to the observation that the *purposes* for which people use the technology may be quite different. Thus there is a dire need for relevant *content* for diverse user communities. A related dimension is the *skill* or competence of users to respond to challenges and opportunities in a manner that exploits the Internet's potential. Anecdotal evidence suggests that *social support networks* where inexperienced users can draw upon the skills of more experienced users are important to new users in underserved communities. Finally, *institutional reform* suggests that actors do not act in isolation. Beliefs about,
access to and use of information technology are continually transformed by the actor’s reaction to corporations’ strategic choices, and government regulations and policies. These institutional forces must be brought into the analysis because they continually alter individual-level incentives and constraints that produce inequality of access to the technology (Neuman, McKnight, & Solomon, 1998).

These concepts were mapped to constructs from Bourdieu’s framework (see Table 3) to structure the data acquisition and analysis. A conceptual model was developed (see Figure 2), which suggests that each factor forms a circular relationship with information technology usage. This means that each factor both contributes to and is the result of effective use, adoption and adaptation of information technology. On the one hand, if these factors are handled well, social development can result. We can use these factors to ensure that information technology is more judiciously promoted and exploited by historically underserved communities. On the other hand, if these factors are handled poorly, underdevelopment can occur. We can use these factors to continue to marginalize historically underserved communities (Warschauer, 2001).

Each construct used in this study is described in the following sections. To bring attention to how information technology reproduces social stratification, each factor will be presented from the perspective of underserved communities. Underserved communities include those that have low-incomes, are located in urban cores, have limited educational attainment, have low levels of social mobility, and are largely inhabited by members of racial or ethnic minorities.
<table>
<thead>
<tr>
<th>Constructs from the Literature</th>
<th>Constructs in this Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access, Autonomy, Technical Means</td>
<td>Technical Means</td>
</tr>
<tr>
<td>Awareness, Purpose, Skill, Race, Ethnicity, Social Origin, Educational Attainment, Language</td>
<td>Cultural capital</td>
</tr>
<tr>
<td>Application, Content</td>
<td>Content</td>
</tr>
<tr>
<td>Income</td>
<td>Economic Capital</td>
</tr>
<tr>
<td>Institutional reform</td>
<td>Institutional reform</td>
</tr>
<tr>
<td>Social support networks</td>
<td>Social Capital</td>
</tr>
</tbody>
</table>

**Table 3: Mapping from Literature to this Study**

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**Figure 2: Factors for Effective Information Technology Use**

4 Constructs with an asterisks are based on Bourdieu’s theory.
5.2.1 Technical Means

*Technical means* refers to connectivity and availability of computers, modems, printers, scanners, telephone lines or other means of connecting to the Internet, and Internet accounts. Access can occur at home, work, school, public libraries, or other community facilities, such as community technology centers. However, differences in the quality of the hardware, software and connections may limit the ways in which different user can employ the Internet (Kling, 1998). For instance, can the hardware, software, and connections support java applications, sophisticated graphics and streaming video contained in many websites?

A related concern is the degree of autonomy that the user enjoys when using the technical apparatus. Much of the benefits derived from the technology access are closely related to a user’s ability to experiment, and explore in an unstructured environment. Thus, it matters greatly where people get their access to the technical apparatus, whether their use is monitored or unmonitored, or whether they must compete with others for time online (DiMaggio & Hargittai, 2001).

The critical point, however, is that the technical means cannot carry this burden alone. The other five factors are also important, and many well-intended digital divide projects may flounder due to overemphasis on technical means alone (Warschauer, 2001). Most importantly, greater access to technology does not guarantee equality of use.
5.2.2 Content

Content is the second factor that contributes to and results from increased digital literacy skills. Because there is such a wealth of content on the Internet that meets the needs of those living in a middle class, English-speaking environment, it is easy to assume that there must be something on the Internet of benefit to everyone. Despite the rhetoric about the declining significance of race, gender, and socio-economic status in cyberspace (Rheingold, 1994) (Turkle, 1995), the Internet reflects the culture, tastes, preoccupations, styles and interests of its principle inhabitants – upper middle class White males. Online shopping holds little allure if you lack credit cards and email has no significance if you don’t know anybody to communicate with.

One of the most extensive studies of Internet content and underserved communities was conducted by the Children’s Partnership (Lazarus, Lipper, & Mora, 2000). This study defined useful content for those at risk of being left behind as follows:

1. Information in multiple languages;
2. Information that can be clearly understood by limited-literacy users;
3. Opportunities to create and interact with content that it is culturally appropriate; and
4. Lack of local information such as employment, education, and business development opportunities.

Table 4 depicts the number of Americans potentially underserved because of these four barriers. While reviewing this table, it is crucial to observe that these barriers are the results of limited cultural capital in underserved communities. In other words, without an adequate amount and type of cultural capital, information technology can be
rendered unusable and highly irrelevant. Thus, content and cultural capital are inextricably linked.

<table>
<thead>
<tr>
<th>Type of Internet Barrier</th>
<th>Estimated Number of Americans Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Local Information</td>
<td>21 million</td>
</tr>
<tr>
<td>Literacy</td>
<td>44 million</td>
</tr>
<tr>
<td>Language Barriers</td>
<td>32 million</td>
</tr>
<tr>
<td>Lack of Cultural Diversity</td>
<td>26 million</td>
</tr>
</tbody>
</table>

Table 4: Barriers to Internet Usage

5.2.2.1 LANGUAGE

While underserved communities are increasingly going online, they face significant literacy barriers that limit effective usage. Adults in underserved communities want online translation tools, online instructional materials, and information in native languages (Lazarus et al., 2000). However, this report estimates that 87% of the content on the web is presented in English. While this number is steadily decreasing as the Internet becomes internationalized, the decrease can be deceptive.

A study in The Economist ("The Default Language," 1999), for example, indicated that 94% of Web sites on secure servers are in English, while 96% of Web sites on secure servers in the .com domain are in English. This suggests that, even though Web pages for social interaction are increasing in other languages, there is still a lag on pages for e-commerce. A study by the United Nations Group of 77 indicates that 80% of Web pages are in English, with more Internet hosts in Finland than in all of Latin

America and the Caribbean. In light of this increased exposure to the norms and cultures of industrialized nations, the Group of 77 nations and China have expressed concern for the preservation of national and regional diversity of traditions, identities, and cultures. Hence, there is a serious need for private industry to consider the culture, in the broadest sense, of underserved communities and underrepresented countries if they are to meet the needs of a global consumer base.

5.2.2.2 LITERACY

Closely related to language is literacy. Residents in underserved communities want online resources that will help them prepare for a high school equivalency diploma, and online learning materials with multimedia components (Lazarus et al., 2000). However, as The Economist study cited in the previous section indicates, online content has been designed primarily for Internet users who have discretionary money to spend. Yet 44 million American adults, roughly 22% of the country, do not have the reading and writing skills necessary for functioning in everyday life, and do not enjoy a middle class lifestyle.

In Atlanta, the 1990 census indicates that 48% of the poorest residents do not have a high school diploma (see Table 5). These chronically poor residents are primarily located in the Empowerment Zone, a 9.3 square mile area below the central business district. The educational attainment statistics are reflected in the literacy levels.

In the city of Atlanta, 38% of the population falls into the lowest category of literacy (see Figure 3). However, in the Empowerment Zone, that figure rises above 60% (The State of Literacy in America: Estimates of Local, State, and National Levels, 1998). At a level one literacy, a person can sign their name but cannot locate eligibility from a
table of employee benefits; a person could identify a country in a short article but could not locate an intersection on a street map; and a person could locate the expiration data on a driver’s license but not be able to identify and enter background information on a social security card application. If corporations and governments are declaring these communities as new markets, then developing accessible content and increasing literacy levels are important. Currently, the information found on corporate and federal government sites are generally not at literacy levels and in languages that underserved Americans can consume.

<table>
<thead>
<tr>
<th>Educational Attainment</th>
<th>Empowerment Zone</th>
<th>City of Atlanta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Percent</td>
</tr>
<tr>
<td>Total persons 18 years and over</td>
<td>35696</td>
<td>na</td>
</tr>
<tr>
<td>Less than 9th grade</td>
<td>6583</td>
<td>18%</td>
</tr>
<tr>
<td>9th to 12th grade, no diploma</td>
<td>10688</td>
<td>30%</td>
</tr>
<tr>
<td>High school graduate</td>
<td>9482</td>
<td>27%</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>6396</td>
<td>18%</td>
</tr>
<tr>
<td>Associate degree</td>
<td>834</td>
<td>2%</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>1202</td>
<td>3%</td>
</tr>
<tr>
<td>Graduate or professional degree</td>
<td>511</td>
<td>1%</td>
</tr>
<tr>
<td>Total high school graduates and above</td>
<td>18425</td>
<td>52%</td>
</tr>
</tbody>
</table>

Table 5: Education Statistics

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6 Source: Georgia Tech School of Public Policy, Data and Policy Analysis, http://murmur.arch.gatech.edu/~dapa/casey/
Basic reading and writing skills are the prerequisite for getting on to the Internet in the first place. This clearly distinguishes the Internet from prior mass electronic media, such as radio and television. However, basic literacy is not enough. More complex reading, writing, language, and thinking skills are essential if users are to maximize their ability to find, adapt, and make use of online information. Thus literacy is both a contributor to and a resultant of Internet use.

5.2.2.3 CULTURAL RELEVANCE
A third barrier facing low-income and underserved communities is the lack of culturally relevant content. In the United States today, there are 26 million foreign born Americans. The 1990 census indicates that 90% of the residents in the Empowerment Zone are African American (see Table 6). Therefore, there is a growing need for content such as health information geared to particular racial and ethnic groups, and content about local cultural interests.

Despite the growing number of ethnic portals and the growing warehouse of digitized ethnic minority web content (see Table 7), there is a lack of Internet content developed by the ethnic communities themselves. The vibrant, dynamic, and rapidly growing minority communities have their own stories to tell. These are stories that are best told by those who can speak with the authentic voice of the group. Unfortunately, fewer ethnic minority individuals have computer programming or web-authoring skills, compared to those in the majority culture. And these ethnic, linguistic, religious, or racial groups cannot rely on mainstream media because their audience segments are considered too specialized, too small, or too invisible for the majority audience (Ofori, 2001).

<table>
<thead>
<tr>
<th>Population</th>
<th>Empowerment Zone</th>
<th>City of Atlanta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Percent</td>
</tr>
<tr>
<td>Persons</td>
<td>49966</td>
<td>na</td>
</tr>
<tr>
<td>White</td>
<td>3633</td>
<td>7%</td>
</tr>
<tr>
<td>Black</td>
<td>45133</td>
<td>90%</td>
</tr>
<tr>
<td>American Indian</td>
<td>49</td>
<td>0%</td>
</tr>
<tr>
<td>Asian</td>
<td>271</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>880</td>
<td>2%</td>
</tr>
<tr>
<td>Hispanic origin</td>
<td>1211</td>
<td>2%</td>
</tr>
<tr>
<td>Male</td>
<td>22805</td>
<td>46%</td>
</tr>
<tr>
<td>Female</td>
<td>27161</td>
<td>54%</td>
</tr>
<tr>
<td>5 years and under</td>
<td>5735</td>
<td>11%</td>
</tr>
<tr>
<td>Under 18 years</td>
<td>14270</td>
<td>29%</td>
</tr>
<tr>
<td>18 to 64 years</td>
<td>30058</td>
<td>60%</td>
</tr>
<tr>
<td>65 years and over</td>
<td>5638</td>
<td>11%</td>
</tr>
</tbody>
</table>

Table 6: Atlanta Population Statistics

8 Source: Georgia Tech School of Public Policy, Data and Policy Analysis, http://murmur.arch.gatech.edu/~dapa/casey/
Another consideration is that there is a large degree of diversity within each minority category. For instance, categorizations such as the “back-boners” (everyday Black folks), “the flygirls” (younger, smart cosmopolitan women), “the newagers” or “mixers” (Black flower children, concerned about the earth and the environment, often baby boomers), the “civil righters,” and the “belites” (Black elites) are used by marketers and other cultural industry workers to describe the continuously emerging identities of African American communities (Ofori, 2001). Therefore, specialized minority media is therefore needed to appeal to these particular discrete audiences.

<table>
<thead>
<tr>
<th>Site Name/URL</th>
<th>Content</th>
<th>Page views</th>
<th>Official per month Rate (CPM)(^9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BlackPlanet.com (<a href="http://www.blackplanet.com">www.blackplanet.com</a>)</td>
<td>Community site that facilitates individual web pages</td>
<td>90 million</td>
<td>$33</td>
</tr>
<tr>
<td>BET.com (<a href="http://www.bet.com">www.bet.com</a>)</td>
<td>Portal site offering interactive communities and entertainment content</td>
<td>20 million</td>
<td>$35</td>
</tr>
<tr>
<td>BlackVoices (<a href="http://www.blackvoices.com">www.blackvoices.com</a>)</td>
<td>Afro-centric news, information, and entertainment</td>
<td>20 million</td>
<td>$30-$45</td>
</tr>
<tr>
<td>NetNoir (<a href="http://www.netnoir.com">www.netnoir.com</a>)</td>
<td>Afro-centric content community</td>
<td>10 million</td>
<td>$40</td>
</tr>
<tr>
<td>Black Stocks (<a href="http://www.blackstocks.com">www.blackstocks.com</a>)</td>
<td>Information for Black investors</td>
<td>8 million</td>
<td>$25 adv</td>
</tr>
<tr>
<td>The Black World Today (<a href="http://www.tbwt.com">www.tbwt.com</a>)</td>
<td>News, analysis, and editorial commentary about the Black Diaspora</td>
<td>3 million</td>
<td>$25 adv</td>
</tr>
<tr>
<td>Black Singles (<a href="http://www.blacksingles.com">www.blacksingles.com</a>)</td>
<td>For professional singles who want to meet other singles</td>
<td>2 million</td>
<td>$25 adv</td>
</tr>
<tr>
<td>Blackvue (<a href="http://www.blackvue.com">www.blackvue.com</a>)</td>
<td>Urban media guide to music, radio, movies, TV shows, etc.</td>
<td>1.25 million</td>
<td>$25 adv</td>
</tr>
<tr>
<td>Everything Black (<a href="http://www.everythingblack.com">www.everythingblack.com</a>)</td>
<td>Links to web sites of African American content</td>
<td>500 thousand</td>
<td>$25 adv</td>
</tr>
<tr>
<td>DigiSoul (<a href="http://www.digisoul.com">www.digisoul.com</a>)</td>
<td>Portal site with free e-mail, homepages, and interactive discussion</td>
<td>500 thousand</td>
<td>$25 adv</td>
</tr>
<tr>
<td>Essence Online (<a href="http://www.essence.com">www.essence.com</a>)</td>
<td>Lifestyle magazine for African American women</td>
<td>69 thousand</td>
<td>$45 dc</td>
</tr>
<tr>
<td>Ebony Online (<a href="http://www.ebony.com">www.ebony.com</a>)</td>
<td>Provides the best news about African American achievers</td>
<td>150 thousand</td>
<td>$45 dc</td>
</tr>
</tbody>
</table>

**Table 7: Selected African American Websites\(^{10}\)**

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\(^{9}\) CPM, cost per thousand, is the rate that advertisers pay for 1000 views of a page on which an advertisement appears. The abbreviations “adv” and “dc” denote that the web site is affiliated with the AdVenture or Doubleclick network.
5.2.2.4 Local Information

The final content barrier for underserved communities is the lack of local community content. While this barrier potentially affects a great many Americans, it disproportionately affects Internet users living on limited incomes, especially the nearly 21 million Americans over age 18 whose annual income is less than $14,150 for a family of three. This is the level used by the federal government to define poverty. In the Empowerment Zone, the 1990 census indicates that 38% of families with children under 18 live in poverty (see Table 8). A closer inspection shows an even greater concentration of poverty in households with children under 18 headed by a single female. One quarter of all households in the Empowerment Zone fall into this category, and 76% of these households are below the poverty level (see Table 9).

Users in underserved communities are primarily interested in more practical information such as local job listings, job entry requirements, local housing listings, and community information (Lazarus et al., 2000; Spooner & Rainey, 2000). The development of content specific to the needs of a particular community is crucial because it can help create a demand for Internet use among the residents (Warschauer, 2001).

Studies have also shown that involving learners in producing their own content is one of the best ways to exploit information technology in learning situations (Warschauer, 1999). This can result both in a better learning experience, and also in the

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production of material of benefit to a community, thus contributing to the virtual community development.

<table>
<thead>
<tr>
<th>Households</th>
<th>Empowerment Zone</th>
<th>City of Atlanta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Percent</td>
</tr>
<tr>
<td>Total Households</td>
<td>18425</td>
<td>na</td>
</tr>
<tr>
<td>Married couple HH(^{11}) with children under 18</td>
<td>1200</td>
<td>7%</td>
</tr>
<tr>
<td>Married couple HH with no children under 18</td>
<td>1639</td>
<td>9%</td>
</tr>
<tr>
<td>Single male HH with children under 18</td>
<td>333</td>
<td>2%</td>
</tr>
<tr>
<td>Single male HH with no children under 18</td>
<td>625</td>
<td>3%</td>
</tr>
<tr>
<td>Single female HH with children under 18</td>
<td>4433</td>
<td>25%</td>
</tr>
<tr>
<td>Single female HH with no children under 18</td>
<td>2473</td>
<td>14%</td>
</tr>
<tr>
<td>Non-family households</td>
<td>7303</td>
<td>41%</td>
</tr>
</tbody>
</table>

Table 8: Atlanta Household Statistics\(^{12}\)

\(^{11}\) HH is an acronym for Head of Household

\(^{12}\) Source: Georgia Tech School of Public Policy, Data and Policy Analysis, [http://murmur.arch.gatech.edu/~dapa/casey/](http://murmur.arch.gatech.edu/~dapa/casey/)
<table>
<thead>
<tr>
<th></th>
<th>Empowerment Zone</th>
<th>City of Atlanta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Percent</td>
</tr>
<tr>
<td>Total Families</td>
<td>10703</td>
<td>100%</td>
</tr>
<tr>
<td>Median Family Income (1989 $)</td>
<td>8953</td>
<td>na</td>
</tr>
<tr>
<td>Below Poverty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married couple family with related children under 18 years</td>
<td>541</td>
<td>38%</td>
</tr>
<tr>
<td>Male HH, no wife present, with related children under 18 years</td>
<td>152</td>
<td>35%</td>
</tr>
<tr>
<td>Female HH, no husband present, with related children under 18 years</td>
<td>3949</td>
<td>76%</td>
</tr>
<tr>
<td>Children under 18 years in poverty</td>
<td>9845</td>
<td>69%</td>
</tr>
<tr>
<td>Persons 18 to 64 years in poverty</td>
<td>11981</td>
<td>40%</td>
</tr>
<tr>
<td>Persons over 65 years in poverty</td>
<td>2735</td>
<td>49%</td>
</tr>
<tr>
<td>Total persons in poverty</td>
<td>24561</td>
<td>46%</td>
</tr>
<tr>
<td>Total persons for whom poverty status is determined</td>
<td>53046</td>
<td>100%</td>
</tr>
<tr>
<td>1998 TANF\textsuperscript{13} Recipients</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 9: Atlanta Poverty Statistics\textsuperscript{14}

\textsuperscript{13} TANF is an acronym for Temporary Aid to Needy Families
\textsuperscript{14} Source: Georgia Tech School of Public Policy, Data and Policy Analysis, 
\url{http://murmur.arch.gatech.edu/~dapa/casey/}
5.2.3 Cultural Capital

In the book, Distinction: A Social Critique of the Judgment of Taste, Bourdieu discusses taste as the method by which people with unique and differing backgrounds appreciate, appropriate, and consume art, food, music, sports, or other cultural goods. Bourdieu considers the construction of the appreciation of cultural goods such as computing technologies as markers separating social classes. These patterns of cultural distinctions arise from the social construction of cultural capital, which Bourdieu sees as knowledge of prestigious forms of cultural expression.

Cultural capital is also described as the accumulated stock of knowledge about the products of artistic and intellectual traditions, which is learned through educational training. Schools are not as much sites of distribution of cultural capital, but sites for legitimizing the cultural capital of the middle and upper classes, which is reified and rewarded. In developing the concept of cultural capital, Bourdieu seeks to explicitly recognize the role of the educational system in reproducing the social structure.

Equally important is the acquisition of cultural capital through social upbringing. In a powerful explanation of how inequality in the social structure is reproduced in the education system (Bourdieu, 1990), cultural capital acquired outside of formal educational institutions is used to explain the superior performance of children from privileged backgrounds.

Cultural capital is crucial to the study of social stratification because, without cultural capital, one cannot make cultural distinctions and value judgments. Thus, one can neither consume nor produce a cultural good unless they possess the proper cultural capital. This holds for music, art, scientific formulas, literature and computing.
technology. For instance, ownership of and familiarity with information technology is a type of cultural capital. It is simply expected that one is confident with technology in business settings. It is a mark of the well educated and erudite. Unless one is socialized in a culture of information technology acceptance and history, one is rather like the indigenous aboriginal people with minimal exposure to the outside world in the film “The Gods Must Be Crazy”. When technology, in the form of a discarded Coke bottle, is encountered their frames of reference cannot incorporate it into their lives (Kvasny & Truex, 2000).

Similarly formal language is a type of cultural capital. More so than any other technology, computing has developed its own extensive and unique lexicon. While the ability to speak intelligently about technology in a business setting immediately signals one’s position as upper class, it forces those without a command of the language of technology to a position of deference. Bell (1976) argues that formal language is the central resource in society. However, formal language by definition is not part of everyday vocabulary but the importance of possessing this type of knowledge has grown enormously in advanced post-industrial societies. Knowing about technology is an elite form of knowledge, and prestige and respect are given to the technocrats that possess this form of cultural capital (Freidson, 1986). Thus cultural capital would provide the user with a higher degree of autonomy and digital skills, and would also help to explain variations in use.

Cultural capital exists in three states: embodied in the individual, objectified in cultural goods or institutionalized as academic credentials or diplomas. The embodied state is directly linked to and incorporated within the individual, and represents what they
know and can do. Self-improvement in the form of learning can increase embodied cultural capital. Cultural goods such as books, paintings, instruments, or machines represent the objectified state of cultural capital. They can be appropriated both materially with economic capital and symbolically via embodied cultural capital. Finally, cultural capital in its institutionalized state provides academic credentials and qualifications that create a "certificate of cultural competence which confers on its holder a conventional, constant, legally guaranteed value with respect to power" (Bourdieu, 1985, p. 248). These academic qualifications can then be used as a rate of conversion between cultural and economic capital.

5.2.4 Economic Capital

One of the most obvious factors needed for effective information technology usage, especially in a home setting, is economic capital. The inevitable household tradeoffs required in making a PC purchase and obtaining telephone service to act as a gateway to the Internet may be too great. Telephone service in underserved communities is often sporadic because households find it difficult to maintain continuous service (Schement, 1995).

Economic capital enables one to convert economic resources into information technology resources. Because of its universal applicability and liquidity, economic capital can be defined as the root of all other capitals. In fact, all other forms of capital can be thought of as disguised forms of economic capital (Swartz, 1997). For instance, with sufficient economic capital, one can leave the workforce to acquire additional cultural capital through advanced degree programs. In a society where hierarchies are often based on education, additional education buys legitimacy and access to social
circles in which one may develop relationships with influential people within different communities of practice.

5.2.5 Social Capital

Social capital, in Bourdieu's approach, consists of all actual or potential resources linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition (Bourdieu, 1985). More specifically, it refers to the benefits that one can potentially receive from participating in communities and networks (Bourdieu, 1990; Bourdieu & Passeron, 1979). These benefits might come in the form of information, support, guidance, or additional social contacts.

For Bourdieu, social capital is a personal asset that provides tangible advantages to those individuals, families or groups that are better connected. This meaning differs from the one attributed by authors like Putnam (1995); (2000) and Coleman (1988) who define social capital in terms of social networks of trust, solidarity and reciprocity. For these authors, social capital is a community asset, and by implication assumes the existence of a homogeneous community with common interests and shared values. While the latter do not pay sufficient attention to issues of unequal distribution of power, Bourdieu is particularly concerned with the reproduction of inequalities.

Since it is often colleagues, friends, and relatives who provide the information and guidance necessary to learn how to use online networks, social capital is an important variable affecting information technology use because it describes social networks that can help draw people to information technology in the first place (Warschauer, 2001). For instance, a longitudinal study of people making use of community technology centers in the US, researchers (Chow, Ellis, Walker, & Wise, 2000) make it evident that gaining
access to new social resources is as critical as gaining access to hardware in assisting people to become computer savvy. The study also indicates how the users of community technology centers extend their own relationship to technology by later assisting their own friends, relatives, and associates.

Social capital is an important sociological category for understanding digital inequality, because marginalized members of society typically have less social capital to draw on (Bourdieu, 1990). One way to promote effective use of information technology in communities is to first examine the existing social networks, and then to use the technology to help amplify those social networks. These virtual communities would be built over the relationships that exist in real geographic places to supplement existing connections between people and neighborhood institutions. The goal should be to replicate and extend the communication patterns that one finds in the community already (Chapman & Rhodes, 1997). By providing a targeted purpose for using the technology apart from mere curiosity, community technology centers may lead to more effective use, which can improve life chances.

5.2.6 Institutional Reform

Institutions mediate virtually all of economic, political, and social life. The nature of the institutions that people belong to, the relations of power that exist in those institutions, and the types of institutional reform that occur all seriously affect whether people can make meaningful use of information technology. This has been demonstrated in workplace institutions, governmental institutions, and educational institutions (Kling & Iacono, 1989; Warschauer, 2001). Each of these institutions defines social roles and identities, rules and enforcement mechanisms, situations and strategies. They are
cultural forces centrally concerned with managing discourses that influence our thoughts, language, power, identity and many other central categories of social life (Kvasny & Truex, 2001).

During periods of rapid change in information and communications technologies, the reproductive functions of institutions may be more easily masked because our attention is focused on the novelty and the opportunities associated with the innovations. The images of computerization -- new technologies, innovative practices, and a perception of "revolution" -- are diametrically opposed to the stodgy images of institutionalization. The rhetoric of innovation, transformation and revolution emphasize possibilities. This rhetoric denies that historical patterns will continue to shape the future.

In fact, computerization has not transformed many organizations as rapidly as some advocates hoped (Kling & Iacono, 1989; Orlikowski, 1991, 1999). We often lose sight of how institutions warrant the legitimacy of the social changes arising from the new economy, and present these changes as certain, unstoppable and as a part of the natural order of things. It is, of course, in the interest of these powerful institutions to shape the discourse so that they may manage the trajectory and expansion of the economy and in so doing perpetuate their own position.

Institutional change will not occur just because a technology such as the Internet comes into existence. It is only when the institution can appropriate the technology in its own image within its existing gears that the impact of the innovation can be felt. If the technology is incomprehensible within the cognitive structures of the institution then it will probably go unused (Orlikowski, 1999). Thus one should ask what should be the role the institutions play in constructing information technology it in way that benefits all
of society? In the case of the community technology centers, public access cable television provides an exemplar for institutional reform. Both the community technology and public access television models are founded on the principle of empowerment through the use of technology to develop local content that is relevant for local communities.

5.2.6.1 THE COMMUNITY TELEVISION MODEL

The Executive Director of the Atlanta Community Technology Initiative has a strong affiliation in community television in Atlanta. As a former cable television operator, he played an integral role in renegotiating the cable franchise agreement that provided the initial funding for the community technology centers. In addition, the community television institutional model provided the framework on which the Atlanta Community Technology Initiative is based. Therefore, to better understand the mission of the community technology centers, it is informative to discuss the community television model.

Public access television emerged in the context of the alternative media movement of the 1960s. The politically self-conscious movement was inspired, to a significant degree, by the utopian vision of media guru Marshall McLuhan, who located communications technology at the crux of a liberating cultural revolution. The goals of community television were to provide direct access to an electronic soapbox that could be used to by citizens to develop locally relevant content. Facilitated by the development of affordable, lightweight video equipment, public access descended from underground television free from interference from professional middlemen such as journalists,
directors and producers. Access became the rallying cry for a new conception of television as a tool of empowerment, as a means for fostering a more responsive government, and a more democratic culture (Engleman, 1990).

In the 1970s cities in the US began to grant monopoly franchises to companies to install and operate cable television systems. Increasing recognition of the cultural importance of television prompted many local governments to demand public, education, and government access channels as a condition of franchise contracts with commercial cable providers (Pagni, 2000). However, it was not until George Stoney pioneered a successful model of citizen produced local programming in New York City in the 1980s that the federal government institutionalized community television throughout the nation.

This model holds much promise for uniting and empowering underserved communities. Funding is available, federal regulations greatly limit stations from exercising editorial control over the programming, channels have been reserved, non-commercial programming exists to fill unused channel space, and program distribution channels are in place. However, this promising opportunity for direct media access has been underutilized (Klein, 1999). Table 10 summarizes some of the barriers and constraints that prohibit community television from living up to its potential. Based on the limited success of public access television, one may question whether public access television is a good model for community access center.

Public access television and community technology centers do face many of the same issues, but the underlying technologies are extremely different. For instance, concerns regarding access were raised in the 1970s about community television when cable TV was in its infancy. The cost of cable TV subscriptions made public access
television less of a universal mechanism than when the same content was broadcast over-the-air. Journalists at that time suggested that “sitting alone in a living room watching a small screen can isolate viewers more than it brings them together…tapes and films made by a community are often more effective when shown in church basements or village halls” (Engleman, 1990).

<table>
<thead>
<tr>
<th>Characteristics of Community Television</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliance on in-house production</td>
<td>High</td>
</tr>
<tr>
<td>Cost of in-house production</td>
<td>High</td>
</tr>
<tr>
<td>Technical and artistic expertise</td>
<td>High</td>
</tr>
<tr>
<td>Unused capacity</td>
<td>Medium</td>
</tr>
<tr>
<td>Search costs for pre-existing content</td>
<td>Medium</td>
</tr>
<tr>
<td>Size of support staff</td>
<td>Small</td>
</tr>
</tbody>
</table>

**Table 10: Barriers to Community Based Technologies**

There is also the problem of convincing the public that they could develop content. Citizens tend to think of the television as a medium for viewing content rather than a medium for creating content. This same idea of turning consumers into producers is a crucial function of community technology initiatives. In the case of Atlanta, 3Com has donated $100,000 grant to the city to set up the Community Portal, which will be a large Web site featuring content on the city of Atlanta, community and government services, neighborhood histories, homespun recipe books, local information and the like, according to a city statement. Local residents enrolled in one of the free, city-sponsored computer workshops will help develop content for this site (Eversley, 2001) *(Money for a Virtual Community Portal: City Gets $100,000 Grant from 3Com Corporation During Opening of Fifth Cyber Center, 1991)*. However, as proponents of universal access have
pointed out, increased minority ownership of technology firms and media outlets are the primary stakes in the public policy discourse surrounding universal access (J. Schement, Personal Communication, October 17, 2001).

In addition, public access television stressed the need for outreach - identifying constituencies, organizing committees, and training citizens in the use of equipment. To accommodate those who did not receive cable TV at home, viewing centers were set up in communities in New York City, much like the community technology centers in Atlanta today. However, public access channels are funded and protected through legal mandates. In the case of community technology centers, sustainability is dependent upon relentless fundraising activities. The Morino Institute has suggested that fully one-third of the operating budget should be allocated to fund raising activities (Morino, 2000).

Finally, the abundance of channels suggested that cable TV held the promise of allowing separate voices of the community to be heard. This concern for local content built for the people, by the people resonates with the philosophy of locally relevant content development for the Internet. Nevertheless, the community activism perspective of public access television is continuously under assault from the forces of commercialism. For instance critics such as McLuhan predicted cable television would not improve life in a radical way. Rather, cable TV provided a new frontier for consumer capitalism in which banking, shopping, information services, and entertainment will be supplied through cable. Detractors dubbed cable television with its multitude of channels the “information supermarket” (Engleman, 1990).

These predictions of encroaching commercialism and consumerism have come to pass. Sophisticated equipment, professional standards, and production aesthetics are
changing the face of what was once an amateur medium. Production is viewed less as a
tool for local empowerment and social change than a means toward the production of
popular programming. A recent membership survey indicates that 92% of the members
of community television organizations are White and more than 85% have completed
college (46% completed graduate school). “They don't want access. They want bargain
basement broadcast. These programs tell us as much about the community as if they had
been shot in Hollywood” (Smith, 1999).

In summary, the community television model holds many philosophical
similarities with the community technology center movement. Yet there are several
factors that suggest why public access television may not be a good model. First and
foremost, the public access television is founded on the assumption that power is derived
from access to a network channel. However, the question becomes “who is listening”? Pagni (2000) describes the state of public access television as one of crisis, and it has
become the source of parody such as “Wayne’s World” movie. Many viewers surf past
the public-access channels because of the clunky, homemade look that dominates the
medium. This suggests that technology does not necessarily give power to a message.

Second, cable television and information technology are two fundamentally
different animals. Public access cable channels are broadcast into homes and viewed on
widely accessible, easy to operate televisions. Compare this to the various operations that
can be performed by a PC, and the degree of proficiency required by a competent user.
Users of community technology centers must leave their homes to obtain access to the
network. This goes against the recent trend in which the locus of communication and
participation is shifting from the public sphere to the private sphere. Americans of all
ethnicities are rushing to furnish their homes with an ever-increasing array of devices for communication, receiving, and processing huge quantities of information (Schement, 1998). In view of these important differences, one should pause to consider whether public access television is an appropriate model for community technology centers to adopt.

5.3 Summary

This chapter has presented a conceptual framework for exploring the critical dimensions of digital inequality. This framework attempts to go beyond the binary view of access to a more detailed conception of inequality of technological opportunity. Constructs from the digital divide literature are mapped to Bourdieu’s concepts to put some structure on the data collection and analysis phases of the research. Each component in the digital inequality framework is then discussed in relation to this study.
VI. Review of Relevant Discourses

This chapter provides the contextual background in relation to the guiding research questions. Discourses occurring among various stakeholder groups in regards to the digital divide are discussed. More specifically, this section addresses where the issues are being discussed, who is talking about this topic, and how long has this topic become the focal point of discourse. While there are additional discourses relevant to this study, these topics will be discussed selectively throughout the portrayal of results to support various aspects of the study.

Since the digital divide has recently become hotly debated, the most current and volatile discourse come from "fugitive documents" such as policy documents, position papers, project reports, and web-based working papers from research institutions (Bernard, 1995). Rather than cite statistical evidence for the existence or nonexistence of the divide, the intent is to show the diversity of discourses surrounding this topic. This section also demonstrates that digital inequality is not just a social or ethical issue; it is a highly contested business issue as well.
6.1 Discourses on the Digital Inequality

At a roundtable at ComNet (1999b), executives from a wide variety of companies and backgrounds were asked to put on their wizard hats and make bold predictions about the future of networking. The following quotes demonstrate the views of two executives on the business implications of the technology gap:

I believe there’s a real hurdle we have to jump not too far in the future, and that’s when we talk about enabling basically the average consumer who really doesn’t have a PC and doesn’t know how to shove a card into a PC and has no concept of calling somebody’s hotline and trying to get customer support... I think there are two things that I would predict. One, if we do not educate the average person somewhere in the near future, the proliferation of the use of the Internet may become a socio-economic problem. Secondly, I would put on the table that 70% of the population of the world has never made a telephone call. If you talk about the ultimate market, how do you get to that market? Because we’re talking about the jungles. Predictions today are that those people will access the Internet sooner than they will dial a phone.

David Lidyard,
VP of Product Planning,
Telco Research
I think we’ve seen the last of universal service... We’re going to have in our country a stratification of haves and have-nots. Imagine that from a highly developed country and then look at a developing country where the bulk of the population does not even have basic telephone service. They’re going to bring in high-speed services, and they’re going to have a set of haves and have-nots. Telecommunications drives economic development; we are further stratifying the haves and have-nots.

David Gellerman,
VP of Technology and Corporate Development,
Hekiman Laboratories

Clearly these business leaders believe that digital inequality has important business implications. Economic development, untapped markets, and installation of advanced telecommunications are rational economic incentives for business organizations. These quotes also express a sense of urgency. However market forces may not solve the problem in the short run, and the socio-economic damage may be devastating for those who find themselves unable to benefit from technology. Thus there are also important societal implications. Finally, these quotes touch on the political dimension of this phenomenon. There exists the possibility that the introduction of high-speed networks may further perpetuate social inequalities on a global scale.

These three dimensions - business, societal and political - guide the discussion of relevant discourses on the digital divide. However within these three spheres, the definition and even the existence of digital inequality are highly contested. For example, in an article titled "True Nature of the 'Digital Divide' Divides Experts" (Jerding, 2000b),
four technology watchers provided radically different accounts of this phenomenon. Mark Lloyd, an executive of the Civil Rights Forum on Communications Policy, states that technology inequality is the latest in a history of economic gaps. In his view, although private enterprise has put forth altruistic efforts, "real government action" was needed to bridge this void. Rick Weingarten, the director of the Office for Information Technology Policy, states that being connected wouldn't solve the problem. What is really at stake is the quality of access, that is high-speed access and complex information literacy skills. A third panelist from Penn State, Jorge Schement, believes that digital inequality will persist until Americans can put a face on the problem. So long as this is seen as a problem of the "Other", it can be more easily ignored and rationalized. Finally, Adam Clayton Powell III denies the existence of a digital divide. He cited several industry surveys that show that the gap between ethnic groups has dissipated. Although he concluded that the digital divide is largely a myth, he did note that education rather than race or ethnicity was the highest barrier to technology.

Observers in foreign countries are also waging commentary. An account in an Asian business magazine, for instance, states that even in the United States that has more computers than the rest of the world combined, the digital divide persists (Jarrett, 2000). However, when one considers the highly stratified United States culture, it is easy to understand why this may be the case. Historically well-educated middle and upper class urban Whites have initially adopted new technologies such as automobiles, telephones, and VCRs. These same demographics have been cited as predictors of Internet technology access. History also shows that over time, the prices of these new technologies fall to the point where they are accessible to the broader society. However,
in the case of Internet technologies, the question becomes how much damage will occur until these market forces prevail? Is government intervention needed to speed up equitable technology diffusion? Why should the private sector care and how best can they help to bridge the gap? These are the factors and issues being debated.

6.1.1 Reproducing Social Inequality Through Technology

Schement and Forbes(1998) question, ‘*Why does there persist a gap in access to information technologies and telecommunications networks between the nation’s majority Whites and minority African Americans and Latinos?*’ His analysis uncovered two important points. First, information goods such as radio and television have tended to diffuse more rapidly than information services such as telephone and Internet access. Second, the factors that affect telephone penetration mirror those of the Internet (unemployment, single female with children, younger households, rural, income, multi family/rental housing). These six factors are interwoven in complex ways with minorities, especially African Americans, falling to the bottom of nearly all categories. These factors form a vicious circle in which ethnicity seems to influence unemployment, income, youth, and gender; but all of these factors also appear to influence the significance of ethnicity. Moreover these gaps in telephone penetration levels have held fairly constant for the decade between 1984 and 1994.

Ironically, the telephone has rapidly become the weak link in the information technology chain: it is the *necessary but not sufficient* technology of the modern home (Schement, 1995). Full-fledged access in the 21st Century means at least a telephone in the home and a computer with Internet access. Therefore, if historical telephone penetration gaps cross over into the personal computer and Internet-user populations, it is
quite possible that a persistent and ethnicity-centered gap between the information have
and have nots will emerge, much to the detriment of an integrated society.

The scope of digital inequality is alarmingly profound. For instance, about 80% of
the world's population lives on $5 a day or less and has never made a phone call, let alone
used the Internet (Chidi, 2000). There are more telephones in New York City than in all
of rural Asia, and there are more Internet accounts in London than in all of Africa
(Glascock, 2001). These dramatic figures underscore the need for development. It also
becomes clearer that there is a concerted effort needed to address social, cultural, and
economic as well as technology problems. As one prominent CEO noted “just focusing
on access to computers is a fairly narrow way to look at these problems”(Gates, 2000)

Dijk and Hacker (2000) define access as a multifaceted concept that consists of
four hurdles on the way to the information and network society (see Table 11). We
cannot assume that structural divides will subside with an increase in access to technical
apparatus. These authors suggest that when material access is more universal, structural
divides concerning digital skills and usage will come to the fore. As new technologies
offer new opportunities for citizen participation and consumer interest, new inequalities
of a nature not known before may erupt. Moreover these differentials must be contested,
if one chooses to do so, with means other than the traditional ones of government
subsidies and policies.
<table>
<thead>
<tr>
<th>Type of Access</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological</td>
<td>Lack of any digital experience caused by lack of interest, computer fear and unattractiveness of the new technology</td>
</tr>
<tr>
<td>Material</td>
<td>Lack of possession of computers and network connections</td>
</tr>
<tr>
<td>Digital Skills</td>
<td>Lack of digital skills caused by insufficient user-friendliness and inadequate education or social support</td>
</tr>
<tr>
<td>Usage</td>
<td>Lack of significant usage opportunities</td>
</tr>
</tbody>
</table>

**Table 11: Defining Access**

### 6.1.2 Gambling on the Thrust of Market Forces

In July of 1999, the National Telecommunications Information Administration (NTIA, 1999) released a report showing that while more Americans than ever have access to information technology, the gap between information haves and have nots persists and has widened significantly. The Commerce Department argues that while the prices of computers fall and incomes rise, the digital divide is getting worse (NTIA, 1998).

Several initiatives to bridge the gap have been proposed in response to this report. For instance, Commerce Secretary William Daley hosted the first National Digital Summit which brought together over 800 representatives from U.S. technology firms, minority and civil organizations, and government officials to discuss strategies for expanding efforts to close the technology gap. In the spring of 2000, the President will kick off a New Market Tour of disadvantaged communities. AOL, AT&T, Oracle, Cisco and 3Com have recently initiated private sector programs. Local community groups have also joined the fight to end digital poverty.
Concurrent with the increasing number of initiatives, there are growing numbers of opponents who dispute the existence of digital inequality. Some detractors cite statistical evidence of the rapidly closing gap in Internet access between African Americans, Hispanics Americans and Whites (Ofori, 2001). Others state that there are have-nows and have-laters rather than haves and have-nots, and government proposals to bridge the digital divide are referred to as "high-tech pork barrels" (Thierer & VanHelmond, 2000). These critics contend that the high-tech industry that creates "innovative products, ever-increasing demand, intense competition, rapidly falling prices, high-paying jobs, and overall entrepreneurial energy" does not need federal assistance. The high tech sector has contributed to the amazing spread of digital technology and Internet-based services on its own quite effectively. Near universal access is only a matter of time. Others suggest that even if a gap does exist, it is not important because the Internet does not offer any radically new services. Everything that one can do on the Net can be accomplished through traditional channels (Stewart, 1999). Opponents also postulate that the falling price of computers has narrowed the divide (Delano, 1999).

While market forces have clearly made computers more affordable, arguments are being raised about the need for interventions to speed up technology diffusion. Delano (Delano, 1999) and others (Randlett & Gruener, 2000) state that market forces alone may not be sufficient to significantly narrow the gap as quickly as public policy would like. An opposing position was published in a Fortune magazine article that claimed that there is no need for the government to rush to bridge the technology gap. This author argues, “Moore's Law is the friend of the poor. As long as the cost of a given amount of processing power falls 50% every 18 months, fewer and fewer people will be unable to
afford to compute” (Stewart, 1999). Someday, those without Internet access will be disadvantaged, but not yet. There is nothing significant on the Net that you can't accomplish through another channel. Therefore, there is no need currently for the government to intervene (Stewart, 1999). However this argument fails to address the household spending tradeoffs that must be made in order to make a PC purchase. This tradeoff might be quite significant for a lower income family. In some cases, the cost of even a cheap PC may be deemed too high.

Why should owning a PC and Web access be a measure of economic success? We've already learned that a lot of old economic laws may no longer apply in the new economy. While universal access to the Web may be deemed excessive by conventional thinking, the cost-cutting benefits to businesses, the boost to workplace productivity, and the improved literal and figurative health of our communities mean that we must seriously consider the idea (Stephenson, 2000). This is a radical shift in ideology whereby access to technology becomes part of our country's infrastructure like postal services and highways. Technology becomes social good or entitlement rather than an economic or luxury good. However government efforts to provide universal service must be scrutinized because the importance of the Internet in some people's lives is subject to wild exaggeration (Hafner, 2000).

6.1.3 Increasing Wealth for the Wealthy

While the Internet may not provide significant content and services, this technology does create wealth for the wealthy. For instance, the Center on Budget and Policy Priorities released a study that states that the gap between the rich and poor in the US is now greater than at any time since the great depression (Alter, 1999). The richest
2.7 million Americans have as much income as the poorest 100 million. This report contends that this trend is being driven by technology.

This argument is supported in a few community-based studies conducted by journalists. A US News and World Report article depicted Austin, Texas as an example of a city clearly divided in terms of wealth and opportunity created in the New Economy. The high-tech boom has been good to those who have computer jobs and own technology stocks. However, those who missed the technology bandwagon have not seen their wealth grow. The eight-lane highway that separates Austin's city limits from the posh hill country neighborhoods crystallizes the divide. On the inner city side of the highway, the residents are largely African-American and Hispanic and the schools do not have working computers. The one-time donation of computers does not help because you simply cannot expect people to use and maintain the technology (Holstein, 2000). On the suburban side of the highway, technology workers have high-speed Internet access and high paying salaries with lucrative stock options.

A similar situation exists in the towns of Blacksburg and Prices Fork, Virginia. Blacksburg is the most wired town in the nation with 85% of its residents online. By contrast, in the region surrounding Blacksburg, only 14% are connected to the Net and 20% have access to a computer mostly through schools that just started to install them (Stepanek, 1999). Attempts to bridge the divide are failing in Virginia as well as Austin. "It just isn't enough to introduce folks to technology without making access meaningful. It’s the difference between giving people a book and teaching them to read" (Stepanek, 1999).
6.1.4 Opposing Views of Digital Equality in the New Economy

The so-called New Economy is also a contested phenomenon. Proponents of the New Economy such as Daniel Bell have theorized that information, knowledge, technological innovation and intellectual technology signify the social organization of post-industrial society (Bell, 1976). It is of little surprise, therefore, that the United States society places a large premium on the importance of computers. For Bell and other proponents of information society, computer mediated access to information ensures wealth for those who know how to take advantage of new technology. Moreover, technological progress would lead to growing social equality.

This utopian view of technology has been sharply criticized by those who disagree with the notion of an information society. For instance, Schiller (1996) contends that technology is a controlling force in society. Culture and information are increasingly being commodified and individuals who have greater access to, understanding of, and ability to use computers will be able to employ this knowledge to create new knowledge, control existing knowledge and thereby the lives of others. Similarly, Bourdieu and Passeron (1979) argue that there is a shift in the reproductive strategies of the elite. In addition to the direct transmission of economic capital through inheritance, the dominant class also tend to convert a certain part of their property into educational and skill investments. Higher education is a form of certified cultural capital that promises their offspring entry into the leadership positions in corporation. Technology has become a new instrument of cultural capital that the dominant classes have adopted and integrated into their strategy of social reproduction.
Recent studies have employed Bourdieu's concept of cultural capital to help explain how structural factors influence computer usage. Structural factors are those social, economic and institutional constraints that influence people's life-chances (Lentz et al., 2000). For instance, Nakhaie and Pike (1998) examined the influence of social origin and structural factors on computer usage among adults and found that those endowed with cultural capital from their parents did in fact have greater access to technology.

In a study of public Internet access in libraries, researchers also found that cultural capital structured patrons use of technology (Lentz et al., 2000). Users have access to the Internet through the library, but they are limited by their knowledge of what to do when they get there. The Internet station usually has signage of what not to do. However there is little guidance to advise a new user on how to use the technology. On several occasions observers noted adult novice users about to leave the library in frustration over the lack of human resources to help train them in Internet use. This is typical of interactions between a participant and the librarian. - A male patron says, “I heard I can get on the Internet here.” The librarian informed him that he must first sign up and then pointed out the Internet computers. The patron then let the librarian know that he had never used the Internet before and had barely ever used a computer. The librarian let him know that the use of the Internet at the library was a self-serve system and that he would have to try on his own. The librarian did not mention that Internet classes are available at this site. He then asked for help, but the librarian politely reiterated that he was “on his own.”
6.1.5 Debating Politics and Internet Public Policy

The Telecommunications Act of 1996 marks the beginning of the movement to end computer illiteracy. Observers noted that while Al Gore initiated this act, he was noticeably silent on the issue during the early part of the 2000 Presidential Campaign. These observers speculated that the former Vice President was seeking campaign contributions from Silicon Valley executives who might not look kindly on increased government intervention in the Internet (Freeza, 1999). More recent depictions of Gore found that he was maintaining his campaign's focus on education to reach ethnic minorities. For instance, in the spring of 2000 Gore spoke at Morehouse College, one of the country's elite historically Black colleges. While Mr. Gore has spoken on this topic several times by doing so at Morehouse he again underscored the importance of African-American voters to his campaign (Sack, 2000).

Not only was Gore the object of debate, detractors noted that Clinton's $2 billion initiative to close the gap had become a motherhood issue for many politicians during the 2000 election. They have gone from "promising a chicken in every pot to a computer in every family room" (Woellert & Dwyer, 2000). These skeptics believe that the proposed spending does not attack techno-illiteracy at its roots, and this money may produce a boondoggle that subsidizes the computer industry (Woellert & Dwyer, 2000). They see the efforts to bridge the divide as largely political in an era of plunging PC prices and free Web access. For these opponents, the efficiency of market forces dominates thinking (Shriver, 2000). Critics also argue that communities are helping themselves by instituting local technology access initiatives (Pierce, 2000); (Schiller, 2000).
Even the US Chamber of Commerce questioned government spending. They would rather see money spent on training teachers to use the technology that they already have. Republicans don't want to see the "information superhighway turn into a public works project" (Woellert & Dwyer, 2000). While Clinton insisted that this was not a political deal, Republicans contended that the former President's proposal was a giveaway to the poor and Silicon Valley. Others noted that subsidizing Internet access made little policy sense, but a lot of political sense. They speculated as to how much of these government subsidies would find its way back to the high-tech companies whose executives were volunteering to help close the digital divide.

6.1.6 Contesting the Damned Statistics

Most of the debates cite the National Telecommunications Information Administration studies (NTIA, 1999). These annual studies report a gap between the information rich - Whites, Asians, those with higher incomes and education levels - and the information poor - those with lower incomes and lower educational levels, certain minority groups and those living in central cities and rural areas. For instance:

- If you live in a household with income of $75,000 or above, you are more than 20 times more likely to have Internet access than those at lower income levels.

- Black and Hispanic households are roughly two-fifths less likely to have home Internet access as White households. A child in a low-income White family is three times as likely to have Internet access as a child in a comparable Black family, and four times as likely to have access as children in a comparable Hispanic household.
• If you are Black or Hispanic, there is only a 20% percent chance that you have a computer in the home and a 20% chance that you have the Internet (41% White).
• In the last 3 years, the digital divide between those at the highest education levels and lowest education levels increased 25%. Those with a college degree are more than eight times as likely to have a computer at home, and nearly sixteen times as likely to have home Internet access, as those with an elementary school education.
• A child in a dual-parent White household is nearly twice as likely to have Internet access as a child in a White single-parent household, while a child in a dual-parent Black family is almost four times as likely to have access as a child in a single-parent Black household.

This means that if your children attend a public school or if they are using an inner-city library, they probably are not connected to the Internet (Simama, 2000a). From an educational perspective, they are at risk. This also means that many adults in the city don't have the skills to work in information and knowledge based economy. And many small and minority-owned businesses will face a competitive disadvantaged in terms of the domestic and the global economy if they don't have equal access to broadband technologies.

The bleak pictures portrayed by these statistics are often disputed, and many alternative theories exist as to the nature of the divide. For instance, opponents of the digital divide cite uncertainty in the National Telecommunications and Information Administration study results because of outdated information and lack of historical data to detect trends (Lardner, 2000). Another limitation of the government survey is the lack
of information about out-of-home access. This is especially troublesome when other surveys have reported that Americans obtain much Internet access from home (62% of employees) or school (75% of students) (Lardner, 2000). When one considers that many workers and college students get Internet access from corporate or public computer networks, the credibility of the government statistics is weakened.

However, other researchers defend the government's survey techniques. Hoffman, for instance, contends that computer usage in the home is the key driver for continued usage and that measuring home computer access is appropriate for government policy purposes. Old data is also not bad because it provides a snapshot of Internet access at certain points in time. This information is useful for time series analysis and allows researchers to understand the likely impact of policy initiatives (Lardner, 2000).

While we can debate the reliability of the statistics, there seems to be agreement on the growing need for IT workers. According to an industry survey by the Information Technology Association of America (Joyner, 2000), US companies expect to create 1.6 million new information technology jobs this year, and over 310,000 of these information technology jobs will be in the South. They estimate, based on the qualification of current applicants, more than half of the 843,000 job openings may be difficult to fill.

The survey also estimated that in five years, almost half of the US workforce would be employed by industries that are either major producers or intensive users of information technology products and services. Information technology workers already earn almost two times ($53,000) as much as in the economy in general ($30,000). In fact, to meet the demand for highly skilled technology workers, the United States
Congress temporarily increased the annual number of H1-B visas from 65,000 to 115,000 in the year 2000.

More locally, Georgia stands fourth in the southern region and ninth nationally in terms of total information technology workers. It is projected to have the highest growth rate in the region and second nationally in the period 1996-2006. In this same period, 5,560 new information technology jobs are projected annually, which places Georgia third in the region and fifth nationally. Finally, in terms of information technology worker intensity (i.e., share of the total state labor market), Georgia ranks second regionally and ninth nationally. As for cities, Atlanta ranks second regionally and eighth nationally as the most “wired” city (i.e., percentage of e-commerce penetration) (McLean, McDonald, & Case, 1999).

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<td>4</td>
<td>7670</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 12: IT Labor Market Statistics for States in the South and Southeast

6.1.7 Examining the Geographic Dimension

The lack of adequate infrastructure in rural areas is also debated. Rural telecommunications providers state that this gap is greatly exaggerated; it is a myth perpetuated by large telecommunications carriers in search of luring policymakers into granting them regulatory relief. The small rural telecommunications companies state that 40% will offer fractional T1 service, 30% will offer Digital Subscriber Line and 30% will offer Integrated Services Digital Network by 2000 (Brunner, 1999).

Alternative analysis is also being disseminated (Lieberman, 1999). For example, the Progressive Policy Institute (Dunham, 1999) conducted a study that ranked the fifty states on how well they were adapting to the New Economy. It used criteria such as the number of high tech jobs, quality of educational technology, percentage of households online, and available venture capital. The findings suggested geographic patterns where the West Coast and eastern seaboard from New Hampshire to Virginia are at the forefront, while the Upper Midwest and Deep South lag far behind. There are dead zones in cyberspace in states like Georgia, Mississippi and Maine, but the digital divide is particularly acute in Western states. The author describes these technology poor regions as "digital dustbowls". Many firms do not want to provide service to these remote locations because it is too costly. The problem is not just economic however. Advanced networks like Digital Subscriber Line and 56K modems cannot deliver higher speeds when your house is many miles form the nearest switching office, and cable TV companies often leave the more remote spots to satellite dish sellers (O'Malley, 1999).
6.1.8 Eradicating Digital Apartheid

While the rhetoric on the geography of the digital divide is mostly positioned as a business issue, the plight of the urban poor takes on a humanistic tone. The urban poor have become the poster children for the government's digital divide campaign. For instance, William Daley, the U. S. Secretary of Commerce, has become the key governmental spokesman for the digital divide. Much of his writings take on a paternalistic tone as crusader of the urban, the rural, the poor, and ethnic minorities. In a discussion with inner city youth in Los Angeles, Daley informs them that he was in Watts with Magic Johnson! He talks about entrepreneurship on the Internet, and getting companies to move jobs into the inner city. He tells them about the President's long overdue meetings with business and civic leaders to address the digital divide (Daley, 1999). However, these riveting speeches do little to offer tangible, immediate improvements in the life chances of inner city youth.

The online population is still largely well educated, White and upper middle income. Whites are twice as likely as Blacks to own a computer and three times as likely to be plugged in (O'Malley, 1999). While Silicon Valley invented the New Economy, they also claim to have invented a postmodern society free of class and racial prejudice that judges people purely on merit. This may be true for Asians, but the statistics do not hold for Latino workers. Indian and Chinese created 27% of the 4000-plus high-tech businesses founded from 1991-1996, and almost one third of the region's scientists and engineers are Asian born. However, a study conducted in 1999 found that only 7% of the workforce was Latino and hardly any of these held managerial jobs (Anonymous, 1999c).
There are several reasons for this ethnic divide. Only 56% of Latino students graduate from high school, only 19% complete basic courses needed for college placement and only 11% are enrolled in advanced math classes. However, 84% of the jobs at the area's fastest growing companies required education beyond high school. The absence of African-American and Hispanic role models in high tech companies caused by weak minority hiring records in places like Silicon Valley also contribute to the problem. Companies say that they cannot hire enough qualified minorities, yet few provide more than a token contribution to nonprofit organizations working in the inner city (Alter, 1999). This practice has important business implications because Latinos are becoming a powerful political force in Silicon Valley. Trade unions are organizing and recruiting lots of Latinos as they fight for better wages (Simon, 2000). Also popular political figures such as Jesse Jackson are placing pressure on Silicon Valley firms to increase employment opportunities for minorities (Peirce, 2000).

In addition to employment opportunities in technology firms, Internet-based media does not currently provide the depth, variety, immediacy and personalized information that minority groups are seeking. While the NAACP argues that minorities should boycott (Anonymous, 1999a), others are creating content for themselves. This trend hasn't gone unnoticed. AOL was the first to jump in, followed by Tribune Company and Cox Communications (Tuckett, 1999). To successfully reach these culturally diverse audiences, companies must provide quality programming and genuinely value minority consumers. However, many sites with content designed for minority groups do not attract media planners and advertisers because these websites are not included in the sampling conducted by online ratings companies.
Experts in the area of e-commerce suggest that consumer-to-business services are not a niche market; they must appeal to a wide audience (Tapscott, 1998b). However, even when online retailers have products and services of interest to ethnic minorities, problems still occur. In April 2000, Kozmo.com was sued by the Equal Rights Center, a Washington D.C.-based civil rights group, and two African American co-plaintiffs who claim the company refused to deliver merchandise to their homes because they reside in predominantly African American neighborhoods. In Washington, D.C., the population is 66% African American, but 65% of the residents in Kozmo's service area are White. According to a new geographic Internet usage report released by Nielsen/NetRatings, Washington, D.C. is one of the top five markets for Internet penetration in the United States. Moreover, a Forrester study shows that African Americans had the highest growth rate of Internet usage of any ethnic group in the U.S. last year, growing 44 percent. This study also reveals that African Americans are more likely than Whites to buy the items Kozmo sells (Greenberg, 2000). Nevertheless, according to MSNBC, 350,000 of the city's 400,000 African American residents are ineligible for Kozmo's service -- strictly because of their zip codes.

Not everyone shares this sympathetic view. Some argue that poor African-Americans and Hispanics are worse off simply because rich Whites are adopting the Internet faster. The logical implication is that the poor would be better off if the rich adopted the Internet more slowly, making sure the gap doesn't widen (Freeza, 1999). This elitist analysis goes on to state that the faster the rich purchase computers, the faster production volumes will grow, and the prices of computers will rapidly fall. Therefore, the poor will at some point be able to purchase a computer. Since Internet access is
cheaper than a subscription to the New York Times (the New York Times is primarily read by poor New Yorkers) and cheaper than a cigarette habit (a larger percentage of poor people are smokers), the poor could afford Internet access.

Opponents also argue that even if technology were given to the poor, they still would not use it for much beyond communication. For instance, Wright (2000) states that even if the Internet offers educational resources that low-income households lack such as the Encyclopedia Britannica, it is not going to make much difference because most teenagers are going to spend little of their online time browsing through the Encyclopedia. Broadband technologies are best suited for entertainment. Other critics make similar arguments. Subsidizing household Internet access makes little policy sense. Poor people -- like people generally -- will need less encouragement to get online as the World Wide Web becomes more of an entertainment medium. There are also fears that because the poor are purportedly more susceptible to advertising and deceptive commercial practices, any bridge across the digital divide will just lead poor people into consumerist quicksand.

Adam Clayton Powell and others deny the existence of a racial or ethnic divide. They argue that while earlier National Telecommunications and Information Administration studies noted large disparity between ethnic groups, the gap has been narrowed (Williams-Harold, 2000); (Lardner, 2000). However Larry Irving, former assistant secretary for the Commerce Department, suggests debating the ethnic issue takes time away from solving the problem and that more needs to be done to help inner city youth (Jerding, 2000a). The major issue is that a growing information underclass lacks the vocabulary and motivation necessary to integrate digital tools into their lives.
(Schiller, 2000). The schools alone can't do it. The easiest way for corporations to promote universal access is to give employees computers for their home use (Tapscott, 1998b). This is an important insight because companies are now compelled to provide Internet based services to customers, suppliers and job candidates. For example, some experts have predicted that by 2006, nearly half of all U.S. workers will be employed either by industries that produce information technology or by industries that are intensive users of IT as compared with 40 percent in 1989 (Page, 1999). Since employees cannot ethically use company resources for personal use, providing home-based access to Internet technologies may extend the customer base for many online firms.

6.2 Summary

This chapter contrasts many of the public debates surrounding the digital divide. The intent is to provide the reader with a sense of the scope of the issues and perspectives to better motivate the study. These competing discourses also suggest communities that might benefit from the theoretical and practical knowledge derived from this study. Areas for future research and collaboration also come to the fore.

The digital divide is being discussed in all levels of the US government, in corporate boardrooms, in educational institutions and in grassroots organizations. Although a gap in access to computing technologies has existed for almost a decade, the notion of a digital divide came into popular vernacular around 1998. Since then, the digital divide has given way to the notion of digital inequality. The most current and volatile discourse come from "fugitive documents" such as policy documents, position papers, project reports, and web-based working papers from research institutions.
(Bernard, 1995). Rather than cite statistical evidence for the existence or nonexistence of the divide, this chapter demonstrates the diversity of discourses surrounding this issue.
VII. Guidelines for Appraising Ethnography

Unlike positive science with deeply entrenched tenets of what constitutes rigorous research, a comparable body of commonly held beliefs does not exist for interpretive fieldwork. This is made evident by the number of conference sessions and journal papers addressing the conduct and evaluation of interpretive fieldwork. Rather than leave the assessment of the dissertation open to multiple and perhaps inappropriate evaluative criteria, the reader should apply the set principles presented in Table 13.

Although several authors provide guidance for evaluating interpretive research (Lofland & Lofland, 1995); (Agar, 1996); (Golden-Biddle & Locke, 1997) (Stewart, 1998); (Klein & Myers, 1999), the overarching principles set forth by Myers (1999) are most applicable because they apply specifically to ethnography as conducted in information systems research. In addition, these principles encompass the various stages of research, from data collection, to analysis, and on to the presentation of results and contribution to the research community. This enabled me to map each of the principles to the applicable dissertation chapters.

7.1 Writing the Culture

Ethnography literally means, “writing the culture”, which clearly signifies the primordial importance of writing in achieving each of these principles. In fact, Prasad (1997) argues that writing believable texts is the most important consideration for ethnographers. While I do not make any claims of truth, I must demonstrate the
credibility of my understanding and interpretation of the social reality of the study at hand.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has a significant amount of material been collected?</td>
<td>The hallmark of ethnography is participant observation over a reasonable length of time. The researcher must demonstrate evidence of her involvement in the organization.</td>
<td>Research Procedures</td>
</tr>
<tr>
<td>Is there sufficient information about the research method?</td>
<td>As the ethnographer is the primary research instrument, the researcher must demonstrate the “validity” of her findings. It is important that the reader knows what the researcher did and how.</td>
<td>Research Procedures</td>
</tr>
<tr>
<td>Does the author offer rich insights?</td>
<td>Because of the intensive nature of the ethnographic approach, the ethnographer must demonstrate a high level of engagement with the informants in the field. The ethnographic text must be believable and plausible, and challenge or contradict conventional wisdom and commonly held assumptions.</td>
<td>Portrayal of Results</td>
</tr>
<tr>
<td>Is this a contribution to the field?</td>
<td>The ethnographer’s main challenge is to convince the reader of the worth of the study. This can be judged by the extent to which the author provides new insights to the research community.</td>
<td>Contribution to Knowledge</td>
</tr>
</tbody>
</table>

Table 13: Guidelines for Evaluating the Study

I do so by employing Golden-Biddle and Locke’s (1993) conventions for composing ethnographic texts that are convincing. I view these principles as writing conventions that help to portray rich insights that challenge commonly held assumptions. These writing conventions have also been utilized in prior information systems research (Schultze, 2001);(Walsham & Sahay, 1999).

Golden-Biddle and Locke (1993) make use of the three criteria listed in Table 14. *Authenticity* appeals to the reader to accept that the researcher was indeed present in the field, and grasped how the members made sense of their world. It is related to values of alertness, receptivity to the views of others, empathy, and open-mindedness. *Plausibility* describes how well the study transcends the perspectives of the research community and
the members of the field site. The work must convince the reader that the study makes a new contribution to knowledge and, at the same time, the work must seem familiar and relevant. *Criticality* measures how well the text probes the reader to reconsider their taken-for-granted ideas and beliefs. The way the text delivers its message is vital in establishing surprises that invite the reader to re-examine their assumptions.

<table>
<thead>
<tr>
<th>Epistemic Value</th>
<th>Authenticity</th>
<th>Plausibility</th>
<th>Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underlying Questions</td>
<td>♦ Has the author been &quot;there&quot; in the field? ♦ Has the author been genuine to the field experience?</td>
<td>♦ Does this make sense to me? ♦ Does the study offer something distinctive?</td>
<td>♦ Does the text activate readers to re-examine assumptions underlying their work?</td>
</tr>
<tr>
<td>Research strategies</td>
<td>♦ Particularizing everyday life ♦ Delineating the relationship in the field ♦ Depicting the disciplined pursuit and analysis of data ♦ Qualifying personal biases</td>
<td>♦ Normalizing unorthodox methodologies ♦ Drafting the reader ♦ Legitimating the atypical ♦ Smoothing the contestable ♦ Differentiating findings ♦ Building dramatic anticipation</td>
<td>♦ Carving our room to reflect ♦ Provoking the recognition and examination of differences ♦ Imagining new possibilities</td>
</tr>
</tbody>
</table>

Table 14: Dimensions of Ethnographic Portrayals

Cognizant of these guidelines, I make assertions about the role of information technology in reproducing social inequality in underserved urban communities. Making contextually grounded theoretical points that are viewed as a knowledge contribution by relevant communities of readers is the major task of an ethnographic text (Golden-Biddle & Locke, 1997). Theoretical points will be presented, contextualized and warranted through thick description of observations, interviews, and casual conversations that
occurred during the fieldwork. Citations from extant research, local news media, and government reports will also be used to provide statistical evidence in support of these knowledge claims. The intent is to provide enough of the social, cultural, political, economic and historical context so that the reader can assess the criticality, plausibility and authenticity of the results. In addition, I will provide evidence of the “ethnographic path” so that the reader can assess the rigor of the data collection and analysis.\footnote{Member checking by participants was included in the proposed research design. However, in the actual fieldwork, it was not feasible to go back and interview participants. Member checking was conducted with the staff.}

\textbf{7.1 Summary}

This chapter presents a set of criteria for evaluating the research procedures, portrayal of results and contributions to knowledge. The chapter concludes with discussion of mechanisms that facilitate the production of convincing ethnographic texts. These frameworks are necessary because a single collection of commonly agreed upon canons for assessing interpretive research does not exist in the information systems research community. Hence this chapter provides a set of principles to assist the reader in evaluating this research, to demonstrate the rigor of the research approach, and to clarify the guiding principles that informed this research.
VIII. Research Procedures

In this chapter, I share how I worked in the field and the library to construct this account. This is my attempt at demystifying and laying open this process of constructing a “scientific ethnography”. The chapter begins with a presentation of the philosophical orientation that informed the research project. The discussion of the philosophy is needed to provide a rationale for the research genre and an understanding of the theoretical framework that were used to guide the data analysis and interpretation.

The setting is described, followed by a discussion of how entrée to the field site was obtained. The remainder of this chapter provides an overview of how the actual fieldwork was staged, which includes sampling procedures as well as the details of the data analysis procedures. The intent is to provide evidence of the rigorous application of research method as well as a reflexive stance that incorporates my experience of learning as participant observer (Wolcott, 1995). Van Maanen (1988, p.92) calls this the "confessional tale" and it is used to show how a reader might work back from a display of the conditions under which the fieldwork was accomplished to some assessment of the study. I note how much time was spent with informants and simple statistics of categories of materials collected. In addition, an account of the research practice itself is included so that the reader can assess the rigor of methodology.
8.1 Unveiling the Philosophical Orientation

All research is guided by a set of beliefs and feelings about the world and how it should be understood. It represents a worldview that defines, for its holder, the nature of the world, the individual’s place in it, and the range of possible relationships to that world and its parts. These are basic beliefs in the sense that they must be taken on faith; there is no way to establish their ultimate truthfulness. Moreover, although multiple paradigms can be employed in a research endeavor, there is no way to elevate one paradigm over others (Guba & Lincoln, 1988).

To gain a richer understanding of social phenomena, Bourdieu(1980) suggests an epistemology which forces one to consider both the individual and social structure. On the one hand, subjectivism focuses on the lived experience of the actor, which takes the social world as self-evident. However subjectivism is limited because it excludes questions about the internalization of social structures that make lived experiences possible. Since all human action is situated within determining structures that are not readily apparent in everyday consciousness, the researcher must focus on theoretical practices. This requires critical reflection on the research practice itself, and is essential for establishing the ‘validity’ of the accounts of social phenomena.

On the other hand, objectivism sets out to grasp objective regularities such as structures, laws and systems of relationship, that take place irrespective of individual consciousness and will. It assumes the existence of social structures that are well outside the realm of the individual yet exerting force over actors. However, objectivism ignores
the experiences that are both the condition and the result of structuring operations on the individual. Therefore this epistemology cannot account for the generative features of practice. Bourdieu argues that the researcher must focus on the generative as well as situated character of practice, and suggests a reflexivity process to help overcome the subjectivism/objectivism split.

First the researcher must be cognizant of the position that she occupies in the academic field. The novice researcher, in particular, is under the sway of forces of attraction and repulsion of more established professors in the field. Second, the researcher must be aware of how her social origin and coordinates such as class, gender and ethnicity may impact the validity of the account. This is especially important for critical researchers concerned with charges that their work is biased by their own ideologies (Schwandt, 1997). Finally, the researcher must examine the intellectualist bias that may lead her to construe the social world as spectacle to be interpreted rather than as a concrete problem to be solved practically. This requires reflection on the research practice itself. When researchers uncritically apply formal models, they project the formal properties of theory onto an informal world of everyday practice. Thus the researcher inflicts yet another form of symbolic domination (Swartz, 1997).

**8.2 Justifying the Research Genre**

The study is based on the critical ethnography research genre. Research can be classified as critical if the main task is one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light. Critical research seeks to be emancipatory in that it aims to help eliminate the causes of unwarranted alienation and domination and thereby enhance the opportunities for realizing human potential (Klein &
Myers, 1999). While people can consciously act to change their social and economic conditions, critical theorists recognize that human ability to improve their conditions is constrained by various forms of social, cultural and political domination as well as natural laws and resource limitations.

Critical research must also be connected to an attempt to confront injustice of a particular society or sphere within the society. Critical researchers must announce their partisanship in the struggle for a better world rather than assume the neutrality of more traditional research. So that no one is confused about the political position of the researcher, she must bare her epistemology and assumptions about the social phenomenon under investigation. Whereas traditional researchers see their task as the description and interpretation of a slice of reality, critical researchers often regard their work as a first step towards forms of political action that can redress the injustices found in the field site or constructed in the very act of research itself. In other words, critical research is never satisfied with merely increasing knowledge (Kincheloe & McLaren, 1998).

Within society, the language of economics often dominates the definition of whose knowledge is most legitimate and whose voice counts most. Questions of profit and production take precedence over questions of justice and humanity. There is little room for seriously tending to the needs of underserved communities when entire countries are being forced to compete in the no-nonsense global market. Therefore the role of the critical ethnographer is translator of democracy in a hegemonically expanding landscape (Kincheloe & McLaren, 1998). This is research from the periphery that gives voice to those marginalized by the hierarchical discourses of technology.
Harvey and Meyers (1995) argue that ethnography is well suited to providing information systems researchers with rich insights into the human, social and organizational aspects of information systems development and application. In the domain of information systems research, ethnographers would adopt a more problematic understanding of technology, seeing it as having both functional and symbolic properties (Prasad, 1997).

Ethnography is a research style that emphasizes encountering alien worlds and making sense of them. In practical terms, ethnography has a substantial number of the following features (Atkinson & Hammersley, 1998):

- A strong emphasis on exploring the nature of particular social phenomenon rather than setting out to test hypothesis about them.
- A tendency to work primarily with "unstructured" data, that is, data that has not been coded at the point of data collection in terms of a closed set of analytic categories.
- Investigation of a small number of cases, perhaps just one case, in detail.
- Analysis of data that involves explicit interpretation of the meanings, and verbal descriptions and explanations with quantification and statistical analysis playing a subordinate role at most.

Ethnographers study the actual practices in real world situations. This enables the researcher to investigate field sites as complex social, cultural and political systems. This implies that the researcher has to consider many different perspectives. For instance, there is a need to look at the views of the various stakeholders in the field to uncover the
value conflicts, symbolic forms of domination, and resistance to dominant ideologies. Ethnography is well suited for uncovering these symbolic mechanisms because it is longitudinal, intensive and provides emic or insider understanding of a social organization.

Through thick description, the ethnographer weaves analysis and presentation of both shared and contradictory cultural meanings from the point of view of the informants. This helps to guard against the intellectualist bias whereby the unreflexive researcher imposes theoretical constructs on the logical practices of individuals. Ethnography is therefore neither subjective nor objective. Rather it is interpretive, mediating these two worlds through a third (Agar, 1986). This notion of an interpretive third world fits with Bourdieu's epistemology which seeks to mediate the subjective / objective dichotomy.

Finally, ethnography is consistent with the emancipatory aims of the research. The practical and political orientation of ethnography has become more widely spread (Atkinson & Hammersley, 1998). There is also a drive for researchers to contribute to the political struggles of oppressed groups (Atkinson & Hammersley, 1998).

8.3 Describing the Setting

This ethnography was conducted over an eight-month period, which is consistent with other ethnographic studies in the domain of information systems research (Orlikowski 1991; Schultze 2001). The study was performed at the headquarters of the city’s Community Technology Initiative, one of the first and perhaps the largest digital divide efforts to be mounted by a municipality. The program began on June 26, 2000, and one year later, there were seven community technology centers located primarily in low income, predominantly African American communities.
The initial funding of $8.1 million was obtained through a renegotiation of the city’s cable franchise agreement. In a cable franchise agreement, the cable operator exchanges a percentage of its revenue for the use of the local right-of-way and for its monopoly franchise. These funds are typically used to support non-profit community television stations, and educational and government access television channels (Klein, 1999). In addition, corporations have donated over $600,000 in additional funding and in-kind donations of equipment and software.

In the first year of operation, the initiative has strategically located seven community technology centers in areas of the city where residents are not likely to have access computers. The centers offer free public access to high-end computers with broadband Internet connections, as well as courses in popular business applications such as Word, Excel and PowerPoint. To date, over 7000 residents have made use of the centers.

The curriculum provides training in popular business applications such as Word, Excel and PowerPoint. Residents also learn to develop web pages and to conduct research on the Internet. Programs are offered to seniors, adults and school-aged youths. To meet the demands of these diverse participants, the centers are open from 9:00 am until 9:00 pm. The city and corporate sponsors jointly fund the centers. Corporations involved are Earthlink, BellSouth, SkillLearing, Gateway and 3Com. Other potential partners are Smartforce, Enron, and AOL.

8.4 Gaining Entry

The most difficult stage of the research was gaining entry to a field site. I began the search for the field site during the summer of 2000 when I made my first visit to the
community technology center headquarters. In a strange case of serendipity, I had
contacted Jabari Simama, the executive director, via email several months back for a
totally different purpose. While searching for relevant literature on the Internet late one
evening when I came across the website for Dr. Simama’s class on Race, Ethnicity and
New Media. We exchanged a few email messages and arranged a meeting to discuss our
common interests in the digital divide. My intent for the meeting was to obtain leads for
possible field sites. It wasn’t until a month or so later that I discovered that Dr. Simama
was the community technology initiative.

I arranged a meeting with Dr. Simama in late August 2000. Dr. Simama was
supportive of my research, but I clearly needed to change the context of the study. My
dissertation proposal, at that time, was to study an employee PC purchase initiative at
either Ford Motors or Delta Airlines since both companies had large presence in Atlanta.
Since Dr. Simama could not grant access to the community technology centers for five
months, and I wanted to begin my fieldwork as soon as possible, I decided to pursue my
options at Ford and Delta.

Nothing in my doctoral program prepared me for the task of selling a research
idea. And, while painful, it is perhaps one of the most useful skills for field researchers.
My attempts at gaining entrée to Ford Motors were futile. I never got beyond a few
phone calls to the Human Resources department. I did however make some headway
with Delta. For two months, I attended some meetings with their Chief Learning Officer,
Director of Research, and the administrators of their wired workforce program.
Ultimately, my project was not supported due to Delta’s inability to provide adequate
resources for a longitudinal study. There were also legal concerns regarding publications
based on the results of the study. I was not willing to have their legal department censor my publications, so the Delta field site fell through as well.

Four months had now gone by, and the New Year was rapidly approaching. I rewrote my proposal with a focus on community informatics, and got back in touch with Dr. Simama. In January, I was granted permission to conduct my dissertation research at the community technology center, and I immediately began working in the field.

8.5 Staging the Research

This section summarizes the sequence in which the fieldwork was conducted. I began by employing social network mapping which is a systematic technique for becoming quickly acclimated to a field site. This technique is typically used in applied ethnographic studies to discover areas within a community that lack needed services such as health care or schools (Trotter & Schensul, 1998). Social network mapping was used in this study as a means to build rapport, to gain an initial understanding of the social dynamics within the organization, and to get to know the physical layout of the field site.

I began by walking around the facility, taking pictures with a digital camera and drawing a map of the physical layout of the building. I also ventured out into the community to draw a map of the surrounding area. Since access to and usage of computing resources was an important factor, I inventoried the location of computing resources. With some understanding of the physical layout and computing resources, I shifted my focus to understanding the people.

I began by obtaining a copy of the organizational chart and located the key players in the organization and their relationships. The formal organization consisted of a five persons staff, classroom facilitators, and participants. However, the formal
organization was not my primary interest. I wanted to learn about the informal social relationships that existed within the organization. This required building a slow and steady rapport with informants over time. I began this process by going door to door to introduce myself, and engaging in some initial conversations. This census was used to establish my relationship within the organization, but this technique can backfire if people are afraid that you are a spy (Bernard, 1995). So I purposely maintained some distance, and tried not to come on too strong. But clearly I had to come up with a procedure for finding reliable informants.

Sampling in ethnography is quite different than sampling techniques in survey research or even grounded theory. Thus, it is necessary to point out these methodological differences as well as the actual approach that was taken to locate informants. Since I had liberal access to the participants, staff and administrators, I employed a purposive sampling approach. Purposive or ethnographic sampling seeks to obtain an emic or insider understanding of the organizational culture through the use of a few knowledgeable key informants. A good key informant is one who has the knowledge and experience the researcher requires, has the ability to reflect, is articulate, has the time to be interviewed, and is willing to participate in the study (Morse, 1998).

Purposive sampling differs from the grounded theory concept of theoretical or saturation sampling in which informants continued to be selected until the emergent theory can explain disconfirming cases. This depends on having sufficient information about the social setting to be able to identify informants who represent the widest possible dimensions of digital inequality. Purposive sampling also differs from probability sampling that attempts to capture the range of possible variation among
individuals in the population with respect to some \textit{a priori} criteria (Trotter & Schensul, 1998). The use of randomized sampling is inappropriate in ethnography because it may cause the researcher to narrow focus prematurely. In addition, while ensuring high reliability, this approach is misguided because it may yield extremely low validity (Fetterman, 1998).

In the initial weeks I would just hang out at the community technology centers and begin informal conversations with the residents participating in the programs. I took care in not getting too close to any one person initially since the literature suggests that initial informants will most likely be "strangerhandlers" or people with marginal social roles. These types of informants may not be knowledgeable and they may prevent the researcher from gaining access to other important informants (Agar, 1996).

I began a purposive sampling process with informal strategies such as natural opportunities, convenience and luck. This is a natural approach where I simply hung out and asked questions about what people do and why they come to the centers. As I learned more about the setting, I selected knowledgeable key informants based on their willingness to talk, and their specialized knowledge of key knowledge domain related to the research questions (Fetterman, 1998). These domains were not known \textit{a priori}, but were uncovered as I learned more about the organization. While this approach is less rigorous than using surveys or cultural domain analysis to quantitatively measure the knowledge of potential informants, this type of referral approach is typically used for locating key informants in ethnographic research (Bernard, 1995).

The entire staff, the classroom facilitators and all of the participants were African American. Each informant lived in the city and its neighboring communities. The staff
consisted of six city employees and an Executive Director appointed by the Mayor. The Executive Director has extensive experience in city government, serving as a former City Councilman and the Director of Communications to the Mayor. While I did interview both classroom facilitators at the headquarters center, my interactions were primarily with the one classroom facilitator whose classes I observed. By focusing on a single classroom over an extended period of time, I was able to collect in-depth data on the classroom facilitator and the twelve adult participants. Strong rapport with these informants was crucial due to the critical nature of the research topic. Therefore, while acknowledging that this would restrict the range of social types that I was able to sample and thus eliminate cross-case analysis, I chose to study this single classroom group in depth.

My early weeks in the field consisted mostly of informal interviews and participant observation in the classroom. The primary intent during this entry into the field setting was building rapport with the informants, gaining initial insights into the emerging classroom rituals, and discovering the lived experiences of the participants. The data collected during this initial stage was quite unfocused and less guided. I collected every piece of information that I could find. For instance, I spent two weeks scouring the community technology center’s web site. I downloaded every speech, press release and newspaper article that I could find. I also pulled Census Tract reports to get some idea of the demographics of the target community.

During my initial weeks in the field, I sensed some tension between the facilitators and the administration. In order to get the people in the classroom to trust me enough to reveal the sources of this tension, I distanced myself from the staff to be seen
as neutral as possible. Therefore, my strategy was to start engaging in the classroom, and follow up with the staff at the end of the study.

The initial data analysis was quite literal meaning that I specifically looked for keywords and phrases without much critical or interpretive evaluation. I did not yet have enough background to make those intellectual leaps. My intent was to learn as much as I could about the program and the community, and to discover general themes worthy of more intense investigation in the ensuing months. As I experienced breakdowns in understanding, I noted these interesting and unanswered questions in a living document. This list of questions and ideas became invaluable during the data analysis.

A second technique that I used in the field was a log. As I thought about questions that needed to be asked or people that I needed to meet, I placed these in a log. This document became my “to do” list for activities that I needed to conduct, questions that I needed to ask, and practices that I needed to observe during my time in the field. There was no way that I could complete every task listed on the list, but it did provide me with a focused agenda for each day that I went into the field. It also provides a documented path for how I went about doing the research.

After seven weeks in the field, I began to collect data on a more systematic basis. I was becoming more accepted by the informants and they started letting me in on the "good stuff". Bernard (1995) describes this as the time when the days will be filled with observation and the nights will be filled with writing up field notes. As this sense of discovery became more intense, I became more concerned about trying to make sense of what I was learning. I found Agar’s concepts of breakdowns and resolutions useful in this regard.
Agar (1986) describes breakdowns as departures from what the ethnographer expects. Breakdowns can be described as mandated (those initiated by the ethnographer) or occasioned (those that come up unexpectedly when doing ethnography). Breakdowns can also be categorized as core (the main focus of the study) or derivative (less important). Data collection focused on the resolution of those breakdowns that are mandated and core rather than those that may have come up and received little attention. Resolution was a process of question and answer until the breakdown was seen as coherent. This movement from breakdowns of established understandings and taken-for-granted assumptions, through a resolution of such breakdowns, to the construction of a coherent narrative is the essence of ethnography (Agar, 1986).

After 14 weeks in the field. I took a break from data collection to focus on the insights gained up to this point. I noticed that breakdowns were occurring infrequently with each interaction, and I was a little depressed because the class was over. The participants did not return to use the open lab, and the facilitator no longer taught at the center. So all my key informants had moved on, and I wasn’t sure how I was going to proceed with the staff. I needed time to look over the data that I had accumulated, and come up with lines of inquiry for the staff. I had to take stock, and order priorities for the time remaining in the field.

As it turns out, this time away from the center was beneficial. I returned to the field refreshed and more focused on exactly what kinds of data were lacking. I had specific topics that I needed to discuss with the staff, and I found myself spending less time just hanging out. I collected course satisfaction survey results, and attendance and
demographic databases. In addition I attended City Council meetings, and continued observing the everyday occurrences at the community technology center.

After a total of seven months in the field, I reached what I felt to be a saturation point, and I began getting bored writing field notes. When this occurs, the researcher knows that it is time to close down and go home (Bernard, 1995). I let my hosts know that I was leaving, and expressed how much I appreciated their hospitality. I held an additional meeting with the executive director to make arrangements for follow-up interviews to discuss the research findings. This dialogic approach in which the informants are given the opportunity to review and critique the findings was my attempt to strengthen the authenticity and accuracy of the final portrayal of results.

### 8.6 Detailing the Data Collection and Analysis Procedures

This section details the manner in which texts were collected, analyzed, and interpreted to answer the research questions. For the purpose of this study, a text consists of field notes, interview recordings and transcriptions, and formal and informal organizational documents. Qualitative research is inherently multi-method. The use of multiple methods reflects an attempt to secure an in-depth understanding of the phenomenon in question. Multiple methods, empirical materials and analytical perspectives in a single study is best understood then as a strategy that adds rigor, breadth, and depth to any investigation (Denzin & Lincoln, 1998). A summarized view of the multiple methods of collecting and analyzing texts is presented in Table 14. The information contained in the table is expanded in the subsections that immediately follow.
Data were collected via on-site observation of participants, unstructured and semi-structured interviews, document review and informal social contact with the staff and participants (see Table 15). Background and historical data on the initiative was obtained through published documents (newspaper articles, Requests for Proposals, City Council meeting minutes, and strategic planning reports) as well as interviews with the staff. The data was collected primarily from the headquarters facility because that gave me liberal access to participants, classroom facilitators as well as staff members. I spent 14 weeks conducting participant observation and informal interviews in the classroom, and 10 additional weeks conducting semi-formal interviews and observation with the staff. Over the entire data collection period, I observed and socialized with participants in the classroom and in the open access labs.

<table>
<thead>
<tr>
<th>Data Collection Methods</th>
<th>Data Reduction Methods</th>
<th>Data Analysis Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant observation</td>
<td>Coding and Memoing</td>
<td>Concept cards</td>
</tr>
<tr>
<td>Informal interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Field notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Network Mapping</td>
<td></td>
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</tr>
</tbody>
</table>

**Table 15: Methods for collecting and analyzing data**

<table>
<thead>
<tr>
<th>Empirical Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 hours of participant observation</td>
</tr>
<tr>
<td>200 pages of field notes</td>
</tr>
<tr>
<td>50 informal interviews (planned and opportunistic)</td>
</tr>
<tr>
<td>75 participant projects</td>
</tr>
<tr>
<td>100 digital photos</td>
</tr>
<tr>
<td>100 documents (reports, strategic plan, news articles, forms, fliers)</td>
</tr>
<tr>
<td>1 research log</td>
</tr>
</tbody>
</table>

**Table 16: Ethnographic Data Trail**
8.6.1 Observing Informants

In the study, data was gathered in the field primarily through participant observation, the principal data collection technique used in ethnography. I had to get close enough to the informants and make them feel comfortable enough in my presence so that I could observe and record information about their lives (Bernard, 1995). Great care was taken to convince the informants that I was an independent researcher rather than a paid consultant working for the city. I went to the centers at least three days a week, but I limited my period of observation between two and five hours because I did not record interviews. Therefore, I had to rely on field notes and memory to reconstruct daily events. I spent time observing in the classroom and interacting with staff, participants, and classroom facilitators during breaks. However, I did not have much opportunity to actually spend time watching the staff work. After every session of fieldwork, I wrote up extensive notes documenting my observations.

Participant observation involved an array of data collection methods such as observation, natural conversations and informal interviews. Through participatory observation, I witnessed and participated in the interactions, actions and behaviors of people in their natural settings. These relations were exhibited in the mundane aspects of daily life, conversations, and social practices.

Participant observation also reduced the problem of reactivity - people changing their behavior when they know that they are being watched. As people became less curious about my presence, they took less interest in my comings and goings. Informants also became less informative over time because they assumed that I knew more (Agar,
Therefore, continued observation was a good means of capturing the habitual and tacit nature of practice. Finally, participant observation helped to improve the quality of semi-structured interviews because I could formulate sensible questions in the native language.

8.6.2 Interviewing Informants

I employed informal interviewing and the overwhelming majority of these interviews were opportunistic. In informal interviewing, the researcher has the least control over the content and structure of the interview. This form of interviewing consisted of jotting down important insights gleaned from casual conversations. This technique was used throughout the course of a study to retain rapport and to uncover new topics of interest (Bernard, 1995).

Once I gained some initial understanding of the cultural dynamics within the field setting, I began having more focused discussions with the informants. My instincts suggested that recorded interviews would not work well for this population, so I decided against tape recording. The informants were concerned about saying anything that might jeopardize this program. Thus, recording these conversations would impose on the trusting relationship that I was attempting to build.

I kept my interviews to 30 minutes in length and relied on my ability to recall the conversations. During the interviews, I focused by jotting down key phrases that I would use to jog my memory. Immediately after each interview, I looked over my notes and furiously wrote down everything that I could recall. I would jot down field notes on the interview itself, insights and reflections about the interview such as the emotional tone and difficulties that were experienced. An entry for scheduled interviews was then
added to the log and the personal profile that I created for each informant. However, the overwhelming majority of my interviews were opportunistic, casual conversations.

At the beginning of my first interview with each informant, went through an introduction suggested by Lofland and Lofland (1995):

♦ Explain the purpose and nature of study to respondent, telling how or through whom she came to be selected.

♦ Gave assurance that respondent will remain anonymous in any written reports growing out of this study and that her responses will be treated in strictest confidence.

♦ Indicate that she may find some questions farfetched the reason being that questions appropriate for one person are not always appropriate for another. Since there are no right or wrong answers, she is not to worry about these and do as best she can with them. I am only interested in her opinions and personal experiences.

♦ Clarify that the informant is perfectly free to interrupt, ask clarifications of the interviewer, criticize a line of questioning, etc.

♦ Began with an introduction in which I told the informant something about myself - background, training, and interest in the area of inquiry.

Informal interviewing worked well because I had continued access to the same informants, and these discussions assumed a conversational tone. During the interviews, I had little control over the informant's responses but I had a clear plan for the topics that I wanted to discuss. These topics were contained in interview guides (see Appendix F). I created two interview guides, one for staff and one for participants. Each guide consisted of the list of questions and topics that needed to be covered but in no particular order.
These questions and topics were accumulated throughout the study, and were based on observations and casual conversations.

8.6.3 Collecting Documents

Organizational documents were collected from a variety of internal and external sources such as minutes from meetings, emails, speeches, organization charts, bulletin boards, and intranet sites. In addition, public domain documents such as newspaper articles, magazine articles and census tract were used. Taken together, these documents provide a historical perspective that was useful to understand the field setting and the informants. Documents were also a very powerful form of material power because they embody those features of the culture that are so salient that they must be recorded and stored. Once recorded, they can be consistently reproducible and can be quickly disseminated to a wide audience.

8.6.4 Producing Field Notes

Four types of field notes were used in this study - jottings, a diary, a log and notes. Jottings were written on the spot about the things that struck me as I collect data. These jottings were stored in small note pads. These jottings provided the triggers that I needed to recall a lot of details that I did not have time to write down while I was observing events or listening to informants. From day one I wanted to assume the role of a researcher with pen and paper in hand. While I was honest and asked informants for their permission before I took notes, I wanted to keep my note pad out as much of the time as possible. It was a symbolic way of showing that I was interested and that what they said was important, but it was less obtrusive than a tape recorder.
Initially, I attempted to type in my field notes on one of the PCs in the classroom as I was observing. I purposely sat in the last row way over by the window so that no one could peek over my shoulder as I typed. However, I was so involved in typing on one occasion that a participant was reading my notes on the monitor. I quickly put a stop to that practice, and began to write my field notes off site. I found that over time, people started becoming very forthright and commenting on the technology and their life experiences with a tremendous degree of candor. At the same time, I noticed that my field notes became longer and richer in detail.

While the jottings are based on observation of the Other, a diary is personal. It was used as a place to relieve stress when things got tough. The diary chronicles my feelings and perception, emotional highs and lows. I spent a half-hour each day that I spent in the field pouring out my soul to my diary. During data analysis, the diary was used to help interpret my field notes, and made me more aware of my personal biases. Diary methods are extremely common in ethnographic research and have been also been employed in studies of how information systems developers solve problems on a daily basis (Naur, 1983).

A log was used to maintain a running account of how I planned to spend my time versus how I actually spent my time. Entries were added to the log systematically each day that I was in the field. The left-hand page listed what I planned to do while the right hand page listed what I actually did that day. The date the entry was made and the date the task was completed were included for each entry. The log also contained personal profiles on all the people that I meet. Having the profiles co-located in the log made it easier to retrieve characteristics about my informants.
As I went through the day, I logged as planned activities all those things that I thought I wanted to know but could not resolve on the spot. When I rewrote my field notes at night, I also thought about whom I needed to interview and what I needed to observe. This too was entered into the log as planned activities. This forced me to think about the questions that I really wanted to answer and the data that I needed to collect. This was critical for gaining focus because I went into this study knowing that the actual research design would emerge from my findings in the field.

Bernard(1995) describe three types of field notes - methodological, descriptive and analytic. Methodological notes deal with data collection techniques. As I learned techniques that seemed to work well (or not so well), I added them to my field notes and marked them with an “M”. Descriptive notes were based on observations, documents and interviews that formed the basis of the data analysis. Finally, analytic notes were used to work out ideas about how I thought the culture was organized. These typically ran several pages and formed the basis for published papers and the dissertation.

Researchers are given a standard rule of thumb that for every hour in the field, anticipate spending an additional hour writing notes. Thus, each visit to the field was limited to no more than five hours. The jottings that were written while I was in the field were converted into field notes using a two-step process. The writing phase consists of entering notes into a word processing program at the conclusion of the day and loading the text into Atlas t/i, a software package that facilitates qualitative data analysis. A different file was created for each day's field notes. The goal is just to “Get it down” in order to maintain the rich detail that diminishes over time. Later, I returned to field notes to read, code and attempt to make sense of the text.
8.6.5 Reducing and Analyzing Data

This study employed coding and memoing for reducing data into manageable pieces that could be searched and mined for themes. Concept cards were then created for each theme to facilitate data analysis. While the analysis motive of the analysis is to be objective, the analysis was conducted from the standpoint of the community technology center participants to highlight systems of meanings and worldviews of Other. A general description and research strategy for each method will be described in the following sections.

8.6.5.1 CODING AND MEMOING

After a month of writing field notes based on informal conversations and participant observation, I sifted systematically through the field notes to conduct a coherent and focused analysis of the text. Elaboration and refinement of earlier insights enabled me to begin coding the field notes. Coding consisted of two phases: open coding and focused coding. I started open coding by annotating each paragraph with a ‘M’ for methodology, ‘A’ for analysis or ‘D’ for description. Then I added the name of the informant, if any.

Next, I read each line of notes to uncover themes, issues and ideas. These themes were coded and then added to the actual field notes using Atlas t/i. In focused coding, I analyzed the notes more systematically looking for relationships between the codes. To develop midrange theory based on the field study, I used focus coding as a way to decontextualize the data, and group related themes into families.
8.6.5.2 CONCEPT CARDS
To facilitate the coding process, I developed a list of content codes *a priori* and appended this with codes that emerged from the fieldwork. Then, I employed the grounded theory technique of *concept cards* for classifying and subsequently analyzing data (Glaser & Strauss, 1967). For each content code, I developed a concept card that contained one and only one theme (see Table 16). In accordance with Miles and Huberman (1994), each concept card contained memos, written-out counterparts or explanations of the coding categories. Memos consisted of a few lines that defined each code, and whether the code emerged from the data or from a priori theoretical constructs.

Sometimes one card was broken down into several lower level concepts during the focused coding phase to produce families of codes. At other times, it was hard to place a text into only one theme. A text in this situation would be placed into multiple concepts cards. These cards greatly facilitated the data analysis because concepts would suggest relevant literature that could be used to support more insightful analysis.

During this focused coding phase, I also began to create scenes by adding rich descriptions, dialogue, characterization, sketches, and commentaries (Emerson, Fretz, & Shaw, 1995). Thus the writing of the results and the analysis were completed concurrently in a top-down fashion, and are highly integrated.
<table>
<thead>
<tr>
<th>Data Source</th>
<th>Organization Member(s)</th>
<th>Incident, Quotation, Opinion, or Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter [CommunityPortal.txt]</td>
<td>Cyber Center participant’s letter to the Mayor</td>
<td>It has become the responsibility of those who have the ability to train and provide others with computer skills to do so in a comfortable setting.</td>
</tr>
<tr>
<td>Field Notes [FN0413.txt]</td>
<td>Conversation among Cyber Center participants</td>
<td>I overheard Bill telling Sherry that she needed to fill out a form to receive some type of free computer training. Then he asked her had she heard back about the PC she was trying to buy. Sherry said that she had called and someone was supposed to return her call in 24 hours. Bill then checked in with Cindy to see how her job search was coming along.</td>
</tr>
<tr>
<td>Field Notes [FN0413l.txt]</td>
<td>Cyber Center classroom facilitator speaking to class</td>
<td>The classroom facilitator says to the class, &quot;Y’all should do a video. Then we can send it to the people across the hall – he motions to staff members that sit across the glass hallway. They don't think ya’ll are capable of doing something this sophisticated. It would blow them away.&quot;</td>
</tr>
<tr>
<td>Field Notes [FN0323.txt]</td>
<td>Cyber Center classroom facilitator interacting with participants</td>
<td>The classroom facilitator gives Sherry his phone number. She is to call him so that he can let her know whether or not this PC is a good deal…Now he (the classroom facilitator) gives his number to Doc so that he can call to make arrangements for buying the MS Office training CDs…there are a lot of deals going on today!</td>
</tr>
<tr>
<td>Newspaper article [AJC_2_7_01.txt]</td>
<td>Librarian at the Teen Cyber Center</td>
<td>I like the fact they are focused on neighborhoods …You need to have good interaction between classroom facilitators, and a building of trust, perhaps with mentoring even after the classes are over.</td>
</tr>
<tr>
<td>Community Portal Project [CommunityCenters.txt]</td>
<td>Cyber Center participant</td>
<td>The classroom facilitator at the cyber center…is a loving and experienced teacher and the students have bonded with each other in many ways. We will be friends after the class has ended.</td>
</tr>
<tr>
<td>Speech [speech_apr_2001.txt]</td>
<td>Executive Director of the Cyber Center</td>
<td>Seniors also view their classmates in the cyber centers as extended family members. The cyber centers help them overcome loneliness, isolation. They feel as if they belong to a new community. They cheer each other and slap &quot;high fives&quot; when they learn a new computer skill.</td>
</tr>
<tr>
<td>Letter [Bridging_Digital_Divide.txt]</td>
<td>Cyber Center participant</td>
<td>I would like to share this information [basic computer literacy] with the community because it is so important to our society.</td>
</tr>
</tbody>
</table>

Table 17: Sample Concept Card
The data analysis was also informed by deconstruction, a kind of hermeneutics practiced in poststructuralism for reading texts that unmask suppressed meanings by undoing, reversing, and displacing taken for granted binary oppositions that structure the meanings of texts (Swartz, 1997). Although I did not formally adopt the techniques of deconstruction, I conducted the analysis by taking the standpoint of the actors that visited the technology centers, by concentrating the analysis on what and whom texts excluded and disqualified, and by interpreting the story from the subordinate point of view.

8.7 Summary

This chapter details the research approach. It is written in a reflexive style that incorporates my experience of learning as participant observer (Wolcott, 1995). Van Maanen (1988, p.92) calls this the "confessional tale" and it is used to show how a reader might work back from a display of the conditions under which the fieldwork was accomplished to some assessment of the study. This chapter begins with a presentation of the philosophical orientation that informs the research project. This is followed by a rationale for the research genre, and a description of the procedures that were adopted during the fieldwork. I note the ethnographic path - how much time was spent with each informant and made simple statistics of categories of data collected. Also included is a discussion of the data analysis procedures. This account of the research practice itself is included so that the reader can assess the rigor of methodology.
X. Portrayal of Results

Reduced to its most basic level, what follows is an account of my experience with a group of people at the community technology center headquarters facility. I have consciously separated my description of the people and their place from a focused theoretical discussion of the interpretive framework. These technical considerations are radically different from the lifeworld of the informants. Therefore, the presentation of midrange theory based on this empirical evidence is provided in a separate chapter. The people at the community technology center shared their lives with me, so I feel an obligation to write a piece that they can read and comprehend; a piece without this peculiar academic language that I have acquired over the last five years. While I want to make this chapter accessible to non-specialists, it does assume some familiarity with social theory and methodology.

Three writing conventions used in this chapter require further explanation. First, long direct quotes are presented in a conversational style reminiscent of a script for a play. This style is adopted to convey a conversational style to showcase the informants as central characters in this portrayal while decentering the author of the text. Second, the readers must be cautioned that this portrayal addresses sensitive issues and viewpoints regarding race, ethnicity and poverty. These are the worldviews that surfaced from the informants, and are crucial for understanding social stratification and social immobility.
Finally observations and quotes that come directly from the field notes are cited with [FNMMDD], where FN denotes field note, MM is month, and DD is day.

9.1 Roadmap for the Ethnographic Portrayal

The framework presented in Figure 4 summarizes the research findings in a recursive model that conceptualizes the generative process of digital inequality. This model emerged after cycles of deliberation in which I attempted to operationalize constructs and build relationships between constructs based on the literature, my own world of experience, patterns found in empirical observations, and key events.

Prior to entering the field, I read several books, articles, and essays that critiqued and employed theories of reproduction in domains as varied as public and private schools and universities, bachelorhood and marriage rates in agrarian and urban communities, technology use in libraries, and consumption patterns of the rich and the poor. Using this literature as a guide, I constructed an instrument that was used to record observations in the field (see Appendix G: Participant Observation Guide). However, I wasn’t quite sure what observations would constitute cultural capital, economic capital, or any of the other Bourdieuan constructs. I adopted an “I know it when I see it” attitude, and over time I started to develop contextually sensitive and empirically informed definitions for each construct. Those observations that could not be clearly mapped to Bourdieu’s constructs were recorded in a catchall category that I called “serendipitous effects”.

Figure 4: Summary of Research Findings

- **Information Technology**
  - Discourse
  - Multiplier effects
  - Technical means

- **Digital Inequality**
  - Demand deficit
  - Cultural Domination
  - Leveled Expectations

- **Resistance**
  - Self exclusion
  - Symbolic resistance

- **Reproduction**
  - Two-tier system of access and training
  - Broken trajectory

- **Economic Forces**
  - Economic capital

- **Cultural Forces**
  - Cultural capital

- **Social Forces**
  - Dispositional barriers (Habitus)
  - Situational barriers
  - Institutional barriers
  - Social capital

- **Institutional Forces**
  - Authority
  - Autonomy
  - Legitimacy
  - Symbolic Politics
At this point I looked for relationships and commonalities between the emergent constructs that were coded as serendipitous effects and theory based construct. but found that I had too many emergent constructs. To further refine the coding, I began searching the relevant literature for additional frameworks to help refine the analysis. For instance, I clustered many emergent constructs into the framework of institutional, situational and dispositional barriers that I found in the adult education literature. Broken trajectories and leveled aspirations were found in the sociology literature on social stratification. Constructs related to information technology were informed by insights gained from public policy literature.

The model development was also informed by my world of experience, key events and empirical observations in the field. Many times during the study, for example, an informant would make some remark or perform an act that seemed insignificant at the time but later inspired an intellectual insight. Small phrases such as “computers, friends and no books” helped me to understand the importance of social capital. Hearing participants inquire about practical applications for PowerPoint led me to consider the degree of foreignness that was experienced when using the technology. And hearing classroom informants consistently refer to the staff as “the people across the hall” helped me to pick up on the anti-institutional ethos.

Once I had a manageable number of constructs, I was able to cluster the constructs into families, which are depicted as boxes in Figure 4. However, I wasn’t sure how I was going to build relationships between each box. I decided to revisit the research questions and think about the relations between these questions. This resulted in the creation of Figure 1 in the Guiding Research Questions chapter. Since I was centrally
concerned with digital inequality, its antecedents and the reproductive mechanisms that perpetuate this relationship, I knew *a priori* that a cyclical model was needed. Using this figure as a basis, I mapped the constructs that were derived from the analysis to questions that were diagramed in Figure 1.

The relationships between the boxes depict the generative process by which digital inequality is reproduced. They represent history and the perpetuation of social order over time. Constructing the model from the perspective of the participant, I found that digital inequality is the result of institutional, cultural, social and economic forces. Further theorizing about information technology led me to include this as a contributing factor.

Each contributing factors comes to bear upon the logics employed by actors. For Bourdieu logics are not rational or well planned practices. Rather logics are improvisational and habitual, and lead actors to perform actions that are reasonable and consistent with dispositions that are generated over time. According to Bourdieu, these logics only makes sense when viewed in relationship to one another, and only when we examine particular exchanges and transformations in a particular field.

For instance, community technology centers are an institutional response to digital inequality, and present actors with an opportunity to engage with information technology. Because of the cultural distance between the competencies that information technology demands from its user and the native culture of the participants, underserved communities have a relatively more difficult time adopting and using information technology. This leads some to adopt the strategy of resistance, which can have both positive and negative results. Positive outcomes occur when actors adapt the
information technology to meet their unique communication needs. However, when actors attempt to use technology in a manner consistent with mechanism used by elites for social advancement and maintenance (i.e. employment, education), inequality tends to be reproduced. The most detrimental outcome occurs when actors resist through self-exclusion because this perpetuates and reproduces a system whereby more powerful social groups monopolize information technology. Hence, reproductive logics circles back to transform and produce new contributing factors.

Digital inequality is based upon existing inequalities in our society, so it is important to present a brief description of the history and the geography of the inner city. This is necessary for sharpening our understanding of this social phenomenon. Next, through the use of ethnographic narratives, the remaining sections of the chapter expand and explain each of the core concepts and the relationships among them. The chapter concludes with a summary of the empirical findings.

9.2 Context of Analysis

Rockets, moon shots
Spend it on the have nots
Money, we make it
'Fore we see it you take it

Oh, make me wanna holler
The way they do my life
Make me wanna holler
The way they do my life
This ain't livin'"

--Inner City Blues
Marvin Gaye

The people in this study live and work in inner city communities that are not only economically, but also historically disadvantaged. Thus, one of the key tasks of a critical ethnographer is to be aware of the historical context in which research takes place, and to
reflect this critically onto the research process itself (Thomas, 1993) (Myers, 1997) (Carspecken, 1996). The researcher must reach into the past before she can make sense of the ethnographic present. To account for differentials in information technology diffusion, acceptance and use, the technology has to be contextualized into the system of social relations that define and sustain its taken-for-granted meanings. The critical research paradigm forces one to consider history as well as the wider set of social, economic and political relationships. Since digital inequality and its embedded difficulties did not suddenly appear in contemporary society, what follows is a brief history of the Community Technology Initiative, and the local community that it serves.

I arrived at the community technology center Headquarters in January of 2001, six months after the initial launch of the program. This was a time of great excitement and high expectations. The Community Technology Initiative had received extensive press coverage in local, national as well as international publications, because this community technology center model was novel in the level of public and private collaboration, funding and commitment. Therefore community technology programs in other municipalities closely monitored Atlanta’s initiative in hopes of gleaning best practices.

This study was conducted at the headquarters facilities located in the Workforce Development building in the Summerhill community. Summerhill has a distinct feel of two separate neighborhoods; one on the south with its shabby corner stores and vacant lots, and the other a gentrified north of newly constructed single family homes.

The dividing lines are drawn at the intersection of Capital Avenue and Georgia Avenue. At this intersection one can gaze north to behold the golden Olympic Rings
arching above the four lanes of Capital Avenue. In the background the city skyline expands far across the horizon. The Olympic Rings along with the state capital building’s gold dome symbolically emit rays of wealth, prosperity and riches down upon ‘the city too busy to hate’.

On the northwestern corner of this intersection sits Turner Field, a five-year-old major league baseball stadium that rises majestically from the cold gray pavement. On game days, the streets surrounding the stadium are abuzz with workers erecting barricades, sweeping the sidewalks, opening ticket booths, and setting up vending carts. However, when the stadium is idle, the streets are uncomfortably desolate and uninhabited. The view from the nosebleed seats at the stadium is a sea of the beautiful pastel colored homes of White professionals. CODA, the city's Olympic redevelopment agency, spent more than $35 million in Olympic neighborhoods sculpting routes for tourists to stroll between venues that sport new sidewalks, street lights, freshly planted trees and manicured mini-parks. Many new homes built in the impoverished communities were constructed within sight of the sports arenas - and the TV cameras (Hill, 1996).

Anyone just visiting the ball field would see these newly constructed homes and conclude that the city has done an excellent job of inner-city revitalization. The city, which for the past dozen years has boasted one of the highest crime rates and one of the highest murder rates in the nation (McIntosh, 1989), appears to be making a turnaround. The green lawns and late model cars in the driveways suggest prosperous homeowners.

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17 Atlanta's emergence as the center of the New South was built on the foundation proclaimed 45 years ago by former Mayor William B. Hartsfield that Atlanta is a city "too busy to hate."
The urban sprawl that contributes to the degradation of the inner-city’s quality of life and increases the difficulty of inner-city residents’ to get to jobs by public transportation (Suggs, 1999) appears to be abated. By all appearance, the city has vastly improved the housing options for inner-city residents. This is no small feat when one considers that replacing public housing is not as easy as it sounds. HUD regulations require that units be located in "non-impacted" neighborhoods that do not have high concentrations of minorities or public housing projects. Moreover, HUD subsidizes the upkeep on publicly owned apartments, so it will not pay for such amenities as carpet and air conditioners, which are considered costlier to maintain (Harris, 1992).

However, looks can sometimes be quite deceiving. Those curious enough to venture south of the ball field will see the effects of gentrification. The old Summerhill with its dilapidated houses with boarded windows and neglected yards, junk cars and street corner drug dealers are still present, just neatly hidden out of sight. There are vacant fields where houses once stood, and these fields are teaming with junk haphazardly strewn about. It is visually jarring to see these old crumbling buildings juxtaposed with wide, newly paved sidewalks with elaborate black lampposts. Billboards for Budweiser beer peer out above a rundown apartment building with a broken down car in driveway. Just down the block is a small grocery store with barred windows and padlocked doors.

To the west of the stadium, I-75 and I-85 are teaming with ten lanes of cars racing in and out of the city, while the city sidewalks are inhabited primarily by African-American men of all ages who seem to be traveling aimlessly with nowhere important to go. Summerhill is clearly a community of opposites, and it is a stellar example of the
difficulties faced when cities turn their attention to poor neighborhoods. It seems ironic that a program that bridges digital inequality is headquartered at the geographic buffer zone.

9.2.1 A Community on the Decline

How did the Summerhill community end up in this condition? During my first weeks in the field, I sought out long-term residents to obtain historical perspectives. Three participants provided perceptive accounts about the plight of low-income communities in the city. Genny was the first participant that I met at the community technology centers. She is a slender, African-American woman who likes to sport all manner of hairstyles. One never knows just what she will look like on any given day. Some days her hair is long and straight, and other days it is short and curly. She informs me that she is in her mid sixties, but she appears to be a decade younger. Social security and other forms of “mailbox income” are her sole sources for subsistence, and she resides in a housing development for seniors. Her posture and mannerisms are very poised, perhaps influenced by years of singing professionally in small clubs around the Southeast. Genny has an easy and friendly manner, calling everyone regardless of age or gender, “baby”, “sugar”, and “honey”.

My second informant is Bill is a fifty-year-old African American man who was raised on a farm in South Georgia, and has experienced many racially charged incidents. As a result, he has a very insular view of the world, reading extensively about African- and Native-American culture. He is deeply distrustful of Whites and is suspicious of middle class African-Americans. Religion is important in his life, and he holds African-American women in high esteem. Currently, he is a widower living in a rooming house.
A black leather pant coat with a matching baseball cap, neatly pressed blue jeans and paisley blue dress shirt comprise his typical attire. His speech is slow with a distinct southern drawl. Since he is missing several of his teeth, it is sometimes difficult to understand what he is saying. He tells me that his false teeth never fit quite right, so he removed them and put them into his pocket whenever he ate. One day he accidentally sat on his partial plate that shattered the teeth. However, he could not afford to have the teeth replaced.

Finally, there is Ron. Like Bill, he is also a fifty-year-old African American male. Ron is in poor health, relying on a portable oxygen tank. Ironically, although he looks rather weak and frail, his demeanor is animated and confrontational. Never one to accept the status quo, Ron is extremely well read in current affairs and takes a radical perspective on most issues. Ron and I often talked about his early childhood in Ohio, experiences in the Army, and life in the city. Reflecting back on our discussions would often bring to mind a bible-toting preacher at a revival meeting with the voice booming, head sweating, and hands pounding on the pulpit. Just listening to the enthusiasm and spirit in his speech, it was quite easy to forget his delicate health status.

I asked these three residents about the decline of the community, the unanimous reply the influx of “crack cocaine” in the 1980s. Crack cocaine was enforcing a cruel form of injustice, enslaving the minds and bodies of people in the community. Drugs were leading to the death and imprisonment of a large number of African Americans. These residents believe that the city was turning its back on the drug problem because crack cocaine was destructing the community more efficiently than any program that the government could devise. When I pressed them for examples, they began to spin tales of
extreme hopelessness. As they spoke, they became very animated and you could hear the anguish in their voices. As each storyteller recounted his or her own personal tale, the others nodded their heads in agreement and interjected with confirmatory statements.

**Genny:** Believe it or not, Summerhill was a thriving community of Blacks in the 60s. Many people owned their own homes and businesses within the community. Drugs killed Summerhill.

**Ron:** Crack cocaine is the worst epidemic to hit mankind.

**Genny:** I know women on welfare being put outta their apartments when the rent was only $12 per month.

**Ron:** Hell, some women’s rent was as low as $3 a month and they couldn’t even pay that cause they spent all their money on crack. These women are being put outta their apartments because of crack.

**Bill:** I heard that these women are so strung out that they will even perform sexual acts with anybody just to cop drugs. That’s why we have so much AIDS in this city.

**Ron:** This city has one of the highest AIDS level in the South, maybe even in the US. AIDS is here big time in the Black community.

**Bill:** Blacks didn’t bring drugs here. We don’t own the planes and trains that move the drugs from South America. The
CIA and the DEA know about the drug trade, but they don’t do nothin’. They wanna see us kill ourselves.

These three continued to tell stories about drug addicts stealing from friends, family, and strangers to support their habit. Men were burglarizing homes and businesses, women were selling their bodies, and the children were being neglected. Grandparents and other family members were forced to raise their grandchildren, while daughters gave birth to babies addicted to crack. With parents lost and turned out on drugs, nobody cared enough to see that the children were going to school. Ron and Bill suggested the problem was so out of control that even the police were afraid to bring order to the community.

The classroom facilitator, a tall, broadly built African American male, joined the conversation at this point. He is in his early thirties, and wears very fashionable pleated pants with dress shirts and immaculately polished shoes. The facilitator has lived in this city all of his life, and has previously worked as a computer technician.

**Facilitator:** A group of males about 15 years old were out roaming the streets like a pack of wolves. A nice looking young lady in a short red dress was walking down the street. They guys start drooling. They start yelling obscenities to her and she is smiling. A little bit later, she comes back down the street and meets up with this pack of dudes again. This time she is not smiling. The guys crowd in on her and you can't really see what's going on. You know that they are groping on the girl. She somehow breaks free and begins to run. The guys pursue. The only reason she gets away is that she scales a fence in her heels and her dress. She is frightened
out of her wits. While all this is going on, I notice a cop watching just like

I am. The cop does nothing [FN0309].

After talking with the residents and the classroom facilitator, I decided to see if I
could find evidence to substantiate their stories. I spent a week going through articles in
the local newspaper, and found that the newspaper articles supported much of what the
residents revealed. With the police force facing a deficit of 400 uniformed officers, it is
no coincidence that the crime rates doubled during the 1980s (A Population Profile of the
City of Atlanta: Trends, Causes and Options, 1996). The drug problem was also
growing out of hand in the late 1980s, and the city was desperately seeking solutions
(McIntosh, 1989) (Newton, 1989) (Simama, 1988). Dr. Simama, the Executive Director
of the Community Technology Initiative, was a City Councilman at the time. He wrote a
special report for the local newspaper which summarized the second annual Community
Empowerment Conference (Simama, 1989). Nearly 200 residents of all ages and from
all areas of the city came together to discuss ridding their communities of fear, drugs, and
crime. Residents were rallying for comprehensive remedies that addressed the
relationship between drug abuse, joblessness, unaffordable housing and the lack of
educational opportunity. The residents felt that if people had access to educational
opportunities, they would acquire marketable skills, and be less likely to fall prey to the
profitability of the drug culture. However, while the Fulton County Treatment Center
could only serve 3000 of the 7000 residents seeking assistance, the city opened an $142
million retail –entertainment complex and held a groundbreaking for a $270 million
domed stadium.
9.2.2 Getting Ready for the Centennial Olympics

In the late 1980’s, the city began its preparations for the 1996 Olympics. Summerhill was selected as the home of a new Olympic Stadium that would be converted into Turner Field at the conclusion of the games. The plan was to create 1000 new and renovated low-, middle- and upper-income homes, as well as stores and parks. The federal government, Olympic agencies, local philanthropies and banks provided $50-$100 million funding for this project. As one reporter noted (Turner, 2000), “[The city] boosters were quick to spot the image problem that came with the award of the 1996 Centennial Olympic Games. Not only did the central city lack breathtaking scenery and stunning architecture upon which to focus the world's cameras, the Olympic team had decided to plop the centerpiece venue for the 1996 Summer Games in the heart of a slum.”

A portion of this money was to be used to subsidize the low-income housing. It was hoped that this seed money would fuel further economic growth as private developers gained more confidence to come in and build additional housing. The renovation of this neglected area of the city would symbolically serve as proof to the world of the city’s ability to embrace diversity.

All this money and attention generated suspicion among the neighborhood residents, the government, and the downtown business brokers. With only two or three years to get the work done before the Olympics, deals were being signed quickly without input from the people in the neighborhood. Greed set in when business leaders began to see the large sums of money floating around. Once banks realized that there was pent up demand for pricey intown houses, the prices for homes in these mixed-income
communities soared above $250,000. This is well above the price range of the people who live there. When profits took precedence over the vision, Summerhill’s fate was sealed.

Members of the African-American community say that in the city’s enthusiasm to put a pretty face on Summerhill, the private developers created an all-new White community rather than rebuilding the native African-American community. Informants also suggested that the city was attempting to hide the homeless by paying them to leave the city during the Olympics. Ron presented a very telling account of his experience during this time.

**Ron:** If you were homeless and could not or would not leave you might find yourself in prison on trumped up charges because police were arresting homeless men. Homeless dudes were being arrested for trespassing as they walked through the parking lots of businesses. Cops be just layin’ there waitin’ to arrest dudes. During the arrest, the cops would “lose” your ID. With no form of ID, your case would be bound over to the state court. Paperwork and backlogs in the court system would increase the time you spent in jail. This was a good way to keep people off the streets and out of sight during the Olympics. Some people were being sent to mental institutions too so that they wouldn’t be around to embarrass the City. The City even offered to give people bus fare if they agreed to go out of town during the
Olympics. The City didn’t want the world to see the homeless. They were a well-kept secret.

Now once you got released from jail, you had to get new ID. I’d tell people how to get their voter registration card so at least they’d have some kind of ID. This was hard because some cats didn’t have addresses or jobs. They had no idea how to fill out these forms and talk to the people behind the desk.

Then you still had problems because it took weeks to get your ID. You mean to tell me that in this day and age with all of this technology they can’t give instant ID cards? If you ask them, the people behind the desk will tell you “that’s the way we do it down here”. So dudes had to carry around pieces of paper for weeks while you waited for your ID to be processed and mailed back to you. In the mean time, all you could do was hope that the man don’t come back to take you down. [FN022601]

I have to admit that I initially found these stories hard to believe. Once again, I went off into the archives of the local newspaper to look for evidence. What I found was equally unbelievable. In 1996, the City Council enacted so-called “quality of life” legislation that consisted of a package of ordinances to improve in-town conditions for businesses and an increasing number of new residents. These ordinances targeted aggressive panhandling, prostitution, and cruising by motorists. The most controversial ordinance was the “urban camping” law which largely made homelessness illegal in the
city limits. This ordinance prohibited people from sleeping or living in city parks and other public places. It also provided for fines up to $1,000 and jail stays of up to one year. Three years later, the ACLU opposed the law on the grounds that it violated the 14th Amendment by targeting homeless people. Since shelter space could only accommodate one fifth of the homeless population\(^\text{18}\), 80% of homeless had no choice but to break the law (Campos, 1999).

In the rush to rebuild the Olympic Stadium neighborhood, the city employed “a top-down approach in which powerful White people ran roughshod over the interests of working and middle-class African-American neighborhood residents in order to further some civic project” (Turner, 2001b). Promises for a mixed-income community have resulted in an island of gentrification, with many poor African-American residents displaced as their homes were leveled to make way for the new Olympic Stadium. The community was physically and socially ripped apart. Five years after the Olympic games, the predominantly poor African-American residents in the southern region of Summerhill have yet to receive the promised improvements. This has understandably led to a lack of trust within the community.

White businesses and philanthropic organizations that lost money in the Summerhill revitalization process are also bitter and disappointed (Turner, 2001b). This has made it more difficult for the city to get funding and support for revitalization projects in other areas of the city. Douglass Dean, State Representative and Summerhill native, says it is also difficult to convince middle class African-Americans to move back into the area. For these reasons, the gentrification process will be hard to reverse. The

\(^{18}\) The Atlanta Journal and Constitution estimates that 11,000 people who are homeless
land has just become too valuable to leave in the hands of low-income residents. Unless the city can secure funding to subsidize low-income housing, the future of the low-income African-American residents looks bleak.

9.2.3 Changing Demographics of the Inner City

When I asked Bill what he thought about the lack of affordable housing in the community he replied matter-of-factly, “The Whites are coming to take back their city”. A month later the 2000 census figures came out to support his assertion. While African-Americans are still the majority of the city’s population at 61.4%, their proportion has declined as Whites (33.2%), Asian (1.9%), Latino (4.5%) and other ethnic populations grew. Overall, the city grew to 416,474 residents in 2000, a 5.7% increase over the past decade. The number of Whites living in the city rose from 122,327 to 138,352, a 13.1% gain. At the same time, the number of African-American city residents declined from 264,262 to 255,689, a 3.2% drop ("Burgeoning Population Affects Counties Differently," 2001).

Many of the newcomers are moving into formerly depressed in-town neighborhoods like Summerhill. The Housing Authority has ‘dramatically restructured many of the city’s former pockets of poverty, crime and despair’(Hairston, 2001b). Many of the traditional public housing complexes with large brick buildings that resemble Army barracks have been demolished to make way for new housing projects. For instance Perry Homes, which were located in the northwestern part of the city next to an inoperative city-owned landfill, have been demolished to make way for a mixed-income community surrounding a championship-level golf course. One hundred single-
family housing units will be built on this site with 40% designed as “affordable” housing (Saporta, 2001). The price tag for this development is $88.5 million of which half was earmarked to demolish the old Perry homes, relocate residents and subsidize the low-income units. Elsewhere the Housing Authority is taking on its largest project to date as it transforms Capitol Homes into a mixed-income community of apartments, townhouses, shops and restaurants. This multi-million dollar project will replace “the 60 year old community of 694 apartments whose structural and crime problems are too acute and costly to fix with 748 apartments” (Saporta, 2001). However, what is often not told in these newspaper accounts is the displacement of low-income households. From the residents’ perspective, the city has reneged on this promise of better housing for low-income residents. Instead, the city has displaced low-income residents from desirable locations to create more housing to attract the well to do. Longstanding communities were torn apart, and less housing is available for low-income families.

**Ron:** The Techwood housing projects were demolished over by Georgia Tech to make way for the Olympic Village. The city couldn’t have that eyesore hanging around for the Olympics. The same was done in Summerhill with Turner Field. The city never replaced some of the housing that they demolished. Many of the old families have been permanently uprooted. East Lake Meadows, John Hope Projects, the same thing happened. Now the area around the old Georgia Dome is being demolished for lofts and hotels. There is less housing for the homeless and poor people living on Section 8. [FN030201]
David Sjoquist (2000), economics professor and director of the Andrew Young School's Fiscal Research Program at Georgia State University, describes the city as “a paradox of substantial racial segregation in a community with a reputation for good race relations, and of high inner-city poverty in the face of substantial economic growth. In many ways, the city personifies the problem of urban inequality. Despite the end of legal segregation more than 30 years ago, its economic legacy remains. Although traditional policy solutions have included laws that prohibit discrimination in housing, lending and hiring, social and physical barriers still prevent the poor from taking advantage of economic opportunities. A large number of available jobs, for example, are located in the suburbs where there is limited or no access to public transportation. The resulting ‘spatial mismatch’ perpetuates the cycle of poverty.”

The inner core continues to crumble as the middle class flees from the inner city to the suburbs, and the influx of new residents to the metropolitan area concentrate in the suburban cities. For instance, the population of the central city declined by almost 19% from 1960 to 1994 even as the region's population grew by over 154% (A Population Profile of the City of Atlanta: Trends, Causes and Options, 1996). This loss was heavily concentrated among the White population, which fell by nearly half during the period. The greatest loss occurred among White school age children, although non-White school age population declined by one fifth during the 1980s. The decline in the number of families with children has changed the composition of the remaining population, with the number of African-American female-headed households nearly doubling in the 1980s and
rising to 58% the number of all households with only one adult (*A Population Profile of the City of Atlanta: Trends, Causes and Options*, 1996).

### 9.2.4 The Empowerment Zone

Most of these urban renewal projects are taking place in the city’s Empowerment Zone. The Federal government launched the Empowerment Zone program “on behalf of the nation’s distressed inner cities” (Dyckman, 1996). This program combines tax incentives for business development and job creation with a comprehensive approach to community revitalization through performance-oriented block grants. Through this program, economically distressed communities obtain tax incentives, regulatory flexibility, block grants, and other measures targeted to attract private investment and stimulate community revitalization.

The Empowerment Zone covers 9.3 square miles and includes 28 neighborhoods, part of eight Neighborhood Planning Units, located to the east, west and south of the Central Business District. According to the 1990 Census, the area has a population of 49,998 and a poverty rate of 55%. Of the six urban cities receiving Empowerment Zone funding, the city has the smallest population but the largest poverty rate (see Table 18). The Empowerment Zone received $100 million in Title XX Social Services Block Grant funds, Federal wage tax credits, and Empowerment Zone-specific tax-exempt bond financing authority.

The Empowerment Zone was awarded $250 million - $150 in tax breaks and $100 million in federal cash grants - to be doled out over a 10 year period (Charles, 1999). However, obtaining Empowerment Zone status was not without struggle. The debate began back in 1991 as the city sought Empowerment Zone funding as a way to combat
the flow of people and businesses leaving the city for the suburbs. The mayor at the time, Maynard Jackson, opposed Empowerment Zones because they could "potentially create adverse fiscal and social impacts" for the city. The fiscal impacts were the tax abatements to developers. The mayor was also concerned that enterprise zones would "stimulate the gentrification of low-income neighborhoods" without shielding poor residents from displacement ("Vetoes to enterprise zones threaten the city's future," 1991).

<table>
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<th>Characteristics of the Empowerment Zone (EZ)</th>
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<tr>
<td>City's total population</td>
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<td>Empowerment Zone's population</td>
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<td>Empowerment Zone's poverty rate</td>
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<td>Empowerment Zone's unemployment rate</td>
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<td>Empowerment Zone's residents in public housing</td>
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<td>Area of the Empowerment Zone (square miles)</td>
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<td>Funds drawn down (1996)</td>
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Table 18: Empowerment Zone

Gentrification and tax abatements have proven to be problematic, but so are the effects of acute and concentrated poverty experienced by Summerhill’s residents. Over half of the residents in the Empowerment Zone live in poverty, and 17% are unemployed. Half of the residents live in public housing. The concentration of poverty in the city results in a decline of tax dollars, paltry purchasing power leading to substandard housing, inadequate health care and social disruption. Per capita costs for public services increase as local governments struggle to maintain basic levels of housing, health care and other service. These conditions suggest that the long-term economic and social health

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19 These figures are based on 1990 Census data
of cities depends on the reversal of the loss of upper and middle class residents (*A Population Profile of the City of Atlanta: Trends, Causes and Options*, 1996).

The Empowerment Zone program has not been without controversy. In its second year of operations, the program earned awards for its innovation and criticism for not serving enough Empowerment Zone residents. Mostly people outside the zone use the center for homeownership. Generous down payment assistance for zone homes has found few takers. Seed money for businesses sits unspent. Zone residents do not frequent the One Stop Capital Shop, a great resource for would-be entrepreneurs (Dickerson, 1998). According to an audit by the U.S. Department of Housing and Urban Development, more than $739,000 in federal Empowerment Zone funds were spent on non-zone residents (Reid, 1998). The audit also found that the contract to manage the center, which went to the Housing Authority, was not competitively bid.

As a result of these scathing reports from state and federal regulators and a perception that the zone hasn't moved fast enough to spur development in the 30 neighborhoods surrounding downtown that make up the zone, the Mayor fired nearly all of the Empowerment Zone staff in 1999. Within its first five years of operation, the Empowerment Zone has changed leadership four times. After five years of operation, a mortgage program designed to provide housing for 900 families had made only 70 loans (J. B. Hairston, 2000). By this time, leaders expected to see more housing, bustling commercial districts with grocery stores and dry cleaners, and fewer vacant lots (Turner, 2000).

The latest controversy surrounds the bureaucracy that developers face when trying to build homes in the Empowerment Zone. For instance, one of the city's most dedicated
and successful inner city redevelopers is currently trying to negotiate a housing project comprised of 48 lofts and 35 townhouses wrapped around a swimming pool --- in the city's Empowerment Zone, no less. While the project has already received funding approvals from the bank, and 65% of the units are already sold for an average price of $200,000, the groundbreaking has been on hold for 17 months while the builder waits for the city to give him the go-ahead (Turner, 2001a).

9.2.5 Summing up: The Cyber Rights Movement Comes to Town

This highlights and summarizes the historical context that inhabits the collective memory of the inner-city residents and their relationship with municipal government agencies. Understanding digital inequality in this community is impossible without a sense of the historical baggage these residents carry. At times, residents reenacted the city’s traditional patterns of power and privilege. They seemed reluctant to participate in programs that were designed to help them rise out of poverty because many of these programs had failed them in the past. At other times, these community members were charting a new course and breaking with their inherited past.

This ethnographic account will capture the complexity of these tumultuous times as it illustrates why and how power relations are unwittingly reified under the aegis of universal access. This account examines the extent to which technology is used to improve the life chances of a population with a strong sense of class-consciousness\(^\text{20}\), but a perception of limited power to change the situation. The struggle for human agency

\(^{20}\) The term class-consciousness has been used loosely by sociologists outside the Marxist tradition to include any feelings of self-awareness or common identity among members of a social class.
and the perpetuation of social structure produces tensions that will be analyzed through the theoretical lens of cultural and social reproduction.

**9.3 Institutional Factors**

Bill Clinton  
Mr. Bob Dole  
You too old to understand the way the game's told.  
You're lame  
so I gotta hit you with the hard facts.  
Won't someone listen?  

--- *How Do U Want It?*  
Tupac Shakur

The digital revolution will not be televised  
but will it be cybercast?  
Will it get into Vine City,  
to Buttermilk Bottom,  
to the barrios of Lindbergh,  
to the crouching tigers on Buford Highway?  
Will the deeper meanings rise to the surface?  
Will they take root amongst the gray power brigade  
who use email as a weapon and presentation software to create badges of courage?  

--- *Dot Com Done Come and Gone,*  
Jabari Simama

This section describes and analyzes the logics and practices employed by the institutions that manage and sustain the community technology program. The discussion critically analyzes the power relations between the community technology center staff and participants, the municipal government, and the broader corporate market institutions. The section concludes with an account of how the training and access provided by the centers unwittingly contributes to digital inequality and ultimately social reproduction.
9.3.1 Delegated Autonomy and Authority

At the conclusion of the first year of operation, the community technology centers exhibit structural characteristics linked to institutionalization such as paid instructors, standardized curriculum, and locations situated over a wide geographic area. These structural characteristics may be legitimately regarded as significant thresholds in the process of the institutionalization in which the community technology centers are endowed with the authority and autonomy to transmit information technology knowledge and skills to inner-city residents.

The community technology centers derive much of their power from corporate market institutions that unify beliefs that technology is good and progressive. As agents of corporate market institutions, the community technology centers are endowed with the symbolic power and legitimacy of showing residents the promise of technology and making the people believe in the program. In effect, the centers enlarge and unify the market for the consumption of information technology as residents who take in the training become peer teachers for other members of the community. They are ethnic missionaries for the technology corporations. By virtue of the symbolic power that has been conferred onto the centers, and the participants’ belief in the legitimacy of training provided by the centers, community members are active participants in the community technology centers struggles for legitimacy. Thus, in an unintended kind of way, the community technology enters also derive power from the marginalized community that it serves.

For instance, participants were brought before the City Council Finance Committee to testify on the behalf of the program. These first hand accounts by the
participants powerfully portray their support for the program. Ms. Johnson, a senior who takes classes at the centers, sees technology as a means for employment, perhaps even starting her own business:

**Ms. Johnson:** I want to make sure that you understand how important this program is. It is giving me a new lease on life. It increases my thoughts, and my ability to learn. The environment is very encouraging. I now have faith and hope. Now I understand that there are things out there for us, as we get old. I would like to start a web business. The Cyber Centers fill a great need. We seniors are now becoming ‘qualified homebodies’. We can fill these jobs [FN0530].

Another senior, Ms. Bagwell, describes the program as being an exemplar for other cities.

**Ms. Bagwell:** The reporters came to our centers as a model for solutions for state and local governments in the information society. They came back just last week to feature us again. We are like the phoenix rising from the ashes. I feel renewed and restored. This city has become a role model for the world [FN0530].

Ms. Williams, a young adult participant, favorably compares the program with her past experience in the public school district.

**Ms. Williams:** I am a native of this city growing up in the public school system. During all those years, I never had a new book or any new equipment. Now I am learning with top of the line equipment in nice
buildings with great teachers. It would be wrong for ya’ll [the City Council] to give us a toy, something we enjoy, and then snatch it away [FN0530].

9.3.1.1 THE EARLY DEBATES
As the city rebuilds its physical communities and infrastructure, a virtual environment is being created to augment and support these efforts. To reach out to areas of the city where residents are not likely to have access to information technology in the home or at work, the Community Technology Initiative is developing community technology centers. The initiative received its initial funding of $8.1 million through a renegotiation of the city’s cable franchise agreement with Media One in 1998. The city received this funding in exchange for returning five underutilized public access channels to the cable operator21. In a cable franchise agreement, the cable operator exchanges a percentage of its revenue for the use of the local right-of-way and for its monopoly franchise. These funds are typically used to support non-profit community television stations, and educational and government access television channels (Klein, 1999).

In December of the following year, the Mayor’s Office of Community Technology was instituted to oversee this initiative. Dr. Simama, the Mayor’s Chief of Communications and former City Councilman, was directed to serve as the Executive Director of the initiative. Six months later, in June of 2000, a 150 page Strategic Plan was presented to the City Council (Atlanta Community Technology Initiative: Strategic Plan, 2000).

21 AT&T Broadband was seeking to take over Media One. The additional cable channels made the deal more attractive for AT&T Broadband.
The Strategic Plan was developed with the input of a Blue Ribbon Committee comprised of community leaders, deans from local universities, corporate executives, and the superintendent of public schools. This committee helped to develop prioritized lists of needs, key services, and perceived inhibitors. The greatest perceived needs and services were defined as basic educational instruction, public access, and computer education and training. Perhaps more importantly, the group acknowledged that none of the services they identified were being delivered in a quality manner now.

Finally, the Blue Ribbon Committee concluded that politics were the greatest inhibitor to the community technology initiative. This has come to pass during the first year of operations. The mayor, who envisioned the program and was instrumental in getting the program off the ground, was under a federal investigation for corruption. The probe focused on his allegedly cozy relationships with city vendors and big-ticket campaign contributions (Freeman, 2001). As the political hostility between the mayor’s supporters and opponents increased, the vulnerability of the community technology initiative, which was perceived as the mayor’s “pet program”, became more apparent.

For instance, the hiring a small African American owned company, TDC Corp., to install cabling and set up computer networks at the airport, the community technology centers and traffic court was highly scrutinized. It was alleged by some members of the City Council that this work was done without a formal city contract or approval of the City Council, and the cost of this work ($10 million) was nearly double what had been proposed (Whitt, 2001b) (Hairston, 2001c). However, the City Attorney and Chief Financial Officer argue that most of the work was awarded to TDC under the Y2K emergency declaration. Under emergency provisions, bidding and formal contracts are
not required. Hence all of the expenditures paid to TDC were subject to proper procedures.

Political battles such as these continue to negatively impact the community technology initiative. While an overwhelming majority of the City Council members support the program, a small minority of City Council members expressed dissenting viewpoints. This segregation in support results from race, socio-economic class, and geographic differences. The most supportive Council members tend to represent the more impoverished, predominantly African American neighborhoods in the southern portion of the city. Conversely, dissenting City Council members typically represent the more affluent, White neighborhoods in the northern portion of the city. A natural criticism arises when city dollars are spent on a community technology program that does not serve the needs of the dissenting City Council member’s constituency.

For instance, while the community technology initiative was still in the planning stage, a local newspaper article cited a Syracuse University study of the management of information systems assets by municipalities. In this report, the city of Atlanta received a grade of D+ (J. Hairston, 2000). In light of this poor evaluation, the City Council president suggested that the city was not competent to oversee the community technology initiative because of a perceived lack of expertise in the development and management of information technology. Moreover, "That [managing community technology centers] is certainly no role for the city…. We're going far beyond what the state allows us to do."

Councilman Norris feared that the city was taking on a mission that it was ill equipped to take on. He further expressed concerns with giving $8.1 million unconditionally to the technology initiative, and felt that the program would drain
precious resources from other municipal responsibilities. Councilwoman Bueller remarked that the city's inability to use five cable channels is evidence that the municipality should not manage a program to preach the high-tech gospel to hard-to-reach city residents. A few days later the executive director, responded in the newspaper (Simama, 2000b):

**Dr. Simama:** The mayor has appointed a committee of outstanding corporate and education leaders to assist with the planning. My office will complete a community needs assessment and hold public forums. In June we will submit a detailed plan and three-year budget. This is the right way to initiate a program of this importance. The City Council members who have fought unsuccessfully to derail the mayor's technology proposal should stop their attacks and work to ensure the program’s success.

9.3.1.2 **STRUGGLING FOR LEGITIMACY**

It is within this political milieu that the program strives for a legitimate and autonomous existence. Although the animosity expressed in these early debates has subsided during the first year of the community technology centers operations, traces of these strained relations still exist. The creative ways in which the City Council has been largely left out of much of the community technology center’s funding and strategic planning activities provide an example of this behavior.

To open centers as quickly as possible and to maintain continuity, the management of the community technology centers paid for classroom facilitators through small purchase procedures that allow expenditures for less than $200,000 to be made
without City Council approval. The centers had been opened for almost a year, but had not entered an “appropriate contractual agreement with Cape & Bern Information Technology School”, the consulting firm providing the classroom facilitators ("Atlanta Technology Initiative Computer Technology Training Facilitator (RFP)," 2000).

This was rectified in May of 2001 when legislation to withdraw $2.5 million from the Community Technology program’s trust fund to pay for contract work went before the Finance Committee of the City Council. This was a crucial event for the program in both the size of the request and the legitimacy of the program. It was perhaps the first time that members of the City Council were able to systematically interrogate the staff about the program’s operations.

The hearing began with the sarcastic remark, “This is my favorite program”, from an opposing City Council member. The Finance Committee proceeded to use this occasion to wield their power to obtain financial and usage reports that the community technology centers staff contends were providing on a quarterly basis. Although the majority of council members were supportive of the programs, they wanted to enforce oversight and control, and to have a hand in operations.

Councilwoman: I believe that the digital divide is real.

Whenever we can't connect to others it is hard. Computer skills are important and valuable. However, the council has had little input into the

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22 In a subsequent communication, Dr. Simama notes that “We had been before council committees and the city council at least for other occasions, and we held a private briefing for City Council almost a year before. All these times gave council members an opportunity to ask substantive questions about the initiative.
process. I am concerned that the program will build 15 Cyber Centers for the $8 million and then we will have to shut them down. Then we've disappointed the people because we can't continue the program. That has been my concern since the beginning.

What are the needs? Where are we going? What are the annual operating costs? How many people have been served actually and projected? Half the money is gone. Where did it go? I also want to know more about the bidding process. Maybe 15 centers is not the number. Could we do with 10 centers to increase the time to 4 years rather than 2? As Council members, it is our responsibility to participate in the program. I don't want to see the program close in 2 years. Then we will have to decide – police, sidewalks or Cyber Centers. The same people sitting in this room will be back here again upset [FN0530].

Councilwoman2: I need a future plan by Monday. I sat and calculated some figures based on first quarter visits. Each visit costs $352. So 20,000 visits are all that is left in the budget. My issue from the beginning has been sustainability. I have experience with tech companies, and I would like to help.

This vote is difficult for me because I believe that the digital divide is real. There is much more that the city can be doing. There are other models that might be helpful. For instance some cities have negotiated reduced rates of $11/month for ISPs. Some companies offer free computers for their employees. We even talked about a loan pool.
The question is how do we approach the digital divide?

Today is the first time that we have discussed this. Are we doing the right thing? The City Council has not exercised oversight, and I feel like I have let you down. We did $50 million in Y2K with TDC [a consulting company that allegedly obtained an illegal contract with the city] and never talked about a contract. Can they maintain 15 centers? We shouldn't substitute something for having the best [FN0530].

City Council members that support the program and have centers in their districts used the opportunity to argue strongly for the program, and at the same time build coalitions with members of the community.

Councilmen: The majority of ya'll have lived in this community for over 10 years. You have paid taxes here for years, and you have carried the city through history. You didn't leave like some people who left and are now coming back to the city. You've paid your dues, and you deserve this program. If someone asks you why you deserve this program tell them – If I got my 40 acres and some Microsoft, we wouldn't be doing this [FN0530].

While some City Council members argue that they have little oversight and involvement with the program, members of the community technology center staff feel that, because the community highly regards the program, these City Council members simply want to align with the program to gain politically. As one staff member says,

Staff: Everyone wants to be included. Everyone wants to have their name on it, but they haven't contributed to the program. Why don't
they just come to us and say I want to be a part of this. Don't force us to
have to sell them, and smooze them with dinners and parties. This is all
about politics. [FN0607]

City Council members are not the only entity seeking to gain politically from their
participation with the community technology centers. One key objective for the
municipality is to raise its stature as an international city to attract more high-tech
corporations and commerce. By training residents in basic computer and Internet skills,
the city is also able to pursue its e-government strategy. Online information about public
housing, notices of changes in the operation of public assistance offices, and job
databases will do little good for much of their intended public if that public is not online.
The prospect of a digitally privileged clientele breezing through government services
online while a paperbound proletariat waits in line is detestable to democratic culture
(Birdsell and Muzzio 1999). Government services carry the additional burden of
providing equitable access. Therefore, the municipality cannot simply create Internet-
based services without directly attempting to expand the online population. The
community technology center initiative helps the city to achieve these strategic goals and
at the same time benefit symbolically by doing so.

An ominous and unintentional outcome of the program is the steady creation of
workers for low paying service jobs that require minimal information technology skills.
Several authors have discussed the mechanisms by which schools reproduce the social
order through tracking systems that steer students into jobs correlated to their social
status (Willis, 1977) (MacLeod, 1987) (Bourdieu, 1990). Many of the residents are in
these communities precisely because they were victims of this cruel practice. Reluctantly, they return to the classroom in hopes of a better life.

Corporate sponsors also derive symbolically and financially by donating funds, equipment and/or software to the community technology centers. The donations enable firms to legitimize their interests and interactions with this “new market” and thereby reap symbolic profits. For instance, there is an adopt-a-center program in which a company’s logo is displayed prominently in a classroom in exchange for a donation of at least $200,000. This enables firms to target marketing to this community at relatively cheap prices. In addition, all of the reporters and city officials that visit the centers view these logos. So when reporters publish their articles, the companies name is listed as a philanthropic contributor. When asked about corporate sponsorship, one informant explained it in this way.

**Randy:** There is no such thing as e-philanthropy. It’s an oxymoron. The technology is not romantic; it is all about marketing and making money. ...For businesses, this is a public subsidy to the poor neighborhood [FN0306].

The press also plays an important role in legitimizing the Community Technology Centers. The technology initiative has been featured in local publications as well as national publications such as Wired News (Dean, 2000), Community Technology Review (Kvasny, 2001), Government Technology (Towns, 2001), and Converge (Rivero & Arredondo, 2001). The overwhelming majority of these articles has been positive, and has helped to elevate the technology initiative as a model for other municipalities. In July of 2001 the city sponsored a National Technology Summit that attracted 130 attendees
(Esters, 2001) (Holsendolph, 2001) which included high ranking government officials from around the country. These reports as well as content produced by the community technology center are reproduced and included in marketing and promotion materials for internal and external audiences.

Impression management is crucial, especially at the headquarters as many reporters and city officials frequent this building. It is therefore important that staff and classroom facilitators present the program in the best light. For instance, the community technology centers are presented as safe places where families can go to become empowered through technology training and content development. The reporters that visit the community technology centers often describe them as “warm and safe places”. Meanwhile, there have been a few occasions where disruptive males had to be removed from the building.

**Facilitator:** When the rowdy ones get out of hand, they are put out of the classroom. But they don’t leave the building. They are out in the halls fooling around, knocking down plants. Just being a pain in the ass. Now I am in a catch 22 because if I put the kids out, the people across the hall [the staff] complain because they are not making their numbers. The kids need to stay in the program. But if they stay they disrupt everyone else.

Now I have been told [by the staff] that I have to escort the kids out of the building. This means that I have to leave the classroom, take the elevator down to the 1\st floor, and put the kids out. I don’t want to put them out because that is just reinforcing
that they’re bad. At the same time, I can’t keep them around because they can’t be controlled. I can’t control them. The people across the hall [the staff] can’t control them. Their parents can’t even control them. They are unreachable.

One time a kid got so rowdy that the police had to be called. The policeman told the boy that the next time he came it would not be a social call. He didn’t want to put another young Black man in the county prison but he would if he had to [FN0419].

9.3.2 Symbolic Politics

The newsletters, the impression management, the hole in the wall and the testimonies of participants at City Hall are all symbolic acts that are part of an official discourse that serves political purposes. Through the creation of community technology centers, the city performs an administrative function by directing and ordering people in the ways that they should think about and use information technology. This is not done through physical force; it is done gently through curriculum.

During the last week of each class, for instance, the participants are expected to produce projects that can be posted to the Community Portal. The participants often produce Word documents about their community technology center experience (See Appendix I for samples). The classroom facilitator then directs the participants to send these documents as email attachments to his supervisor. Sometimes the letters are sent to the executive director, the mayor, or the consulting company that provides the classroom facilitators. Through the curriculum, the labors of the participants are put on public
display for interested outsiders. The official discourse is also divulged through the reports, statistics, and articles that are produced by the staff. All of these mechanisms are employed to cohesively demonstrate the legitimate worldview of the community technology centers.

9.4 Social Forces

Dot com will be your pass into the village where each productive citizen takes from the global commune bowl according to need. Where the village raises our kids and schoolrooms are fastly and vastly connected to the WWW. All is well, my sister, when you get your dot com.

--Get Yourself a Dot Com
Jabari Simama

This section describes the social forces that structure information technology access and use. These forces can be categorized as situational, institutional and dispositional barriers. Social capital, the social networks that one can call upon to derive resources, is also a factor that contributes to digital inequality.

9.4.1 Barriers

Harrison (1993) classifies barriers faced by adult learners into three groups: situational, institutional and dispositional. Situational barriers are those having to do with lifestyle such as childcare, financial resources, and transportation. Institutional barriers are related to the structural opportunities available to an agent. Finally, dispositional barriers are those of personal knowledge and motivation.
The community technology centers both reduce existing barriers and create new ones. For instance, the centers reduce institutional barriers by providing a non-threatening learning environment with supportive classroom facilitators that do not impose any formal assessment mechanisms such as exit exams or graded projects. The focus is clearly on occupancy and creating a non-threatening environment versus assessing what people learn.

Participants describe their classroom experiences in documents titled My Cyber Center Experience which are reproduced verbatim:

**Participant1:** The cyber center is a wonder place that I plan to learn a lot about myself and what computer plan to be like in days to come. It sure be a great day when to obtain an education without an pressure free classroom sitting. Maybe every one in the future will be able to use a computer without the headachy [TheCyberCenter3].

**Participant2:** In this class I have learn more than I could ever dream of. This is due to the instructor’s patience, skills and knowledge of the computer. Plus He present his subjects well to the students [MyCyberCenterExperience3].

**Participant3:** HOSEA 4:16 OF THE BIBLE SAYS, MY PEOPLE ARE DESTROYED FOR THE LACK OF KNOWLEDGE, BUT I THANK GOD FOR THE MAYOR’S CYBER CENTER CLASS. IT DOESN’T HAVE TO BE THAT WAY, THIS FREE KNOWLEDGE IS OPEN FOR ALL WHO SO EVER WILL LET THEM COME. THE DOORS ARE OPEN [CCExperience-3].
Although residents now have neighborhood institutions in which they can learn information technology, these same institutions introduce new problems. The most significant situational barrier is the need to travel to a public institution to use the computer during the hours that the centers operate. There are also the time and cost to travel to the centers. Institutional rules and regulations imposed limits on the duration of use, and the type of content that can be accessed. Some participants expressed feelings of being watched and monitored.

Dispositional barriers are the most difficult to surmount because these are very personal and longstanding beliefs that tend to be resistant to change. Bourdieu terms these long standing beliefs as the habitus to stress the habitual and improvisational qualities of practice. The theory of the habitus suggests that, before an actor will enter the community technology centers, he must possess a habitus that is predisposed to accept the legitimacy of technology (Jenkins, 1992). The actor must have some minimal knowledge, interest, skill or talent that draws them into the community technology centers. Actors are also persuaded to use the centers through the influence of family and friends with similar background. These cultural and social contexts help to form a habitus that does or doesn’t view information technology as appropriate, interesting, or useful (Gorard, 2000; Gorard & Selwyn, 1999).

The habitus is crucially important because it includes history and time as antecedent of information technology use. The theory of the habitus suggests that practice is not calculated or rational, but reasonable. Past experiences impose on the present by generating appropriate behaviors based within the limits and constraints of the
economic and social conditions experienced by the actor. This leads to three perceptions of technology – a cultural imposition, a tool for social inclusion, and a mechanism for social flying.

9.4.1.1 A CULTURAL IMPOSITION
Participants that see information technology as a cultural imposition have internalized the limits set by history and current social conditions, and decided that their participation won’t make a difference in their material conditions of existence. Even though the technology was thought to improve social inclusion with their families and peers, and made them feel better spiritually, these actors still saw the same closed doors, dead-ends, and limited prospects with respect to using these skills for economic empowerment.

**Interviewer:** What are some of your initial impressions about the Internet?

**Bill:** What do I think about the Internet? It is a kind of mind destruction. It is kind of like Christmas where the media comes into your house and just takes over. The White man is invading my home through radio and TV ads. He is programming my family to want this stuff. The Black man can't afford to give his family all of this stuff. So technology becomes a nightmare for us. We really don't want no part of that shit.

It is a form of slavery where people have no control. We are at the mercy of the system with no control over our lives. That is why we use liquor, marijuana, dancing, and now the Internet to escape. We risk our lives everyday just because we live in the ‘hood. There is daily violence
against each other. We are filled with anger and frustration. We take it out on each other. The Internet may be just one more thing that is being developed to not support Black interests. What does the Internet mean for our survival? [FN0328].

9.4.1.2 A TOOL FOR SOCIAL INCLUSION
Other participants see technology as a means for assimilation and communication. They talk about feeling left behind and out of it. Even when past experiences are humiliating and hurtful, these actors are still drawn towards technology use for reasons of social inclusion. For them, the desire for technical acumen and social inclusion are greater than past experiences of exclusion and demoralization.

Participant1: I THOUGHT I WOULD BE THE LAST ONE TO HAVE AN E-MAIL ADDRESS. I WAS ONCE A MEETING AND EVERYONE ONE IN MY GROUP HAD AN E-MAIL ADDRESS. I WAS EMBARASSED NOT TO HAVE ONE BECAUSE EVERYONE ELSE WAS A SENIOR CITIZEN WITH SOME SORT OF COMPUTER KNOWLEDGE [ToWhomItMayConcern].

Participant2: PRIOR TO MY ENROLLING INTO THIS CLASS I HAD NO EARTHLY IDEAL ABOUT THE FUNCTIONS OF THE COMPUTER. MY SEVEN YEAR OLD GRANDSON SHAME ME, WHEN HE ASKED ME QUESTIONS CONCERNING COMPUTERS. EVEN THOUGH THERE IS A FIFTY-SEVEN YEARS EDUCATION GAP IN OUR KNOWLEDGE BUT THERE IS NO EXCUSS IN THE LACK OF KNOWLEDGE, ESPECIALLY NOW THAT THE
TECHNOLOGY IS HERE. THE CYBER CENTER AFFORDED ME THE OPPORTUNITY TO APPLY MYSELF AND I'M TRULY GRATEFUL FOR THE CHANCE TO NARROW THAT KNOWLEDGE GAP THAT EXIST BETWEEN MYSELF SON AND GRANDSON.

[MyExperiencesAtTheCyberCenter].

**Participant3:** After coming to class on Monday and being made up like some one that did not know what he was doing. The Teacher that was in the class on Monday made in fell that I was not that good to be in her class. But look at me now [TheCyberCenter].

**9.4.1.3 A MECHANISM FOR SOCIAL FLYING**

Finally some residents saw technology skills as a vehicle for “social flying”, trying to defy the gravity of the social hierarchy. With the prospect of having computers available at a community technology center, actors now have increased the objective probabilities of improving their material conditions of existence. What was once thought impossible now comes into the realm of the probable. The community technology centers have increased their subjective expectations of what constitutes a reasonable social trajectory, which in turn motivates and cultivates a need for information technology training. The subsequent use of information technology can therefore be seen as a cultivated taste that serves as a social marker, a distinction.

**Interviewer:** Do computers open doors or close doors?

**Ron:** Open doors. But it does even more than this. It opens up a whole new world. I mean it's a new perspective, a new world, another
planet! On this new planet, everything is at your fingertips. Everything is instant.

**Sherry:** You don't see the computer world from the inner city.

You don't see Bill Gates as a role model. Well, I've seen it now! [FN0508]

Thus, information technology is seen as a possibility or impossibility, a freedom or necessity, an opportunity or prohibition based on the material conditions of existence, subjective expectations and objective probabilities of the actor, as well as the sanctions imposed by corporate market institutions for those lacking technical acumen.

### 9.4.2 Social Capital

Ironically, many of the benefits derived by the participants were not related to the technology per se, but came from social capital. Social capital focuses on the benefits accruing to individuals by virtue of participating in groups, and on the deliberate construction of sociability for the purpose of creating this resource (Pope, 2001). For Bourdieu, social capital has two distinct elements: the social relationship itself that allows individuals to claim access to resources possessed by their associates, and the amount and quality of these relations. Bourdieu’s definition of social capital is much different than that of Putnam (1995) and Coleman (1988) who define social capital in terms of free will and trust. For Bourdieu, social processes are constrained by underlying economic organization, and it is the presence of profit that is the very reason for the solidarity that makes group existence possible in the first place.

Thus, for residents in this community, social capital can be described as large in quantity but low in quality. There are strong ties within the community to help residents surmount many of the situational barriers such as transportation and childcare, but weak
ties to powerful people and institutions outside of their community. There was an abundance of social capital in the community before the community technology centers came into existence, however there were few connections with individuals and institutions powerful enough to move them out of poverty. In fact, it is precisely these existing social networks that bring most people to the centers in the first place, and enable it to develop into a third place that is comfortable, has low barriers to entry and is frequented by regulars (Liff & Steward, 2001).

**Bill:** When I was standing in line the other day, I started talking with this security guard to pass the time. I told her about the free computer classes at the center, but she didn’t want to believe me. The more I kept telling her it was free, the more she kept calling me a liar. So I told her, the next time I come back I’m gonna personally bring her a flyer and tell her to call the number. Now I’m a lot of things, but I ain’t no liar. [FN0328]

Social capital also serves as a bridge within the community. Those with technical skills informally teach to those without. Participants often describe this as a responsibility to the community.

**Ron:** I want to be able to share my knowledge with others. Like, I got this friend who works for MARTA and I was telling him about the Cyber Centers. He is afraid to come. He wants to learn about computers but is intimidated by them. Now he will go and pay to take night classes in reading, writing and math so he's not afraid of a classroom. But he is intimidated by the technology. He is afraid of computers but he knows that
he has to get into them. Now if I have a computer in my house, I can teach him what I learned. Then he could learn from me. [FN0501]

Social capital, however, is not always a positive asset. Although the residents are largely geographically immobile, they are able to travel virtually with the Internet. However, the push for the development of relevant local content and the strong cohesion within the classrooms may facilitate the creation of a “cyber ghetto”.

The social capital developed in the community technology center is based largely on ethnicity as the classroom facilitator, staff and roughly 80% of the participants were African American. This led to strong ties that restricted outsiders and created the impression that the digital divide was being addressed as a “Black issue”. Rather than seeing the digital divide in terms of ethnicity, it is more appropriate to describe this phenomenon in terms of a collective habitus.

As an African American researcher, I must acknowledge that some of the “Black issues” that I experienced during my fieldwork were totally foreign to me. The collective habitus became very clear to me as I tried to understand why this particular participant described the community technology center as a place with “computers, friends, and no books”. On the one hand, several participants complained about not having books in class. The facilitator would encourage the participants to learn through repetition and familiarity. But the participants insisted on writing down every step. The participants often mentioned that they needed things written down so that they wouldn’t forget, and so that they could be self-sufficient when they worked outside of the classroom setting.

On the other hand, there is the folk wisdom that African Americans don’t like to read. Ron and Bill both describe how older men in their communities spent a lot of time
hanging out in barbershops and pool halls. These old guys always had small paperback books in their pockets. They would encourage young boys to read by lending them books and paying them money if they came back to report on what they had read.

**Ron:** I used to hang out in the Pool Hall in the roughest part of town when I was a kid. I stopped by after school one day, and I wanted to leave the pool hall with another dude, but I didn't want to tote my book bag. This cat says to me, "What have you got in the bag?" I say books. The dude says, "Shit don't worry about the bag. Ain't nobody gonna mess with no books. Hell black folks don't read." I was gone for 6 hours, and when I got back to the pool hall nobody had so much as kicked the bag. Black people just don't read.[FN0314]

I heard this same theme in the classroom. A young Black male was teaching a classroom of 15 African American children during the summer camp program offered by the community technology center. He made the comment that many things were hidden from the community simply because they were written in books. Another classroom facilitator described the young people that come into the community technology center after class.

**Facilitator:** They come in at 3:30, and they are supposed to do their homework for the first hour. Most of them tell me they ain't got no homework. I don't know if they do it in school or they just don't have homework. At one time the schools were saying that the elementary and middle school kids’ bags were too heavy, so they were cutting back on homework. At least that is what was happening to my son in Clayton
County schools. I would tell my son to spend 15 minutes or so working on each of his subjects. But he never had any books so that made it hard. The teachers don't give them a lot of homework because they don't want them carrying all of those books [FN0514].

I reconciled this contradiction when I noticed that the use of books is part of a three-tiered learning strategy. When problems arose, the first line of defense was to use social ties. If the instructor or classmates can't help, they move on to level two mechanisms which included books such as the Bible and the Dictionary. The final alternative was to use the computer because computers were hard to work with. One participant made the remark that she couldn’t understand why the help button was always located way over on the right hand side. Why isn’t it the first button?

When I asked another participant why she did not use the computer to find things, she said that it was easier to just ask someone.

**Aberdeen:** If I need to know how long it takes to get to Louisiana, I ask myself “Who do I know that would know the answer?” I’d then ask them and if they didn’t know, I’d go to the set of encyclopedias sitting underneath my television in the den. I wouldn’t go to the computer to look it up. Well, maybe as a last resort [FN1130].

The reliance on the knowledge resources of peers facilitates the development of strong ties in the classroom. The community technology centers provide a common place for residents to come together to learn and share expertise and resources. Initially the facilitator would tell the participants to help their neighbors if they were done early. Over time, this became a ritualized practice that greatly helped those that were absent or
having difficulty catch up with the rest of the class. Social cohesion also created an “us against the world” attitude in which the staff became known as “the people across the hall”. For instance, on the last day of the Introduction to Computers class, the facilitator asked, “Did ya’ll receive confirmation letters from the people across the hall?” Everyone says no. Then the facilitator says, "Well they were supposed to let you know the Applications class starts. I don't understand why they didn't send out those letters. Well anyway, just come to this classroom next Tuesday." [FN0413]. The only time that I saw strong evidence of bridging social capital between the actors in the classroom and the staff was during times when some external entity threatened the sustainability of the program.

9.5 Cultural Forces

Cultural capital can be thought of as an internal code that equips agents with an ethos towards, an appreciation for, or a competence in deciphering cultural relations and artifacts. Culture capital explains how social groups consume rather than the more simplistic question of what people consume (Holt, 1998). If we are to understand digital inequality, it is important to understand differences in use and the ways in which those differences are matter.
9.5.1 Cultural Capital

The myth of the universal benefits of technology are especially troublesome when we consider historically underserved communities (Kvasny & Truex, 2000). The community technology centers’ essential contribution to social and cultural reproduction is caused by its tendency to respond to participants who are, in fact, “ready” for such education, to privilege them in this sense, and to allow the rest, through its structured inability to interrupt that process, to withdraw as their only rational response to this relative neglect.

The failure of the training is located in the fact that African American engagement with technology is a political act of inclusion in that they are engaging in a foreign territory that they have been excluded from. As voyeurs of the computer culture, members of the community are forced into the role of crossing over. However when crossing over, distinct cultural competence gained through prior cultural experiences can be devalued and made irrelevant.

Feelings of being in an alien territory show up in the learning environment in several ways. Participants become fixated on books, remembering steps, and writing everything down. Parents feel demoralized and described themselves as “the forgotten generation” because their children know more about technology than they do. They also lament about feeling dumb, and in doing so, affirm and reproduce difference.

Sherry: I like computers but I would like them more if I knew how to use them. People who know something about computers probably think I am dumb [FN0305].
Most residents come to the centers because they have gotten the message that technology is important, but they are largely unaware of its power to change their lives. Their focus is not so much on individual transformation but rather on social transformation to produce change for the family and the community. No one expressed that they came to the centers just for the joy of learning, primarily because the participants had to expend exorbitant energy just making ends meet.

9.5.1.1 SELECTION AND CULTURAL DISTINCTION
Consumption of technology is a status game. While those with relatively lower amounts of cultural capital can consume technology, they will do so in less distinctive ways. The technology is revealed to them as something that “smart people” do naturally. Sometimes participants would look over my shoulder as I worked on the PC, and they would remark that I seem to work without even thinking about what keys to press. I would try to explain to them that I wasn’t born knowing how to do this. I explain that it has taken many years of long and patient training. Even though they see their skills as inferior, I wanted to instill the practical expectation that “people like us” can succeed.

Cultural capital, in the form of digital skills, can only be purchased through time and energy. However, even prolonged exposure may not fully compensate for initial handicaps experienced by this group. Without the basic literacy components, the centers provide an informal and incomplete mastery of technology. It is the mastery of technology that leads to practices that are culturally distinct. It is the difference between a choreographed dance routine on MTV and an improvised ballet on PBS. In a lifestyle in which technology is foreign, the pursuit of cultural distinctions is very basic.
Ron: I would like a computer. Not a fancy one with all the latest technology, just one that works [FN0501].

The use of information technology is very basic as well. Participants talked about how they had to remember steps and consult notes when they engaged with the computer.

Ron: I am confident and comfortable when I work outside of the class environment. I try to recreate the steps in my mind. I say OK. Mr. Jackson said to do this, then click here, go here. I just do the steps like we do in class [FN0501].

The learning that takes place in the classroom is contextualized to meet the life situations of the participants. When the facilitator tells the class to bring in a diskette, for instance, many people asked where they could buy a diskette. At the next class meeting, I noticed that about half the class still did not have a diskette. When I asked why, some said that couldn’t get to a store that sold diskettes, and others said that they couldn’t afford a box of diskettes. I then made it a point to always bring extra diskettes in my bag, and those with diskettes would also bring extras for their peers. I also noticed that when participants found diskettes left behind at their terminals, they took care to place them near the monitor so that the owner could find them. A diskette was a valuable commodity.

The value of a simple diskette was also displayed in its use. Many of the participants had never touched a computer before coming to the centers, so something as simple as inserting a diskette into a floppy drive was foreign. Participants would gently take their diskettes out of their bags, hold them up in the air, inspect them to see whether or not they were write protected, and then inspect the diskette once again to make sure
that they were inserting them correctly into the floppy drive. I would sit amazed at the precision the participants put into something that I do without even thinking.

No one can really teach someone how the technology should be used. Each person must find his or her own reason. For instance, I tried to help Bill attach a digital photograph to an email that he was sending to his son. He is having trouble getting it to work because he did not give the file a name when he saved it. Word used the first sentence as the file name, and as a result, Hotmail does not recognize such a long file name. I tried to explain to him that all he has to do is rename the file, and attach it to the email. Bill tells me that he would rather just send the disk. I continue to try to convince him that it is easier, quicker, and cheaper to just send the email. Plus, if he sends the disk, the filename might still be too long. He needs to rename the file in either case. I don't know if he ever got the file sent [FN0503].

I noticed that Ron and Bill liked to read, so I show them the Amazon website and teach them how to search for books. They are amazed at how easy it is to find the books. I get excited and tell them that we should look on the Internet for the local bookstore that they frequent. Neither man is interested. They then tell me that there is nothing like going to the store and browsing in person. They feel that information on the Internet is censored. "They won't have everything there, only what they want you to buy." [FN0323].

This leads to the importance of a shared belief. The intended user must understand and believe in the technology before he will ever use it (Roets, 1995). Those that do choose to use the technology typically do so in an attempt to participate in “mass culture”. For instance, one participant equated the sending of email to feeling like an
executive. At the community technology centers, the value of information technology lies in the experience itself, and in the use of this experience as a social resource rather than as a personal achievement or an individual expression.

9.6 Economic Capital

Somewhat ironically, the economic costs of computer ownership became a factor after the actors obtained training from the community technology centers. At the conclusion of nearly every class, Sherry would rise from her seat, pick up her purse and say, “Damn, I wish I had a computer at home so I could practice.” Ron expresses the same desires when he tells me about being bored at night. He does a lot of reading, but seldom watches TV. If he had a PC at home, he would be able to practice what he learns in class. As Bourdieu states “a cultural need is a cultivated need” (Bourdieu, 1984, 1993).

**Bill:** Looking at all of that technology upset me. It made me realize that I really needed to make some money so that I can get the things that I wanted. A job is the only way that I am going to be able to afford those things [FN0503.txt].

In another strange irony, many participants had computers in their homes before they ever set foot in the community technology centers. In the classroom I observed, a third of the 15 participants had a PC at home. Of the 7000 participants that went through courses at the community technology centers during the first year of operations, 18% had a PC at home. This suggests that the many people that come to the centers are those that already have computers but need additional training. Wanda, a participant, told me that her PC was still sitting in a box because she was not sure what to do with it. She just
didn’t know how to use a PC out of the context of the highly structured work environment.

Those with computers in their home primarily obtained them second-hand through a friend. Ron and Bill received their PCs in this manner. Bill’s PC was operational, but Ron had to put in a new CD-ROM and video card. He was able to perform these repairs and got his PC connected to the Internet as a result of social networks he built through his experience at the community technology center. Sherry’s second-hand computer was beyond repair. She received an old IBM PC that was declared surplus at BellSouth. This PC was so old that it couldn’t support a CD-ROM drive, and it could not accommodate Windows 3.1. The point of the matter is that many people are able to overcome the economic constraints.

9.7 Information Technology Forces

Orlikowski and Iacono (2001) contend that information systems research has not deeply engaged its core subject matter - information technology; it tends to be taken for granted and under theorized. In acknowledgement of this crucial observation, an explanation of how information technology is conceptualized in this study is warranted. Information technology is conceived and operationalized as a cultural artifact comprised of material and symbolic components. Surely technical apparatus such as computing hardware, software, data, and communication facilities are within the realm of information technology. This study examined basic computer and Internet technologies including the Microsoft Office Suite, Windows 2000 Operating System, e-mail, and web browsing. However, different actors will use these tools in different manners, in different
times, and in different places (Kling, 1999). Clearly user engagement with these physical components does not occur in a vacuum, and this leads to the relevance of context.

Social and cultural contexts within which information technology is employed strongly structure its legitimate purposes and uses. Rules, language, and policies that govern the way we talk about and think about information technology are embedded within the technology, and contextualize our use of the technology. In the workforce, for example, it is inappropriate to view pornography on the web, and breaching this policy is grounds for disciplinary action. This same behavior, however, can be performed in the home with little fear of reprisal.

In addition to technical apparatus and context of use, information technology consists of symbol systems of commonly held systems of meanings, narratives, and beliefs. Yet, while symbol systems provide cognitive unification, the effects of these symbol systems are not egalitarian. Cognitive unification is a dividing practice which creates categories such as “haves” from the “have nots”, programmers and hackers, digerati and people of no account (PONO)\(^{23}\). Cognitive unification also contributes to a penal society where judges of digital competence are everywhere – in government, in workplaces, in schools, in peer social groups, and even in homes – and those lacking digital skills are censored from an ever-growing number of societal institutions that provide entrée to improved life chances. Thus the information technology artifact becomes institutionalized as digital skills and technical prowess proliferate and become taken-for-granted.

\(^{23}\) In cyberspeak PONO is a derogatory acronym for People Of No Account which are those who don’t or can’t participate in cyberspace.
In summary, this conceptualization of information technology can best be seen as a discourse in a Foucauldian sense. Discourse is a group of statements which provide a language for talking about a particular topic at a particular historical moment (Foucault, 1979). Foucault provides three characteristics of discourse:

- **Surfaces of emergence**: the social and cultural areas through which a discourse appears (e.g. workplace, scientific community, municipalities, home)
- **Authorities of delimitation**: institutions with knowledge and authority to disseminate the discourse (e.g. corporations, universities, governments, families)
- **Grids of specification**: classification systems by which different categories can be related to each other in the discourse (e.g. knowledge workers and service workers, the new economy vs. the old economy, bricks and mortar vs. clicks and mortar, home users and corporate users)

Rather than analyze relations between the author and what he says, Foucault argues that the researcher must determine the position any individual can and must occupy in order to be the subject of that discourse (Horrocks & Jevtic, 1997). So, for instance, when analyzing statements about the digital divide, historically underserved communities are inserted into the information technology discourse as “have nots”, “people on the wrong side of the divide”, and “target communities”. There have always been groups of people that choose not to use information technology, but the power of
discourse named, defined, and created the subject of a “have not”. This language is disseminated to the masses, and our thoughts about the digital divide become unified. Non-users of technology are now a subject to be singled out for conversion (i.e. technology training) and punishment (i.e. relegated to the margins for not having technical skills). Thus, the discourse of information technology accentuates disadvantage as it subjects everyone to continuous pressure to conform. Through the analysis of a discourse, one can see the constraints of its statements, and where they situate the speaker.

Discourses are more than just linguistic systems or texts that produce meaningful and regulated statements. Discourse constructs the topic. It defines and produces the objects of our knowledge. It governs the way that a topic can be meaningfully talked about and reasoned about. Information technology, therefore, has little meaning outside of its political, scientific, and business contexts of discourse.

Information technology is a dominant discourse that engenders power, not equality (Luke, 1998). Because information technology use is structured by the abilities of the actor and the rules imposed by public access institutions such as libraries, information technology has the effect of multiplying and intensifying an actor’s existing resources (Lentz et al., 2000) (Rojas, Roychowdhury, Okur, Straubhaar, & Estrada-Ortiz, 2001). Thus, it is somewhat naïve to expect someone with low literacy to produce a well-articulated letter just because you supplied him or her with a PC with word processing software. You can only get out of the technology what you can put in. You need basic competencies such as an ethos and disposition favorable to technology, basic literacy skills on which to build technical skills, and social networks that include people with
technical expertise. Historically underserved communities lack some of these resources and consequently have fewer resources to multiply with. However, in the hands of the powerful, its communicative resources border on monopoly because it is flexible in its application, it allows for great ideological plasticity, and it lends itself to established institutional purposes (Mucha, 1999).

9.8 Digital Inequality

One day I'm gonna bust
Blow up on this society
Why did ya lie to me?
I couldn't find a trace of equality.
      --Trapped
      Tupac Shakur

I hear the whistle blowing
Dotcom is like a freedom train
Coming like a savior
Coming like Diana Ross & fake Supremes
Coming like (na’ he didn’t say)
Coming coming
Dotcom is…
Driving a yellow cab and passes me by.
      --Get Yourself a Dot Com
      Jabari Simama

Technology change brings advantages and disadvantages that are never distributed evenly among the population (Postman, 1992). Digital inequality occurs under vastly different conditions of learning, different forms and levels of quality in access and use, and ideological and institutional conditions. The goal of this section is to highlight how and why technology both enables and denies entire groups of people from the opportunities that they need to function in the information economy.
9.8.1 Cultural Domination

Cultural domination is a social relation in which the culture of a majority can exert pressure on minority cultures, aiming at their subordination or even total absorption (Mucha, 1999). The terms minority and majority do not have to be numerical, statistical or demographic majority. Majority simply means the dominant ethnic group, while minorities are those groups that are structurally or culturally subordinated. Thus power relations, not statistical relations, are important. Domination occurs when a collective within a society, typically the majority, has preeminent authority to function both as guardians and sustainers of the controlling value system, and as prime allocators of reward in society.

The training offered by the community technology centers can only be described as a “pedagogic action” or an act that imposes a dominant digital culture onto a minority population through education and training institutions. The pedagogic actions of the community technology centers can be only be effective when conferred with authority, autonomy, legitimacy and monopolistic power to teach information technology, a dominant and arbitrary culture, within the underserved communities. At the same time, much of the institutional power is concealed because long-time municipal employees manage the centers in a friendly manner.

However, this is only half of the equations. The community technology centers also need an audience that is receptive to the training. Those selected for training, the target community, are actors predisposed to learn and accept the training. The centers select and exclude elements from the dominant digital culture to teach, and these elements are then imposed on select members of the community. In tailoring the content
of the training for the community, the knowledge inculcated is devalued by corporate market institutions. There is also no industry certifying the curriculum taught in this program. Thus, people engaged in social flying sometimes come crashing back to earth because they are recipients of training that was not designed to prepare them for the workforce. The credentials that they obtain are, therefore, not certified as legitimate in the labor force.

9.8.2 Demand Deficits

The problem of a demand deficit is common in low income communities (Chapman & Rhodes, 1997). This deficit occurs because of issues related to the quality of access and use. Quality of access addresses what the user is able to do. It consists of the capabilities of the hardware, software and networks, and the autonomy enjoyed by the user. The state of the art equipment at the community technology centers does not impose constraints on the users, so long as it is working. The demand deficit is a function of what people are able to do with the technology.

Information technology is a product of American capitalistic society, and as such is not culturally neutral. After observing and participating in the classroom environment, one leaves with the impression that information technology was thrust on communities in deals to benefit vendors and other interested parties, and not necessarily the unique needs of the community. The curriculum and the technology were developed for corporate environments, and have been imported unaltered into the classrooms. This negatively affects the learning experience and reduces the ensuing quality of use.

For instance, one project that is used when teaching Word has the participants create flyers for a ski resort. The document has a picture a blond woman with ski gear
speeding down a slope with the caption “Feel the Thrill, Ski the Slopes”. This lesson was clearly not socially integrated with low-income, southern, African American participants having little or no experience with skiing. Wouldn’t it make more sense to make flyers for church, a barbershop, or some other neighborhood institution that figures prominently in their lived experience?

The inclusion of PowerPoint presentation software in the curriculum is even more puzzling. Presentations are commonly conducted in educational and corporate settings, but not in low-income communities. Why are these participants being taught presentation software? Moreover, why were they using “study strategies for success in college” as a topic for demonstration?

In addition to the content of the courses, the technology is not ready for these users. These residents are learning to use the most advanced Microsoft Office products on state of the art machines. When they try to older computers at home or in other institutions, they run into software version problems. I ran into the same issue as I conducted my fieldwork. I found that I enjoyed working at the community technology centers because their equipment was better than what I had at home and at the university. However, this created problems for me because I would, for example, get an Access database with survey results but be unable to open the file at home.

Members of the Digital Divide listserv discussed this same issue. If a technology center asks for older software or less powerful machines, funding agencies and corporations think that they don’t know what they are doing. As a result, people at established community technology centers advise novices to write proposals for in-kind
and cash donations that request more bandwidth, more computing power, and more sophisticated software than is really needed.

This contributes to the problem of the technology being too advanced for the user. For instance, low-literacy users did not spell well enough for the spell checker to be of much assistance. Participants were very sensitive about their writing, since they had to submit their work to the facilitator. Many times the participants would ask me to spell words like *professional* and *knowledgeable*. When participants asked for my assistance, I would offer to help them use the spell checker. I quickly learned that their spelling was too far off to effectively use the tool. Many times, the user had typed the entire document in capital letters and this made spell checking a worthless pursuit.

When instructors tried to teach more advance materials to the participants, a system administrator complained.

**Administrator:** She [an instructor] is teaching the kids how to download graphics to the local PCs. This is clogging up the PCs with junk and making them crash. Why is she teaching the kids how to download clip art as part of her course? The kids can only do what they are shown how to do. The kids are corrupting system files and the only way to fix it is to reload the entire OS.

### 9.8.3 Leveled Expectations

A review of the city’s stated objectives behind the decision to develop the community technology centers indicates that these results are largely inconsistent with those of the residents. The city envisioned the community technology centers to be an
extension of the community. The centers were to be places for empowerment where residents could go to build and strengthen community ties, obtain basic computer literacy, and produce locally relevant content.

“What we seek to create in our community technology center program is not technocrats, but digitally literate citizens. People who know the power of technology, but who develop an appetite for knowledge and information that technology can bring to one’s fingertips. And most of all, someone who will use the technology wisely, judiciously, and for personal and social good” ("City's Cyber Centers Receive National Attention," 2001).

Robertson (1998) argues that we shouldn’t think of education as a means to gain economic competitiveness and social mobility. Training can also be genuinely transformative experience for an individual, especially the seniors. Learning should therefore be viewed simply as a strategy for escaping poverty, unemployment or social exclusion, but also one of personal growth and accomplishment.

This philosophy sits well with seniors who were content with basic skills that could be used for individual expression and personal communication. These are people with time on their hands and constructed the centers as a place for social stimulation. The seniors are not subjected to the sanctions of the corporate market institutions, so they are able to learn for pure enjoyment.

**Genny:** I come to the center to socialize. I live alone, so my time at the center lets me mingle with others. I need to constantly stimulate my mind or I might go crazy. I don't want to get old and alone with no one to talk to like some of my friends. I am afraid of getting ill mentally. There
are ladies in my building that don’t get out much and they just deteriorate in body and mind.

Plus, the program is free. This is what really makes me come because I am on a fixed income. Black people don't take advantage of programs like whites do. That’s part of the reason why we are being left behind [FN0226].

However, the program couldn’t meet the strategic goals of those participants that expected job training, not basic computer literacy. From point of view these residents - information technology skills and training are good because they will earn you money. As one classroom facilitator told me, “Getting paid is a preoccupation among Black folks. Probably because so many of us are not getting paid.” [FN0309]. This is in opposition to the staff’s belief that information technology skills and training are good because they are fulfilling, and they could earn you money.

This breach in expectations serves to reinforce rather than transform the status quo. While the participants believed in and strived for a prize in the form of jobs, this prize was designated for and by the elites. Therefore, and by definition, it was unavailable to the participants of this program (Bourdieu and Passeron 1979). Indeed, as Roberson argued, one of the principal problems facing many technology based education projects is that they are all primarily supply-side initiatives rather than led by demand from potential employers, and in some cases in the individual (Robertson, 1998).
9.9 Resistance

We ain't meant to survive, cause it's a setup
And even though you're fed up
You got to keep your head up

--Keep Ya Head Up
Tupac Shakur

When subordinated groups refuse to accept the cultural assimilation or incorporation, and also refuse to accept their own marginalization, a process of cultural resistance can occur. Bourdieu presents two types of resistance, although neither of the methods can be successful. The first type of resistance is an attempt to help the reception of the legitimate culture. The community technology movement in an example of this activity in which technology is provided to underserved communities in a culturally sensitive manner. However, as the community technology center adapts and appropriates the dominant digital culture, the training and skills that it provides to the residents is devalued in corporate market institutions.

A second form of resistance occurs when marginalized groups try to separate themselves from the culture of the dominant classes and make their own alternative culture legitimate. This is seen in the way that the community technology centers define the digital divide in terms of race equality. In the early debates, the Blue Ribbon Committee advised that portraying the digital divide as a race issue may infringe on the centers ability to secure corporate funding and local support. And, since this is a municipal program, there should be an even greater concern for inclusion. As it stands at the time of this writing, every community technology center is located in a predominantly
African-American community and the vast majority of the participants are also African American\textsuperscript{24}.

\textbf{Dr. Simama:} You heard me use the term cyber rights. I am sure you are saying to yourself, "He must be exaggerating. How can access to computers and the Internet, be compared to civil rights?" Hear me clearly, the Civil Rights Movement was one that gave us access to basic democratic rights and institutions: The right to vote, receive equitable education; be protected from discrimination on the job and where we can live. … There probably would not exist today black Internet and black Web-related firms like the Freedom Group, Millennium 2000 Computer Group or Knowledgebase, Inc. Civil Rights was the vehicle and strategy; equal opportunity was the goal. Public access to computer equipment, training, and knowledge is the means by which we obtain self-reliance, self-actualization, community networking, communications and empowerment. Bridging the digital divide is the strategy. Economic empowerment is the goal [speech\_oct\_2000].

\textit{9.9.1 Symbolic Resistance}

James Scott (1990) describes techniques of ideological resistance used by the ruled party. This group cannot afford overt resistance, so it takes advantage of mechanisms considered to be safe. I have termed these occurrences as symbolic resistance, and I view them as positive forms of resistance. I first witnessed this type of

\textsuperscript{24} Exact percentages of ethnic participation are not available because the Cyber Centers do not record this information. The reference to the Civil Rights movement has significance not only for African Americans, but also for the city of Atlanta.
resistance at the community technology center when the participants and classroom facilitators refused to idly accept marginal service.

The hardware and network problems began in the second month of the fieldwork. Atlanta purchasing officials hired TDC to install cabling and set up computer networks at the community technology centers and traffic court without a city contract. Moreover, this work was done without the knowledge or approval of the city council (Whitt, 2001a) (Hairston, 2001a) (Hairston, 2001c). While this investigation was being conducted, TDC could not perform repair.

In the classrooms, several participants and facilitators talked to me about the “ragged equipment”, and how the centers have so much money but can't get the computers repaired. They also read the stories about the “improper contracts” in the local newspapers. From their perspective, politics, bureaucracy and red tape were hurting the community technology programs.

As a result of a rather eerie experience, I was able to tap into the sense of resentment that was brewing. The classrooms at the community technology center headquarters have one long glass wall that enables people in the hallway to look into the classroom. Normally, I sat at a computer in the last row at the far side of the classroom away from the glass wall. As the number of broken computers continued to grow, I found that I needed to give my seat to participants so that they had a working PC. One day I happened to move to one of the seats very close to the glass wall, and I had this constant sense of being watched. It seemed that every time I gazed through the glass, someone’s eyes were fixed upon me.
After class, I asked the facilitator “Does that glass wall bother you?” He replied, “Do you mean do I feel like I am under a microscope? Yes.” Then he proceeded to give me a 30-minute soliloquy on the dynamics of that glass wall.

**Facilitator:** The program is all for show, it is not for the people.

The machines stay broken. The instructors can fix them but are not allowed to.

I sit at a PC in the front row when I teach because they don't have a splitter for the monitor and the display unit. If I stand at the front of the room, I don't have a monitor in front of me to look at. This means that I have to continually turn backwards to see the big display screen behind me. This is extremely uncomfortable, considering that I spend 8 hours a day teaching. So I sit in the front row so that I can view the screen comfortably.

The staff has watched me sitting in the front of the room, and told me that I sit too much. They want to see me walking around and lecturing from the front of the class. I told them to purchase the splitter so that I can see the monitor as well as the large display. They act like they don't want to spend any money [FN0429].

The participants and facilitators have found a way to use the glass wall to signal out the staff. When the computers began to breakdown, the facilitators began to affix 8 ½ x 11 sheets of paper with the type of problem and the date written in large letters on the monitors of the broken PCs. This ritual began as a way to let the participants know which machines were broken so that they would not waste class time trying to find a
working PC. However, the signs took on a more symbolic role when the staff noticed that the signs could be read by anyone that happened to look through the glass walls while they were walking down the hall.

**Facilitator:** The people across the hall [the staff] changed the orientation policy. Now the classes are not full and they are scrambling to get participants. They need to present "good numbers", so they spend a lot of energy nitpicking and putting on appearances. They even went so far as to have the instructors take off signs from broken PCs when reporters come in rather than fix them [FN0419].

The participants used this technique too. One day I came to the community technology center during the lunch break. It was very quiet and, with the exception of the facilitator, the classroom was empty. As I walked in, I noticed that the screensaver on each of the 15 computers was identical. All were running a scrolling marquee “Please fix our computers!!!” in bright fuchsia letter with a green background. I just stood there laughing hysterically, and said to the instructor “Who did this?” He shrugged and replied, “The students I guess”.

The lack of repairs had deteriorated so badly that a part-time instructor from the evening session came to the community technology center during her lunch hour on her full-time job to fix the PCs. She told me that she couldn’t teach her Internet class because half the PCs didn't have Internet access. Since she teaches at night, the staff is not there if she has a problem. She is really on her own in terms of running the class.

So while the facilitators went to great lengths to keep the classes going smoothly, the bonds in the classroom became stronger. The participants and facilitators perceived
the broken hardware as inattentiveness and the lack of concern with their needs. They describe the computers as “raggedy” and “pitiful”. One instructor with a growing reputation for politicizing participants had her participants write complaint letters, which I have reproduced verbatim.

**Complaint #1:** What can be done to better the computer in this class so that we can know the basics of this computer. I think the first day there was a problem something should have been done to correct it. We know the program is free so that means that we have to put up with endy [sic] thing, if so why? We want the best. [complaint]

**Complaint #2:** What can be done to get our computers to work better at this Cyber Center? I say we should find out what sources we can talk to or go to and began to get something done. Then we should go to what ever extreme to get what we want done in a timely manner [complaint2].

The staff did not approve of this practice. Again, appearances are so very important to a program that is fighting for sustainability and legitimacy. One staff member talked about this specific incident.

**Staff Member:** While it is good to get the students involved in a cause and use the experiences at the Cyber Centers to inform class projects, it may not be such a good thing to criticize the administration. There is some concern by that staff about her actions [FN0503].
The problems in the classroom were mounting, and I decided it was time to discuss the matter with the executive director. During our meeting, the building was evacuated for a possible gas line leak. So we continued the interview in Dr. Simama’s car.

**Interviewer:** The biggest concern in the classroom is the broken equipment. It impairs the learning process because people don't know if the problems are related to the computers or if it is something that they are doing wrong. It is also disruptive because they might have to move to another machine because the one that they are using is broken.

**Dr. Simama:** Maintenance is a real issue. The biggest problem is that there is so little downtime. The centers are open M-F, 9-9. And there are classes going on all day. That makes it hard to schedule maintenance [FN0516].

The staff did not seem to appreciate the significance of the broken equipment on the psyche of the participants. The outages were sometimes rationalized as a perception problem of the participants. Since the participants don’t understand technology that well, they can’t appreciate the difficulty of maintaining 300 PCs. The participants must learn that when you’re dealing with technology, glitches are going to occur.

**Dr. Simama:** I was just at this seminar that was being broadcast virtually. The equipment would get too hot and shut down every 20 minutes or so. So for the first 2/3 of the seminar, we would lose the broadcast. The host brought in some new equipment and the end of the seminar went smoothly. The point is when you're doing live presentations
the technology will sometimes fail. What happened at this seminar was much more complex technically, but problems will occur [FN0516].

While the participants were vocal about the equipment outages, they seemed less aware of their power as change agents. Some participants discussed the need for more advanced training, A+ certification, and textbooks but had exerted no collective effort to obtain these additional resources. Without these infrastructure improvements and the participation of change agents, the sustainability of the community technology will continue to be a challenge. Sustainability should not only be viewed in terms of economic infusion from sponsors; there is also a need to sustain the innovative elements of the program.

9.9.2 Self-Exclusion

They say I’ve got to learn but nobodies here to teach me.
If they can’t understand me, how can they reach me?
I guess they can’t.
I guess won’t.
I guess they’re frontin’.
That’s why I know my life is outta luck fool.

Coolio, Gangster’s Paradise

According to Gates (2000) African Americans have historically experienced structural barriers that made obtaining an education both illegal and precarious. For instance, following the Stono Rebellion in 1739 in South Carolina, the largest uprising of slaves in the colonies before the American Revolution, legislators responded by banishing access to basic literacy and talking drums. These two forms of literacy were crucial to the slaves’ ability to revolt. Next came poll taxes that limited the right to vote, and de jure segregation that disconnected African-Americans from economic opportunity. Removal of these basic rights leads to “social death” that disconnects
African-Americans from their history and culture, from family ties and a sense of community. It is ironic that now in the 21st century, African-Americans are facing a new form of denial to literacy tools, this time in the guise of information technology. While programs such as community technology centers seek to bring technology to social groups that would otherwise not have access, some people drop out of the program, and others choose to abstain.

The causes of self-exclusion are difficult to tease out because of the vast social distance between the elites that created the technology initiative and those who are served by the initiative. For instance, something as basic as the name of a social program can contain elitist trappings that alienate potential participants. One staff member equated the word “cyber” with “I can’t touch it” [FN0503]. The word made him think of something cold and mechanistic. When I asked participants what they thought “Cyber Center” meant, one said the words made him think of “a room full of computers with networks and cables. It was like the computers were in a separate room or something, but I didn't think of it in terms of a classroom environment. I didn't know how I was going to be able to touch them. Why didn't they just call it a Computer Center? That would be more inviting”. [FN0508]

Another of our elitist trappings is a prevailing attitude that people ought to participate since it is good for them, and since we have created wonderful programs. The city creates an institution to see to it that the technology is accessible, and they structure a learning environment that assumes that the participants have never touched a computer before. The executive director describes what he views as the success factors for the community technology initiative.
Dr. Simama: Why has the program been successful? (Humbly, if I may dare posit some reasons). It's free. It's new—new machines and new concept. Technology is the in thing.

All three have something to do with our success, but they do not probe the deeper reasons. The deeper reason for our success, I believe are:
The teachers and staff are competent, warm and nurturing. The physical cyber centers are colorful and inviting, which tend to mitigate the view that city buildings and programs or cold, dull, and dreary. Residents are not treated like they are faceless numbers or unreasonable, over demanding taxpayers [SpeechApr2001].

Because the city has created a program such that anyone should be able to learn and access the technology, it is much easier to blame non-participants for their situation, and to threaten them with economic sanctions and social exclusion. However, this shows a type of historical amnesia whereby the city has selectively forgotten the poor state of the public school system, the failure of prior job training programs, the controversy around the firm contracted to maintain the computer equipment, and the displacement of people dwelling in public housing. Black existential angst derives from these past lived experiences of ontological wounds and emotional scars causing nihilism, a disease of the soul where there is little hope for the future and a little motivation for struggle(West, 1994).

The social determinants of patterns of participation in educational interactions are of such long standing for the individual that they appear to lead to dispositions that act as
filters in assessing future opportunities. It is doubtful, therefore, whether the improvements in participation brought about by information technology, welcome as these are, will significantly include all currently excluded groups (Selwyn, Gorard, & Williams, 2001). This stresses that self-censorship is the most damning form of resistance because it simply reproduces inequality by leaving information technology exclusively in the hands of the elite. Two types of self-exclusion occurred at the community technology centers: the dropouts and the want-nots.

9.9.2.1 THE DROPOUTS
The facilitators develop a covert selection process by which “draining” participants are marginalized, ignored or weeded out of the program. Draining was a term used by one facilitator to describe participants that generally have a tough time learning anything in class, and drain all of the facilitator’s patience and energy. Most of the frustration and intimidation felt by participants comes from a fear of technology and classroom environments.

Facilitator: This one young black male was cool for the whole class. During one of the last classes, I gave them an in class assignment that would use all the concepts we went over in the class. This dude got highly frustrated and blew up at me. I went over and touched the guy on the shoulder and asked him what he didn't understand. I figured that the guy was stressed about something outside of class and was just venting. This seemed to calm the dude down, but our relationship was never the same. He didn't come back to my class [FN0309].
A female facilitator encountered a more threatening situation with a young male participant. This participant was frustrated because he was having a difficult time learning the technology. He deals with his frustration by lashing out at the instructor. The following is an excerpt of an incident report produced by the facilitator.

**Facilitator:** It should be mentioned that Mr. Washington considers himself highly accomplished at word processing. However, he was the only student that did not or could not follow instructions. It should be noted that he has taken these classes more than once.

After I went to his seat a few times, he mentioned that he wanted to work on his Web Page and wanted my assistance. I informed him that in this Computer Applications Class, Web Page Design would be taught in the last two weeks of this six-week session and that we were doing a Word Processing review in preparation for PowerPoint. He stated that he was a taxpayer and demanded that I get over there this minute. He repeatedly told me that it was my job to do whatever he requested since he was a taxpayer.

I took that opportunity to repeat perhaps for the fifth time the subjects that would be covered and the timeframe within which each would be covered. I suggested he write it down. He stated that it was my job to write it down for him. Better still, he requested that I type it and bring it in the next class period.
To make an exasperating story short, he constantly interrupted me when I was talking either to the class or answering a question for an individual student with either insulting or disrespectful comments. At one point when I was talking to one student, he demanded, “Hey you in the black and white…GET over here!”

There was only one other male student in the class. Initially, he sat either next to or one seat away from Mr. Washington. After break, this student changed seats. When asked if he was having a problem with his computer, he responded that if someone did not throw Mr. Washington out of the class, he would.

Finally, Mr. Washington was also disruptive during classes starting 1/08/01 with similar behavior. He did not return the second week.

In addition to fear, the facilitators unwittingly contribute to a classroom environment that penalizes faster and more advanced learners.

**Facilitator:** The kids tend to catch on quickly in general, but the problems occur mostly for the black males. Some of them don't even try. They don't want to do any work. I try to introduce them to applications like Word, Excel, and PowerPoint, but they would rather download music and games. There is no real motivation to learn.

The limited contact that I did have with teens would suggest that they are extremely bored. All of their computer access is obtained in institutional settings that limit their use. They have very low autonomy or time to explore. They are
surfing the net, playing games, and downloading music during class. The facilitator asks them to stay with the class and not go off on their own. It is like they are being disciplined for their knowledge. The only choices they have are to quit, remain bored, or continue to be reprimanded for learning.

**Staff Member:** We don’t keep statistics on gender, but it is probably 75% to 80% female. This is a shame. We just are not sure how to reach the young black men.

**9.9.2.2 WANT-NOTS: ELIMINATION THROUGH SOCIETAL FORCES**

I had a growing sense of why the males were dropping out of the program, but I had little knowledge of the young men who chose to abstain from the centers. Since I didn’t get the opportunity to talk to anyone who chose not to come to the centers, the best I could do was to obtain second-hand, folk accounts. I began by striking up a conversation during a classroom break.

**Charlene:** Brothers can make these babies and leave them to be raised by the woman. Women are running the community. Guys are doing drugs and selling drugs to make quick money. Makin’ more money than they would earn legally. They're not interested in coming to the center because they need to be on the streets wheeling and dealing. Anyway who is going to hire them when they finish? No the young guys aren't interested in technology. They have no sense of responsibility. Only interested in making money fast.
**Facilitator:** They have to make fast money. They have such a hard time finding jobs because they have criminal records. They go into jail as young, 150 lb punks and come out 220 lb hard-core criminals. They come out worse than when they went in. And they are stronger and more evil because they've been locked up with nothing to do but pump iron and get strong to fight off stress and aggravation constructively. Then they can't get a job because of their records. The employers tell them that they will hire them, but once they check off that box that asks about felonies, they can forget it. They have a criminal record and they're black. Plus the employer assumes that they are on drugs.

In essence, the participants believe that the self-exclusion of African American males is a logical practice because legal employment mechanisms are largely closed to them. Many have three strikes against them – they can't pass drug test, they have felonies, and they have low literacy. Because the sanctions imposed by the corporate market institutions are severe for males fitting this profile, it is nearly impossible to etch out a living legally. “It’s hard to be legit and still pay the rent”. They can’t afford to be at the Cyber Centers because they need to be out hustling to make their money.

### 9.10 Reproduction

Yes, the strong gets more  
While the weak ones fade  
Empty pockets don't ever make the grade  
Mama may have, Papa may have  
But God bless the child that's got his own  
That's got his own

--- *God Bless the Child*  
Billie Holiday & Arthur Herzog Jr.
9.10.1 Broken Trajectories

Universal recognition of the “goodness” of information technology helps to unify an official set of qualifications for ranking actors within the social order. As new class factions such as those in this study enter the race, those already in the technology milieu must increase their investment to maintain their scarce qualifications and place in the class structure. Thus, we see an increase in objectified forms of information technology knowledge in the form of A+ certification and Techno-MBAs. These objectified forms of cultural capital become marks of distinction that clearly distinguish these actors from those obtaining their training at a community technology center. The information technology skills as well as the organizations that reward them become key stakes in interclass competition. This perpetuates a continuous demand for information technology skill at all levels, and a disinvestment in occupational skills that are no longer valued.

**Interviewer:** What is life like for a Black man in Atlanta with no computer skills?

**Ron:** You can no longer be a successful tradesman. Mexicans are a cheap labor force, replacing more expensive Black and White labor. There are no longer schools that teach these trades to blacks either. The schools don't do this anymore so people graduating from high school can't transition into jobs because they lack skills. Hispanics are doing all of the landscaping, bricklaying, masonry, house framing, painting – all of the industrial arts…[The Mayor] and his [African American] cronies are fronting White firms [through the affirmative action program]. So Blacks
can't get a job. Georgia is a right to work state so union power is weak. There are not many unions in the industrial arts so there are few benefits like Social Security, disability insurance, or income tax withholding. These workers are illegal so they can't complain about this to authorities because they will be deported. Firms can exploit these workers more easily so why hire Blacks? There is a perception of Blacks as being lazy, and Hispanics as hard workers [FN0308].

Those without skills are most affected. As opportunities of those with technical skills extend over positions that previously did not need these skills, those without skills are no longer competitive. This restricts what are already meager job opportunities for the unskilled, and reinforces limited chances for social mobility. Attending courses offered at the Community Technology Centers is an assimilation strategy employed by the residents. However, as the most disadvantaged attempt to possess assets previously held by more privileged groups, their attempts are counterbalanced by the actions of other groups seeking to maintain scarcity and distinctiveness of their assets. This competition comes from more privileged groups (i.e. those with A+ certification) and from less privileged groups (i.e. the Mexican tradesmen). Preservation of the social order is provided by these unceasing changes in properties valued and rewarded by corporate market institutions. Consequently, actors must engage in a never-ending struggle if they are to maintain their social position. Otherwise they face broken trajectories and limited social mobility because they no longer have or failed to obtain properties that are prized.

The notion of a “broken trajectory” is often discussed in the reproduction literature (Willis 1977, Bourdieu and Passeron 1979, MacLeod 1987) to describe the
disparity between subjective aspirations of the actor and objective chances offered in a structured social order. Newcomers to technology expect the benefits that others who preceded them enjoyed, but which is largely excluded to them. Reproduction occurs through these struggles for inclusion and participation. The participants make the commitment to technology but they are frustrated because the social structures prevent them from gaining the desired benefits.

For example one participant, Sandy, was extremely optimistic about the prospects for using her technology training on her job. Rather than leave her PC sitting idly on a desk at home, she decided that she could use her PC on her job as a bookkeeper in a small shop. She brought her PC into the office and began to load customer information into an Access database. Sandy was proud of her accomplishments, but her success did not sit well with her boss.

The boss would not continue to let her come to the community technology center classes during work hours. Later he told her to either take the PC out of the office or quit. Sandy took a great leap of faith. She quit her job and continued taking classes at the community technology center. In the two months since she quit her job, she went to job fairs and additional computer training courses, but is still unemployed. The objective chances of obtaining a well paying job for a 50-year-old African-American woman with no real world computer experience and a certificate of completion from the community technology center are rather bleak.

Most of the participants in the center did not have lofty career aspirations. However, the participants were having difficult times meeting even these low aspirations. Rather ironically, the community technology center is co-located in the same building as
the Workforce Development agency. Four people attempted to take advantage of the services offered by the agency. Two participants began taking GED preparation courses, but I don’t know whether they completed the program. A third participant, Cindy, came to class early most days to brush up on her typing skills. At the end of the 14-week yber Center training course, she took her typing test at the Workforce Development agency but was told that her speed was still not fast enough.

Finally, Bill tried to take advantage of a city program that provided $5000 grants to low-income residents to obtain their commercial drivers license. I was quite surprised when he rushed into class one day to let us know that he would be absent because he had to take the literacy test, a prerequisite for receiving the grant. I asked him if coming to the community technology center helped to motivate him to apply to this program and he said yes. “It is all a matter of self-motivation”, he says.

Two weeks later, he comes rushing into class again. This time his face looks sad. When I asked if he was okay, he tells me that he just received the results of his literacy test. He scored at the 6th grade level in reading and math. This stuns me because he is clearly intelligent and reads voraciously. He was bringing books and newspaper article to class for me to read!

I ask him what was on the test, and he tells me reading comprehension. I ask him what does he think went wrong? He puts all of the blame on himself. “I just wasn't in the proper state of mind. I didn't put enough emphasis on the test. I didn't know that this test was make or break. I think this exam is just another roadblock.”[FN0326]

I couldn’t help reflecting back on my own bad experiences with standardized tests. Here I am writing a doctoral thesis and four years ago I was denied entry into the
Ph.D. program because of a damn GMAT math score. Fortunately, I had established positive relationships with the faculty. But what happens when nobody knows your name? Your soul cries as you try to make peace with your failure, but you never can forget. In a field note entry dated a month later, Bill hadn’t forgotten. “I wasn’t in the right state of mind. I know that I don’t have a 6th grade reading level. They just don’t want to give me a chance.” [FN0413]

9.10.2 Two-Tier System of Training and Access

9.10.2.1 Access
The city has delegated the community technology center with authority to inculcate matters of technology to the underclass. However, the residents receive a different form of access. Whereas others own their PC and can use them at their leisure, these residents have institutional access and must conform their use to the rules and regulations imposed by the institution. They have state of the art PCs with the latest software, but they have to travel to use it. They also come to the technology initially with specific purpose, but they have a strong desire to learn.

Ron: I have an interest, hunger and desire to go through the program. But for me, it is just a stepping-stone. I would like a computer. Not a fancy one with all the latest technology, just one that works [FN0503].
9.10.2.2 Training
The participants operate in devalued markets because they have acquired their cultural capital through a free, city-sponsored program. Community technology centers represent an established system in which the social groups that are least equipped to accept and to adapt to the technology are exposed to technology for the shortest length of time. This light training is a strategy of assimilation that delivers minimal technical skills to residents who are attempting to compete in a technology driven future. However, graduates of the program receive undervalued diplomas that are neither recognized by nor sanctioned by a recognized technology institution. The social quality of the competence acquired through these short “crash courses” is always suspect, leaving on participants the stigmata of catching up. It is conspicuous consumption of training that fulfills a social function of inclusion for its residents, yet makes a powerful symbolic statement for the city’s commitment to civil and cyber right.

I had asked Ron what the digital divide really meant. He described it as this:

Ron: "You know how a baby has to be breastfed milk. He can't eat food? Well that's how I feel. They are giving us milk, and this is not enough to feed us. We need to be able to eat food if we want to get jobs.

Let me put it to you another way. It is like someone is cooking a big bowl of soup, and all you are able to do is taste the broth from a spoon. The broth sure tastes good, but all you can do is sip from the spoon, even though you're really hungry and want to eat a bowl full." [FN0508]

He then quoted Benjamin Mays, “The black man is always behind in the race. In order to catch up, he has to run twice as fast as the white man.” [FN0508]
Initial disparities in life chances tend to reproduce since the duration of training is short and the participants only receive a basic familiarization to technology. As one participant remarked, “My niece is Microsoft certified. When I tell about what I am learning at the Cyber Centers, she tells me that what we are learning is garbage”. [FN0508] One participant also described his experience in terms of being a kid in elementary school.

**Ron:** The PC is like a drug. That's why the kids are so into computers. They are addictive because you are learning and that brings a sense of accomplishment. It is not really the content but the quest, the journey. I feel like I've gone from Kindergarten to 3rd grade during the past 8 weeks of class. I'm still in elementary school, but I'm picking things up [FN0508].

The classroom facilitators also noted that difficulty in trying to teach sophisticated skills in a short time frame to individuals with low educational attainment.

**Interviewer:** Would you say most participants are here because they are looking for better jobs?

**Facilitator:** Yes, they want jobs but they aren't learning enough…. The people in the Applications class only come in two days a week. So say someone comes to class on Thursday. If they don't have a computer at home or they don't use a PC over the weekend, then it is 5 more days before they come back to class the following Tuesday. By then, they have forgotten much of what they learned….. The classes are too advanced for
them. Excel and Access are too advanced for them. Some days we don't get too far and I have to slow down. It doesn't make sense to keep going on to new stuff if they can't follow [FN0514].

In sum, the unified discourse of technology progress creates a belief system that is imposed on people who have little chance of actually benefiting materially from information technology use. While the participants do successfully enter a discourse in which they were entirely eliminated from, they do not receive the material benefits, which they sought. These residents read the stories about Bill Gates, Steve Jobs, and the hundreds of 20 something year olds who made their fortunes through information technology. They are lured into the technology centers seeking job advancements and entrepreneurial opportunities. However, these prizes are beyond their reach because they were defined by the elites for the elites. The residents are beaten before they start, and have little objective chances of obtaining their material goals. We provide “light training” to the communities who need it most, and this creates an oppressive system.

9.11 Concluding Thoughts for Breaking the Reproductive Cycle

Change?
I guess change is good for any of us.
Whatever it takes for any of y'all ...
to get up out the hood...
I'm wit cha.
I ain't mad at cha.
Got nuttin’ but love for ya.
Do your thing boy.

_I Ain't Mad at Cha_, Tupac Shakur

The intention of this research was to problematize the digital divide, to demonstrate the intricacies and tensions. To investigate the role of culture and technology in reproducing the social order, I purposely chose to study a social group that
has been historically marginalized. Based on the results of this research, it is appropriate to present a conceptual framework for moving beyond the current digital divide discourse to one of digital equality.

What this study stresses is the false dichotomy between structure and behavior, society and the individual. Unfortunately, these two camps have nearly suffocated the discourse about the digital divide. From a structuralist perspective, the solutions call for full employment, education, health, childcare, and affirmative action programs.

Alternatively the behavioral perspective promotes market-based solutions such as promoting self-help programs and black business expansion aimed at fundamentally changing how African Americans act and live. In isolation, both of these perspectives are limited. If we are to break the reproductive cycle, these approaches must be fused and then extended.

First, we must reconcile structuralist and behavioralist approaches because they share a reciprocal relationship. On the one hand, the structures of the mind are shaped by our engagement with societal institutions. On the other hand, the larger social circumstances in which one lives can be changed by positive actions that elevate life chances. Social programs that are designed to treat one of these aspects in isolation can only be partially successful.

Second, the prominent role of culture in shaping the social order must be acknowledged in digital divide related research. What I have sought to accomplish in this research is to show that culture is just as powerful as economic, social, historical and political forces in shaping the social destiny of actors. Culture is not only the set of
behaviors, attitudes, values and norms shared by a collective; culture is also a structure rooted in families, schools, the media and other institutions.

Finally, and perhaps most importantly, this research has demonstrated the need for delving into the despair and angst that have taken up residence in our inner cities. The digital divide research does talk about the depressing statistics of race, ethnicity, income, and geographic location in structuring information technology access and use. But this discourse ignores the faces behind the numbers. What is more important is to understand that any effort to redress the digital divide must seriously contend with the absence of hope, the relative economic deprivation, the political powerlessness, the psychological depression, the personal worthlessness, and the social despair that exist in our inner cities. How can information technology be used to remedy these social ills? Based on my research experience, this is what bridging the digital divide should be about.
X. Theory Development

This chapter presents the midrange theory\textsuperscript{25} derived from the fieldwork. Through this theory, assumptions about technology, culture, power, and social groups are unveiled. In a sense, the theory helps to explain why this particular ethnography took this shape because these concepts form the intellectual foundation of the study, and the research would not exist in this form without these ideas. As a result, these concepts say as much about me, the researcher, as they do about the people being studied, because these data have been filtered through my ideas and values (Barley, 1990).

What follows immediately is an overview of the theory derived from the study. The discussion then takes a more scholarly tone as it defines the meaning of theory and theory development, and presents a series of propositions derived from the study.

10.1 Summarizing the Theory

The previous chapter describes a number of reproductive mechanisms in effect within the community technology centers, and strikes a cautionary note in the midst of the optimism surrounding community technology centers. These findings also support some previous studies (Patterson & Wilson, 2000) which assert that much of the discourse

\textsuperscript{25} A midrange theory is a contextual theory confined to an ideographic situation, as opposed to a grand theory developed under nomothetic assumptions.
regarding community technology centers does not deal with a number of important economic, social, cultural and political issues. Instead we see the emergence of an unfair system where participants’ initial enthusiasm often turns to disenchantment. It’s as if the technology is a seductress that tantalizes and taunts them with promises that can’t be fulfilled. When the training provided by community technology centers does not include the basic knowledge and competencies that must precede effective information technology use, the centers are subjecting communities to oppressive training regimes in which residents are enticed to participate, but they must do so at a deficit.

Rather than providing inner-city residents with an opportunity to learn how to shape and govern public life, information technology training is increasingly being vocationalized, reduced to a commodity that preserves the privilege of advanced training through universities for a few, and provides basic industrial training through community technology centers for others, especially those who are marginalized by reason of their class and ethnicity. This is most unfortunate because the city’s vision of using information technology as a tool for increased empowerment and democracy is in direct opposition to the worldview of residents who see information technology as a vehicle for “getting paid”.

The intersection of espoused and enacted worldviews of the residents and the city showcases the fact that imposing information technology in community settings is clearly a political act in which knowledge is always related to, implicated by, and defined by ever-expanding capitalistic entities. Because information technology is created by and for elites, the information technology discourse and artifacts embody middle and upper class American competencies, beliefs, norms and values. And while information
technology poses difficulties for both the rich and the poor, underserved communities face greater difficulties when adopting and using information technology because the computing culture is relatively more foreign. This highlights the need for policy interventions; otherwise information technology becomes yet another mechanism to contribute to social reproduction and limited life chances.

To grasp the significance of social categories in explaining and analyzing differences in information technology use, one has to take into account the position of the actors within the field of corporate market institutions. The growth in low-income actors in community technology programs does not imply that there has been a democratization of information technology. This research argues that the increase may correspond to a perpetuation of the status quo, and even a bifurcation of the community. An increase in the rate of information technology access and training in disadvantaged communities can in fact take place to the almost exclusive advantage of the social groups who are already the most schooled in the dominant middle class culture, and those such as the elderly who are least likely to be affected by the sanctions imposed by corporate market institutions.

Thus, if improved life chances are taken to mean the process of equalization of information technology opportunities for people from the different social categories, then the findings of this research suggest that improved life chances do not take place equally for all social groups. It is rather naïve to assume that, as information technology is diffused to communities that previously lacked access, the use of and the life chances derived from that technology would be equal. We know from organizational studies that technology has beneficial and detrimental, intended and unintended consequences (Kling, 1998), (Kling, 1999) (Sawyer & Rosenbaum, 2000).
In fact, different objective probabilities correspond to different attitudes towards information technology and information technology-assisted social mobility. Depending on whether access to information technology is collectively felt as an impossible, possible or probable future, the conduct of the actor’s adoption and use of information technology will vary. Behavior tends to be governed by what is reasonable to expect, and a social groups’ collective chances constitute, through the process of internalization of objective probabilities, one of the mechanisms through which that social destiny is realized. Hence, those comfortable in dominant culture stand to adapt most easily to and consequently enjoy the greatest life chances because societal structures and the dominant digital culture privilege their ways of knowing.

Information technology training and use exploits pre-existing disparity and creates new ones. For instance, the pervasiveness of information technology in high-income communities, and the relative paucity of these same resources in low-income communities is the reason that community technology centers were developed in the first place. However access, training and use at a public access institution will not overcome centuries of inequality that exist in other spheres of life. Quoting extensively from Luke (1998),

Figures that enthuse over "cheap global communications", "the personal computer revolution", or "friction-free capitalism"…suffer from a classic case of Jacobin elitism as they speak in the name of abstract equality and empowerment amidst concrete conditions of severe inequality and disempowerment to serve their particular interests in the guise of universal change. …[T]he information superhighway will be one more
powerful new force for raising barriers of prejudice, inequality, and hierarchy between those who communicate globally as informational superhighwaymen, and those who do not. …Because we are not all created equal in the material world, as Jacobin innovators naively assume, we never will be equal in the virtual world. And, instead of solving the material world's sociological problems, the growth of the infobahn will aggravate them, while, at the same time, creating entirely new sociological conflicts and contradictions in cyberspace.

10.2 Clarifying Theory and Theory Development

Clarification of what is meant by “theory” and “theory development” is warranted as these terms take on different meanings depending on the philosophical orientation of the researcher. This study adopts Bacharach’s (1989, p. 496) definition of theory as “a statement of relations among concepts within a set of boundary assumptions and constraints. It is no more than a linguistic device used to organize a complex empirical world.” Theory development, in turn, is defined as a process that must be designed to highlight the relationships, connections, and interdependencies in the phenomenon of interest (Weick, 1989); (Weick, 1995).

Using a grand theory of cultural and social reproduction (Bourdieu, 1990) as an intellectual springboard, a series of propositions and expository glosses were developed to address the final research question ‘How do these critical dimensions reproduce inequality?’ Theory induction began with the creation of categorical and objective normative statements (i.e. propositions), and then expansion of these with an
interpretation, or perhaps even competing interpretations (i.e. glosses). The final step is to present the linkages of these elements into a system (i.e. a theory). The proposition-gloss style provides equal rigor without appealing to any scientism (R. Baskerville, personal communication, September 25, 2001).

Bourdieu’s theoretical framework guided the data collection and analysis. The intent was to explore these grand theoretical concepts in a localized information technology context. During the analysis, I specifically looked for confirmations, gaps and inconsistencies between the empirical data and the grand theory, and resolved these with my own interpretations of the repeated patterns that emerged from the data. This process resulted in a midrange theory grounded, bounded, and constrained with respect to the empirical evidence from the fieldwork while appropriating Bourdieu’s grand theoretical concepts. Klein and Meyers (2001) term this approach “Applying an Interpretive Frame of Reference in Empirical Investigations and Interventions”.

In the information systems literature, the process of generalizing a particular set of results to broader theoretical statements has been termed “analytical generalization” (Yin, 1994) and “theoretical abstraction” (Klein & Myers, 1999). Theory induction provides an alternative to “the view of scientific progress as a kind of R square sweepstake; a world in which variables explain one another” (DiMaggio, 1995, p. 392). Rather than explain variance, the goal of theoretical abstraction is to explain regularities experienced in the social world. It is an ideographic approach to research where the objectives are to generalize within the setting observed, and to provide theoretical

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26 A gloss is a brief explanatory note or interpretation of a difficult or technical expression inserted between each proposition.
propositions that explain what the researcher would acknowledge to be distinctive events in unique circumstances (Lee & Baskerville, 2001).

Lee and Baskerville (2001) further assert that theoretical induction should not involve statements about anything external to the setting examined in the study. However, Sutton and Staw (1995) contend that it is appropriate to develop strong conceptual arguments that dig deeper and extend more broadly than the data will justify if theory building is a valid research goal. This suggests that there is room for sharper discussion of the processes underlying a phenomenon, but this discussion can’t be entirely divorced from empirical analysis. Drawing on the argument put forth by Staw and Sutton, what follows is a midrange theory that seeks to explain the (re)production of digital inequality.

10.3 Theorizing Digital Inequality

Cultural reproduction provides a basis for theorizing the strategic role of information technology in the continuing struggle between the dominating and the dominated groups. Through the control and manipulation of systems of meanings about information technology (i.e. the IT cultural arbitrary), dominant social groups can gently impose the mores, values and beliefs about information technology on dominated groups (i.e. symbolic violence). And in doing so, dominant social groups ensure their own legitimacy because the technology embodies their ways of knowing, which consequently makes adoption and use relatively less difficult. Symbolic violence, in the form of information technology access and training in underserved communities, contributes to the perpetuation and diffusion of the systems of meanings regarding information technology (i.e. cultural reproduction) held by dominant social groups, thereby helping to
ensure their continued dominance (i.e. social reproduction). For this reason, information technology plays a powerful role in sustaining systems of domination.

The federal government, for instance, announced a policy initiative to provide computers and Internet access in every K-12 school in the US (US Congress, 1995). While nearly every school in the US is now connected to the Internet, the most impoverished schools are falling further behind when it comes to online access in classrooms. Being connected is clearly not enough. According to a study released by the US Department of Education (Williams, 2000), the percentage of schools with at least one connection to the Internet increased from 89% to 95% between 1998 and 1999. However, during that same time span, the percentage of classrooms with Internet access in the nation's poorest schools - those where 71% or more of the students are eligible for free or reduced-price lunches - made no progress remaining flat at 39%. Meanwhile, the percentage of classrooms with Internet access in the nation's wealthiest schools - those with fewer than 11% of their students eligible for subsidized lunches - rose from 62% to 74%. Thus, we have an institution that places a premium on Internet access yet allocates this resource along existing socio-economic fault lines.

Like Marx, Bourdieu believes that the more the process of symbolic violence is concealed from sight and left unchallenged, the more powerful it is in reproducing social structure. Thus, when we uncritically accept that 95% of schools in the US have computers with Internet access without further inquiring about the 5% without access or the disparity in the quality of access, we leave power structures unchallenged and allow the continuation of inequality.
Figure 5 presents a high level model of the reproductive function of information technology, which is conceptualized as a cyclical process in which dominant social groups construct information technology as a cultural force that is imposed on dominated social groups. For instance, the Mayor describes the community technology center as “our way of getting technology to the people who most need it the most” ("City Opens Fifth Cyber Center," 2001, p.1). In the same report, a Councilman states “These Cyber Centers take our citizens off the superhighway as hitchhikers and puts them on the fastlane of computers” ("City Opens Fifth Cyber Center," 2001 p. 3). Members of historically underserved communities have become unwitting participants in a massive social experiment, and what is most shocking is how little critical thought is going into it. The assumption seems to be that computerization improves things in corporate environments so it must work equally well in communities. But is this true?

This imposition of dominant assumptions and meanings about information technology results in a cultural dissonance, as information technology is more foreign to the way of life in underserved communities. Many informants suggested that access, training and use are newly acquired life chances enabling them to enter a new world. However, their access in this new world is limited by skill level, structural constraints imposed by the community technology center and other public access points, and by the technology itself.

Consequently, this cultural dissonance impairs in the actor’s ability to use information technology, and ultimately to derive comparable social and economic benefits that are enjoyed by the dominant social groups. In cases when the cultural dissonance is too great, actors may go so far as to self-exclude themselves from computer
use. Self-exclusion was a strategy employed by adults, for example, who were struggling to provide for their families and did not have the time and energy to acquire digital skills at the community technology centers. This type of self-exclusion serves to reproduce inequality because the dominant continue to unfairly monopolize the digital culture.

Information technology also provides different life chances to different user communities. This insight was poignantly unveiled while observing a cohort of senior citizens that would visit the centers with their grocery lists in hand to shop online for themselves and their neighbors at the WebVan website. Unlike suburban households with personal transportation and local grocery stores, this e-commerce activity was not a luxury or time saving practice; it was a practical means for meeting a fundamental necessity. It provided a freedom from transporting small quantities of groceries on buses and purchasing higher priced staples at their local mom-and-pop stores.

What follows is an explication of the midrange theory. Each of Bourdieu’s grand theoretical constructs, along with the respective field-based definitions and examples, are presented in Table 19. This section concludes with a series of propositions and glosses, which are summarized in Table 20, that define and explain the relationships between the constructs in Table 19 and the processes in the reproductive cycle depicted in Figure 5.
Origins of digital culture

(Re)produce dominant culture

Organization of digital culture

Impose dominant culture through local digital training

Effects of digital culture

Local digital training legitimizes and translates dominant culture

Initial culture of the dominated (habitus)

Local digital training produces cultural dissonance in dominated

Dominated formulate disparate digital capabilities

Figure 5: The Reproductive Functions of Information Technology
<table>
<thead>
<tr>
<th>Construct</th>
<th>Field-based Definition</th>
<th>Field-based Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogic Action</td>
<td>Digital training (a symbolic power) that imposes systems of meanings about IT upon groups in such a way that they are perceived as legitimate. Pedagogic action contributes to the cultural reproduction of the dominant group.</td>
<td>Community technology centers as institutions to provide access and digital skills to historically underserved communities.</td>
</tr>
<tr>
<td>Cultural Arbitrary</td>
<td>The systems of meanings about IT are arbitrary insofar as they are social constructions. The structure and functions of IT cannot be deduced from any universal principle.</td>
<td>Belief that digital skills are required for good jobs. “After I get this training, I’m gonna go out and get myself a job.”</td>
</tr>
<tr>
<td>Reproduction</td>
<td>Just as people reproduce physically over the generations, they also tend to perpetuate their social organization. Social reproduction is the name given to this phenomenon. Cultural reproduction refers to the role of dominant systems of meanings in perpetuating relations between social groups.</td>
<td>“Afro-Americans have basically been left behind in this arena. We must make progress. The Cyber Center will help us to accomplish this mission.”</td>
</tr>
<tr>
<td>Institution</td>
<td>Not an organization per se, but the set of relatively durable social relations that endows organizations with power, status, and resources.</td>
<td>The community technology center is an institution endowed with power, status, and resources.</td>
</tr>
<tr>
<td>Legitimate Consumers</td>
<td>Dominated social groups that have been selected for digital training. The training, symbolized positively by IT credentials or negatively by self-elimination from IT, legitimizes IT knowledge by producing a cultural need for using IT.</td>
<td>The “target community” as those “low-income and underserved populations in the Empowerment Zone and linkage neighborhoods”</td>
</tr>
<tr>
<td>Habitus</td>
<td>The internalization of the principles of a cultural arbitrary. The habitus is comprised of dispositions and ethos. Each actor has her own habitus, and people experiencing a similar history would have a collective group habitus.</td>
<td>“People who know something about computers would still think I’m dumb.”</td>
</tr>
<tr>
<td>Field of power</td>
<td>A field is a social arena in which struggles over the resources, systems of meaning and value of IT. Resources that are at stake define a field, and each field has its own logic and structure. Fields applicable to this study include mass communication, labor, education, politics, and IT. Collectively referred to as the field of power.</td>
<td>“The city…” “The system…” “The people across the hall…”</td>
</tr>
<tr>
<td>Cultural capital</td>
<td>The accumulated stock of knowledge about the products of artistic and intellectual traditions, which is learned through educational training. Educational facilities are not as much sites of distribution of cultural capital, but sites for legitimizing the cultural capital of the middle and upper classes, which is reified and rewarded.</td>
<td>“I will learn a lot of computer applications when I finish this class. I will be able to get…better opportunities. I will bridge the digital divide.”</td>
</tr>
<tr>
<td>Social capital</td>
<td>The benefits that one can potentially receive from participating in communities and networks. These benefits might come in the form of information, support, guidance, or additional social contacts. Social capital is an important sociological category for understanding digital inequality, because marginalized members of society typically have less social capital to draw on.</td>
<td>“It has become the responsibility of those who have the ability to train others with computer skills to do so in a comfortable setting.”</td>
</tr>
<tr>
<td>Economic capital</td>
<td>Monetary means such as property, stocks and money that can be employed as power resources in one’s struggles for social mobility.</td>
<td>“There is definitely a digital divide … because many people cannot afford to obtain their own PC…”</td>
</tr>
</tbody>
</table>

Table 19: Grounding Bourdieu’s Grand Theory in Empirical Observations
<table>
<thead>
<tr>
<th>Reproductive Functions</th>
<th>Propositions</th>
<th>Construct</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Re)produce dominant culture</td>
<td>1.1 Digital training perpetuates social hierarchies</td>
<td>Pedagogic Action, Cultural Arbitrary, reproduction</td>
</tr>
<tr>
<td>Impose dominant culture through local digital training</td>
<td>2.1 Digital training imposes a dominant culture</td>
<td>Pedagogic Action, Cultural Arbitrary, Reproduction</td>
</tr>
<tr>
<td>Local digital training legitimizes and translates dominant culture</td>
<td>3.1 Digital training selects and excludes cultural elements to be imposed</td>
<td>Pedagogic Action, Cultural Arbitrary, reproduction</td>
</tr>
<tr>
<td></td>
<td>3.2 Cultural elements selected and excluded perpetuate social hierarchies</td>
<td>Pedagogic Action, Cultural Arbitrary, reproduction</td>
</tr>
<tr>
<td></td>
<td>3.3 Effective digital training requires institutional authority and autonomy</td>
<td>Pedagogic Action, Institution</td>
</tr>
<tr>
<td></td>
<td>3.4 Legitimacy of digital training is greater the more directly the institution reproduces dominant culture</td>
<td>Cultural Arbitrary, Institution</td>
</tr>
<tr>
<td></td>
<td>3.5 Institutions reinforce and conceal power</td>
<td>Reproduction, Institution</td>
</tr>
<tr>
<td></td>
<td>3.6 Power to deliver digital training is delegated to Institutions:</td>
<td>Reproduction, Institution</td>
</tr>
<tr>
<td></td>
<td>3.7 Effective digital training requires instruction</td>
<td>Pedagogic Action, Cultural Arbitrary</td>
</tr>
<tr>
<td></td>
<td>3.8 Effective digital training requires an audience</td>
<td>Pedagogic Action, Legitimate Consumer</td>
</tr>
<tr>
<td></td>
<td>3.9 Target audience is selected purposefully</td>
<td>Legitimate Consumer, Institution</td>
</tr>
<tr>
<td></td>
<td>3.10 The target audience is predisposed to accept the training</td>
<td>Legitimate Consumer, Habitus</td>
</tr>
<tr>
<td></td>
<td>3.11 Dominant digital culture is seen as legitimate by the audience</td>
<td>Legitimate Consumer, Habitus</td>
</tr>
<tr>
<td></td>
<td>3.12 The legitimacy of digital training is greatest for those at the margins of the social hierarchy</td>
<td>Legitimate Consumer, Habitus</td>
</tr>
<tr>
<td></td>
<td>3.13 The digital training provided to those at the margins of the social hierarchy is practical</td>
<td>Field of power, Habitus</td>
</tr>
<tr>
<td>Local digital training produces cultural dissonance in dominated</td>
<td>4.1 Dominant digital culture is foreign to audience</td>
<td>Cultural Arbitrary, Habitus</td>
</tr>
<tr>
<td></td>
<td>4.2 Some dominated groups self-eliminate</td>
<td>Habitus, Reproduction</td>
</tr>
<tr>
<td></td>
<td>4.3 Self-elimination is the result of selection and exclusion mechanisms in other societal domains</td>
<td>Field of power, Habitus,</td>
</tr>
<tr>
<td></td>
<td>4.4 Self-elimination is greater for those lacking basic competencies and positive attitudes about IT</td>
<td>Cultural capital, Habitus</td>
</tr>
<tr>
<td>Dominated formulate disparate digital capabilities</td>
<td>5.1 Effective digital training depends on cultural distance between audience and content</td>
<td>Habitus, cultural capital</td>
</tr>
<tr>
<td></td>
<td>5.2 Effective digital training depends on previous IT knowledge, and belief in the authority of the institution delivering the training</td>
<td>Cultural capital, Habitus</td>
</tr>
<tr>
<td>(Re)produce dominant culture</td>
<td>6.2 Unified societal domains increase the necessity of digital skills</td>
<td>Field of power, Reproduction</td>
</tr>
</tbody>
</table>

Table 20: Mapping Bourdieu’s Concepts and Reproductive Functions to Propositions
(Re)produce dominant digital culture

1.1 Digital training perpetuates social hierarchies:

Social relations form an arbitrary power by which a dominant cultural arbitrary can be gently imposed on dominated groups. Through pedagogic action, existing social relations can be intensified, and entirely new forms of inequality may emerge. This is the social reproduction function of cultural reproduction.

Gloss1:

The concept of arbitrariness is central to theories of culture. The arbitrariness of the dominant culture simply means that the structure and functions of information technology cannot be deduced from any universal principles or laws of nature. Digital training imposes a dominant view of the technology’s meaning and intended use onto dominated social groups. This imposition is not accomplished through physical force. Rather, it is done gently through digital training (i.e. pedagogic action) in such a way that this imposition is perceived as legitimate. This is the essence of symbolic violence, a disguised form of power.

Gloss2:

The proliferation of institutional access in libraries, schools, and community technology centers is based on the dominant social group’s assumption that everyone needs digital skills. The dominant social group then reallocates resources to institutionalize digital training for social groups that would otherwise lack access. It is a supply-push strategy in which dominated social groups are
provided with basic digital skills that enable them to participate in the information society. Ironically, even with digital skills, dominated social groups remain marginalized in the social hierarchy because they only receive minimal training.

*Imposes dominant digital culture through digital training*

**2.1 Digital training imposes a dominant culture:**

In one sense, digital training is a pedagogic action in that it imposes a cultural arbitrary through an arbitrary power.

**Gloss:**

Through the power delegated by the city, mass communications, public library, educational institutions and corporate sponsors, the community technology center unwittingly imposes a dominant system of meanings about information technology (i.e. a cultural arbitrary). As a result, the community technology center contributes to the maintenance of dominant systems of meanings about information technology (i.e. cultural reproduction) and perpetuates relations between social groups (i.e. social reproduction).

*Local digital training legitimizes and translates dominant digital culture*

**3.1 Digital training selects and excludes cultural elements to be imposed:**

Digital training is pedagogic action in a second sense insofar as it selects, and by correlation excludes, and alters elements of the cultural arbitrary worthy of being reproduced.
Gloss1:

Through the curriculum, programs, and services, the community technology center determines what should be learned, how it should be learned, who should learn, and the manner in which this knowledge should be used. Thus the digital training is (mal)adapted from the dominant culture in an attempt to style the training to the unique tastes and needs of the community. For instance, the community technology center teaches PowerPoint software to a community of users that may never need to make a formal presentation.

Gloss2:

Within the field of power, the most valuable ways of knowing and things to be known are the ones that most fully express the interest of the dominant groups. This highlights the importance of instructional programs and services tailored to the distinctive needs of communities that cannot, or choose not, to participate in the dominant culture. It also implies that the programs and services offered by the community technology center will be viewed as less legitimate in the field of power. As a result, actors obtaining training from the community technology center must carry the stigmata of catching up in a race they previously were not able to enter. Now they are in the race, but at the end of the line.

3.2 Cultural elements selected and excluded perpetuate social hierarchies:

The cultural arbitrary inculcated corresponds to the objective interests of the dominant in both its mode of imposition, and by its selection of what and on whom it imposes.
Gloss 1:

Bourdieu describes three mechanisms by which actors are trained: (1) family education, (2) diffuse education, and (3) institutional education. These are collectively known as the modes of imposition. While learning about information technology from family, friends or in the supportive environment of a community technology center gives all the appearances of neutrality, it is not free of cultural biases. Since the field of power ultimately manages the economic and symbolic value of the knowledge being inculcated (i.e. the cultural arbitrary), the interests of the dominant are embedded in the digital culture. Therefore these interests are unintentionally imposed authoritatively yet gently through the training that comes from the family, peers and friends, or educational institutions.

Gloss 2:

The interests of the dominant are also embedded in social mechanisms that determine what is taught and who is taught. This selection process is clearly arbitrary because communities that were previously excluded are now populations targeted for information technology training. The business community refers to these communities as new markets, while the US government has changed its language from digital divide to digital opportunity. The motives behind this shift in language are acts of symbolic violence that seek to define digital inequality out of existence (Kvasny & Truex, 2001).

Gloss 3:

The method of the training must also fit the audience. Since dominant interests are embedded in information technology, the training must be delivered in a
manner that hides this power relation. The training must also be conducted in a manner that is viewed as legitimate by the learner. For instance, whereas a hard approach is typically employed in university settings for students with a presupposed level of information technology competence, a soft approach is employed in the community technology center for actors with reserved dispositions towards information technology. So, in the community technology center classroom, a supportive learning strategy that stresses patience, leniency, and appeals to ethnic solidarity.

3.3 Effective digital training requires institutional authority and autonomy:

Insofar as digital training is a pedagogic action, it can produce effects only when provided with institutional authority and autonomy.

Gloss:

The social conditions required for digital training include an institution with the authority and autonomy to disseminate information technology knowledge. Institutional authority implies that the community technology center, an institution created to perpetrate pedagogic action, derives its influence from the fields of politics, information technology, education, mass communication and labor. These fields determine what constitutes legitimate knowledge (i.e. the cultural arbitrary) and how this knowledge should be valued. However, the community technology center also requires the institutional autonomy to reinterpret and translate the demands imposed by these external fields into its own terms.
3.4 Legitimacy of digital training is greater the more directly the institution reproduces dominant culture:

The more directly an institution reproduces the cultural arbitrary, the less need it has to affirm and justify its legitimacy.

Gloss:

The community technology center engages in a continual struggle for legitimacy. However, because it serves underrepresented communities, the community technology centers have to customize the training for the local culture of the participants. For instance, the community technology center provides free services to low-income underrepresented minorities rather than fee-based training to middle class predominantly White clientele. A community technology center is typically located in a community center, library or church rather than an office park or skyscraper. Finally the content developed by the community technology center is designed to be accessible and relevant for a geographical community rather than profit generating and relevant for a global highbrow clientele.

3.5 Power to deliver digital training is delegated to Institutions:

Institutions are delegated holders of the right to exercise pedagogic action. This is always a limited delegation so that institutions cannot freely define the mode of imposition, the content imposed, those who are entitled to impose it, and those on whom it imposes.

Gloss:

Delegation of authority simply names a social condition for the community technology center to deliver digital training (i.e. the right to exercise pedagogic
action). Delegated authority doesn’t imply an explicit agreement or contract. It is a power that is conferred to the community technology center. As a consequence, the digital training offered by the community technology center has to meet the material and symbolic interests of those social groups predisposed to accept the training and take in the materials. Therefore, community outreach and marketing conducted by the community technology center can manipulate or create opinions only to the extent that they encounter and reinforce dispositions of the target audience (i.e. the habitus).

3.6 Institutions reinforce and conceal power:

Institutional authority is the power to exert pedagogic action that reinforces the social relations that establishes the power and at the same time conceals the power.

Gloss:

Information technology is accepted and recognized as legitimate by actors who then make a decision to allow themselves to be cultivated in matters of technology. Misrecognition occurs when actors openly grant systems of meanings about information technology the force to manage their perceptions, even though information technology has previously played a negligible or perhaps even a negative role in their existence. Merely by accepting these ideologies uncritically, actors (mal)adapt their lifestyles to learn information technology even when they have neither the financial means to own the technical apparatus nor the skills to maintain or use them. Hence, the systems of meanings have the energy to engage the actor into a field in which he is ill equipped to compete in.
3.7 Effective digital training requires instruction:

Digital training can produce effects only to the extent that it is delivered to social groups through some form of instructional communication.

Gloss:

No one is born knowing how to operate a computer; information technology consumption is an acquired taste. All legitimate consumers must be subjected to some mode of training be it a community technology center, university, or corporate education course. Bourdieu argues that the most effective mode of training is family education where a child is socialized in the home over long periods of time. In this mode of training, information technology becomes naturalized early in the actor’s life, and this primary knowledge becomes the basis for all future inculcation (Bourdieu, 1990).

3.8 Effective digital training requires a target audience:

Insofar as delivering digital training is a pedagogic action, it can produce effects only when provided with a legitimate audience.

Gloss:

The social conditions required for digital training include an audience that is willing to be trained. The audience is targeted and socially constructed in conjunction with the creation of the institution.

3.9 The target audience for digital training is selected purposefully:

Institutions produce the legitimacy of information technology and the legitimate need for information technology by producing a legitimate consumer through pedagogic action.
Gloss:

Bourdieu states “a cultural need is a cultivated need” (Bourdieu, 1984, 1993). Through the creation of a community technology center, the city has produced the need for information technology by the mere act of providing an institution in which underserved communities can access information technology. The community technology center also fulfills this cultural need by consecrating information technology as worthy of being pursued.

3.10 The target audience is predisposed to accept the digital training:

Actors are predisposed from the outset to recognize the legitimacy of the information transmitted and the authority of the institution, hence to receive and internalize the learning.

Gloss:

The actors that visit the community technology center are those that have an ethos and belief in the need for acquiring digital skills. These are the legitimate consumers. Bourdieu often uses the metaphor of “the prophet always preaches to the converted” to make this point. The crucial implication for community outreach by a community technology center is how to reach the heathens who chose not to attend the sermon.

3.11 The audience deems the dominant culture as legitimate:

The cultural arbitrary transmitted is seen as legitimate because the institution is a representative of more powerful fields.
Gloss:

There is a legitimacy of the knowledge and skills transmitted by the community technology center based on the mere fact that the knowledge is transmitted by a city-sponsored agency. In addition, the community technology center is further legitimated through corporate donations, partnerships with the public library, city school district and a university, as well as media attention.

3.12 The legitimacy of digital training is greatest for those at the margins of social hierarchy:

Pedagogic action is likely to be recognized as legitimate and wield more symbolic force when applied to groups for whom penalties are more likely to be confirmed by the sanctions of the field of power.

Gloss:

The recognition a social group accords to digital training is a function of the degree to which its members depend on the market value and symbolic value of information technology for their social mobility. It is therefore understandable that underrepresented minorities, whose ascension most directly depends on education, express particularly high sensitivity to the symbolic and material effects of punishments or rewards (Willis, 1977); (MacLeod, 1987). This community is also highly sensitive to the social and economic certification effect of technology qualifications. Learning is rarely just for the sake learning. In fact, one common theme that emerged from the data analysis was “getting paid” (i.e. obtaining digital skills to increase employment opportunities).
3.13 The digital training provided to those at the margins of the social hierarchy is practical.

The pedagogic action to which social groups are subjected rests more completely on the teaching of practical skills the more severely the material conditions of their existence subject them to the dictates of the field of power.

**Gloss1:**

This suggests that the limited opportunities for improving the quality of life (i.e. the material conditions of existence) for actors in underserved communities elevates the necessity of digital training. From the actor’s perspective, training should be hands-on versus theoretical, and job-related vs. learning for the sake of learning. As one informant states, “I know that the more I practice hands on with the computer the more proficient and comfortable I will become and better able to do what I need to do.” Thus, practical skills become a key resource in their attempts at “social flying” to overcome the gravity that holds them in a low socio-economic status.

**Gloss2:**

In addition to economics, there are also structural barriers that constrain the autonomy of the user. For instance, much of their computer access occurs at public terminals with imposed limits on the amount of time one can use the PC. At the library, for instance, a 30 minute limit is imposed when there are others waiting to use the PC. So a patron may have to wait in line to use a PC for a half hour. The public access facilities at the Workforce Development Center do not allow the use of floppy diskettes or other secondary storage devices, and only
have one staff member available to provide assistance. Through policies and surveillance, all of the public access centers that I encountered constrained what users were able to do while using the equipment.

**Gloss3:**
The limits of the material conditions of existence are also expressed in the purpose for using information technology. Unlike a college student working on a research paper or a programmer working on a piece of code, the user at the community technology center often lack a definitive purpose driving their information technology use. The distant notions of employment and being able to help their children use the PC entice them to come to the centers, but most of the time there is often no immediate task at hand.

*Local digital training produces cultural dissonance in dominated*

**4.1 Dominant digital culture is foreign to the audience:**

Through delegated agency, institutions are designated as fit to transmit knowledge, and are entitled to impose its reception, and test for the presence of this knowledge through socially approved means.

**Gloss:**

Because information technology is largely foreign to the residents in historically underserved communities, it is easy to develop techniques to test for the absence or presence of this knowledge. Digital skills are external knowledge that has yet to be internalized by the habitus. Thus the actor’s interaction with the information technology is rigid and rule-based rather than improvised and natural. This suggests
an information technology novice / virtuoso divide, and digital inequality is all about understanding how and why this divide matters.

4.2 Some dominated social groups self-eliminate:

Pedagogic action tends to reproduce the structure of the power relations between social groups. By training or excluding, it tends to impose recognition of the legitimacy of the dominant digital culture on members of the dominated groups, and to make the dominated internalize their social position when it takes the form of self-censorship.

Gloss1:

This is a key proposition because it speaks to the issue of differential effects among social groups. Whereas the community technology center has had extremely positive effects on the seniors, working age adults and teens have not fared as well. One reason for this difference is that the field of power does not sanction seniors as harshly. Seniors primarily use information technology to socialize and communicate with their families and peers. While some seniors discussed using their information technology skills to find part time jobs, income generation was relatively less important. Conversely, the field of power heavily sanctions youths and adults for lacking information technology skills. Thus, these groups were most vocal about the problems that they encountered at the community technology center such as inoperable equipment, lack of advanced training and printed course materials, and limited time for self-directed information technology learning. The stakes and sanctions were much higher for these social groups.
Gloss2:

Because the digital training provided by the community technology center has a short duration (7 week courses), the training tends to instill a shallow practical understanding that limits information technology use to those procedural tasks that the actor has memorized. Consequently, some actors get frustrated when they can’t recall the sequence of steps. They lack the competence to improvise and troubleshoot. This leads to demoralization and the attitude of not being smart enough to learn information technology, and the actor may self-exclude herself from further training.

Gloss3:

One of the effects of self-exclusion is that it succeeds in obtaining from the dominated recognition of the legitimacy of information technology know-how. This, in turn, evaluates the information technology knowledge that the dominant effectively command, and produces a cultural market in which information technology skills and knowledge are virtually monopolized by dominant classes.

4.3 Self-elimination is the result of selection and exclusion mechanisms in other societal domains:

Self-elimination is performed by the process of selecting legitimate consumers, but also through the misrecognition of the mechanisms of selection.

Gloss1:
Social groups are arbitrarily selected and socially constructed to receive digital training (i.e. legitimate consumers). Clearly social groups not selected as legitimate consumers are excluded from information technology. However, exclusion is also carried out by more direct effects of economic sanctions for not possessing digital skills or by the less direct effect of making the access and training uncomfortable and intimidating. A pedagogic action that eliminates certain categories of consumers merely by the effectiveness of the selection process conceals its arbitrariness more fully.

**Gloss2:**

For instance, the teen technology center located at the public library and the adult technology center located on a HBCU\(^{27}\) campus consistently receive the lowest occupancy rates. One particularly insightful comment included on the library’s weekly attendance form states, “Parents are registering their kids but they do not bring them everyday. Some come once a week, once every other week, etc.” While acknowledging that technology outages at the library, and newness of the university center partially explain lower occupancy rates, the choice to locate a community technology center in these locations is somewhat problematic. Libraries and universities are institutions that presuppose possession of the cultural code required for consuming their materials and information technology resources. Actors with lower quantities of cultural capital may self-eliminate because they are uncomfortable in these environments (Lentz et al., 2000). This masks the fact that elimination is concealed under the covert function of selection

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\(^{27}\) Historically Black College or University (HBCU)
which the libraries and universities perform within this community of new information technology users.

**4.4 Self-elimination is greater for those lacking basic competencies and positive attitudes about IT:**

Social groups are excluded more rapidly the more completely they lack the cultural capital and ethos objectively presupposed by pedagogic action.

**Gloss1:**

This suggests that there are basic competencies (i.e. cultural capital) and attitudes towards digital training (i.e. ethos) that one must possess before they can adopt and use information technology. Like all cultural goods, information technology is encrypted in a cultural code, and in order to be consumed, one must possess the cipher in the form of cultural capital. Thus, cultural capital serves as a key to help one decipher information technology. Basic spelling skills are just one example of this phenomenon. Actors learned the mechanics for using MS Word at the community technology center, but those with low literacy levels could not produce coherent documents. Recall that some actors are functioning at 6th grade reading and math levels. Because MS Word was not designed with this community in mind, the search capabilities and even spell checking functions were not effective word processing aids.

**Gloss2:**

The concept of an ethos goes beyond attitudes and perceptions to ways of feeling and thinking about information technology training. Those actors that use the technology centers must have an ethos that acknowledges information technology
even though they lack *knowledge* of information technology. In other words, those that benefit most from the training have an ethos that led them towards docility and reverence of information technology because the training presupposes a compliant student. This is similar to the Foucault’s notion of a political technology of the body in which “power relations have an immediate hold upon the body; they invest it, mark it, train it, torture it, force it to carry out tasks, to perform ceremonies, to emit signs.” Those unwilling to submit their minds and bodies to training are in effect self-excluded.

*Dominated formulate disparate IT capabilities*

**5.1 Effective digital training depends on cultural distance between the audience and content:**

Since the primary habitus inculcated by the family is the basis for subsequent formation of any other habitus, the productivity of subsequent pedagogic action is measured by the degree to which the training takes into account the distance between the habitus it aims to inculcate (i.e. the cultural arbitrary that it imposes) and the habitus produced by previous education (i.e. the initial cultural arbitrary).

**Gloss:**

The social stratification literature distinguishes between *equality of opportunity* versus *equality of outcomes* (Outhwaite & Bottomore, 1993). On the one hand, equality of opportunity holds that everyone should have an equal chance to achieve the various benefits and rewards that a society makes available, that there should be no artificial barriers giving others an unfair disadvantage, and that there
should be no special privileges giving others an unfair advantage. On the other hand, equality of outcome is concerned with the equitable distribution of benefits. While both arguments are problematic, they suggest that the opportunities and outcomes of information technology will not be equitably distributed. The education previously accomplished in the earliest of years, especially when the education system denies this primacy in its ideology and practice by making the school create a history with no pre-history, greatly influences the ability to use and benefit from information technology (Bourdieu, 1990). In other words, while the community technology center promotes an ideology of open and safe environment in which anyone can learn and develop digital skills, actors enter this learning environment with relatively less of the requisite cultural capital, and consequently derive fewer benefits from information technology use.

5.2 Effective digital training depends on previous IT knowledge, and belief in the authority of the institution delivering the training:

The effectiveness of any pedagogic action is a function of the degree to which the legitimate consumer recognizes the authority of the institution, and the degree to which they have mastered the cultural code required to decipher the cultural arbitrary.

Gloss:

Those actors predisposed to undergo digital training and those actors with the greatest quantity of information technology-related cultural capital are better poised to acquire and use digital skills.
5.3 Effective digital training depends on the length of instruction:

The effectiveness of any pedagogic action is a function of the length of time the legitimate consumer has been subjected to the degree of training considered necessary and sufficient to produce the degree of cultural attainment (i.e. the accomplished forms of the habitus) by which the dominant social group recognizes an accomplished computer user.

Gloss:

The theory of the habitus (Bourdieu, 1980), which is the principle of unifying and generating practice, suggests that digital training requires a prolonged process before these skills become internalized by the actor. However, in the case of the community technology center, those in most need of prolonged instruction are subjected to the least amount of training. The training that the community technology center provides is essentially a crash course. As one informant said, “I feel like a baby being breastfed when what I really need is a meal.”

(Re)produce dominant digital culture

6.1 Unified societal domains increase the necessity of digital skills:

The more unified the field of power, the more the social groups which lack IT access and skills are likely to have the limits of their cultural attainment brought home to them.

Gloss:

The limits of information technology skill attainment are learned both by the sanctions of the labor market (i.e. lack of employment opportunities) and by the symbolic sanctions of the cultural market (i.e. no email address in a society where
all erudite persons are expected to have one), not to mention the verdicts of peers (i.e. “Brother man, better get yourself a dotcom.”) which are also charged with economic and symbolic implications. Thus, by unifying the importance of information technology across societal domains, our society has multiplied the opportunities for subjecting underserved communities to the evaluative criteria of the legitimate digital culture, thereby affirming and confirming the dominance of information technology in the social order.

### 10.4 Summary

This chapter theorizes the process by which the systems of meanings regarding technology are diffused, and how this imposition of dominant digital culture reproduces social inequalities. These dominant systems of meanings form a digital culture that is arbitrary in the sense that they represent dominant cultural standards. For Bourdieu, a cultural arbitrary signals that all cultural systems are fundamentally human constructions that are historical, that stem from activities and interests of particular groups, and that legitimate unequal power relations among groups (Bourdieu, 1984, 1990, 1991). Bourdieu also rejects the claims to universal knowledge, values, and beliefs that would stand beyond any social influence (Bourdieu & Waquant, 1992; Jenkins, 1992).

Yet while symbolic systems are arbitrary in that they don’t directly reflect social realities, they are clearly not arbitrary in their social consequences. The fundamental logic of that drives actors to use symbolic systems as marks of distinctions operates politically, socially, as well as culturally. Thus symbolic systems, such as an information technology cultural arbitrary, function to differentiate and legitimate hierarchical arrangements among individuals and social groups (Swartz, 1997).
**Pedagogic action** is the term that has been appropriated to describe the social and political use of institutionalized information technology access and training. The community technology center is granted authority and autonomy by information technology cultural producers to inculcate matters of technology in underserved communities. The community technology center selects the portions of the dominant digital culture to be inculcated, and selects the actors who will receive training. This selection process has the effect of reproducing *power relations* (i.e. social reproduction) through the use of a cultural arbitrary (i.e. cultural reproduction).

The persons selected for information technology training are termed *legitimate consumers*. Legitimate consumers share an *ethos* of docility and receptiveness to information technology training, and an appreciation of the potential payoff of information technology skills in the labor market. In addition, legitimate consumers possess the requisite amounts of *cultural capital* required for effective competition in the field. These are actors that have been selected through overt as well as covert mechanisms.

However, all legitimate users do not enjoy the same level of benefit from information technology use. Characteristics of the actors that explain these differential effects include a *habitus* that predisposes them to compete for the stakes up for grabs in the field, a stock of cultural capital to provide the requisite skills and competencies that effective information technology use presupposes, and a learning environment geared to the unique needs of the consumer. There are also structural factors that explain these differentials, which include policies that limit the duration of computer use, filtering and surveillance software, and the places where people access the computer.
Finally, this theory examines self-exclusion. One of the effects of self-exclusion is that it succeeds in obtaining from the dominated recognition of the legitimacy of information technology know-how. This, in turn, evaluates the information technology knowledge that the dominant effectively command, and creates a market for information technology products in which information technology skills and knowledge are virtually monopolized by dominant classes. Thus, by choosing not to acquire information technology skills, actors unwittingly reproduce social structure.
XI. Contributions to Knowledge

This study examines digital inequality through an appropriation of concepts from social stratification literature, and applies these concepts to information technology use by historically underserved communities. The major contribution of this work is that it begins a frank but necessary discussion about age, ethnicity, and social class in the information systems research community. However, after completing this study, I am left to ponder why I could not find much research in the information systems literature that employed these constructs? Was it because information technology has been naturalized as a young, White, middle class, American phenomenon? And if so, how can technology be liberating to underrepresented social groups? These are important questions not just for the digital divide, but also for the hiring and retention of underrepresented social groups in academe and in practice.

This chapter begins with a discussion of the key research findings. The research findings are situated into three areas of information systems research – power and politics, technology acceptance and diffusion, and community informatics. Each area is discussed in turn. The intent is to argue for the intellectual merit of this study in a manner that supports, extends and contradicts existing knowledge and founding assumptions in relation to these three areas.
11.1 Contributions to Organizational Studies of Power and Politics

Viewing information technology use through the theoretical lens of cultural and social reproduction contributes to and extends our understanding of power, politics and control in organizations. In a review of the literature in this research stream, Sillence (1997) concludes that power and control are complex phenomenon, and are widely studied from many perspectives. However, the most common perspective found in this literature is the framework that operationalizes power in terms of organizational control mechanisms which fall into two broad categories of formal and informal controls (Ouchi, 1979) (Ouchi, 1980) (Eisenhardt, 1985) (Orlikowski, 1991) (Kirsch, 1996) (Kirsch, 1997). Formal controls seek to drive the behaviors and outcomes of actors through bureaucratic measures such as policies and rules, while informal controls are derived from cultural practices such as clan norms and self-regulation.

Table 21 lists a few exemplars in the information power and politics literature, most of which are case studies that examine the information systems development process. These papers are grouped into five themes – operational efficiency, selection of appropriate control mechanisms, the imposition of power, organizational change, and resistance. Each theme will be explained in the following sections.

11.1.1 Economic and Operational Efficiencies

Studies grounded in a rational philosophical orientation that measure outcomes in terms of economic and operational efficiencies are common in the information systems power and politics literature. For example, a study of information systems developers and project managers found that when control mechanisms are correlated with project management and information systems development effectiveness, project managers focus
on tools to measure outcomes (Henderson & Lee, 1992). Operational efficiency also
guides the cybernetic view of control where standards are set, processes are monitored,
and corrective action is taken when significant deviations arise. This perspective
assumes that corrective actions (i.e. formal controls) are known a priori, and are based
exclusively financial and accounting measures.

<table>
<thead>
<tr>
<th>Key Outcome Variable</th>
<th>Overarching Question</th>
<th>Studies</th>
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<tbody>
<tr>
<td>Operational Efficiencies</td>
<td>How do control mechanisms influence operational efficiencies?</td>
<td>Henderson and Lee (1992)</td>
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<td></td>
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<td>Kirsch (1996)</td>
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<td>Selection of appropriate</td>
<td>How and why do stakeholders strategically select appropriate control mechanisms?</td>
<td>Eisenhardt (1985)</td>
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<td>control mechanisms</td>
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<td>Henderson and Lee (1992)</td>
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<td>Faulkenberg (1995)</td>
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<tr>
<td>Imposition of Power</td>
<td>How do organizations gently wield power to control behavior?</td>
<td>Kling and Iacono (1984)</td>
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<td></td>
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<td>Kirsch (1997)</td>
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<tr>
<td>Organizational change</td>
<td>How and why do information systems embed and enable control mechanisms that sustain the status quo?</td>
<td>Orlikowski (1991)</td>
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<td></td>
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<td>Klein and Kraft (1994)</td>
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<td>Resistance</td>
<td></td>
<td>Markus (1983)</td>
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Table 21: Themes in IS Power and Control Literature

This dissertation stresses the socio-political dimensions of control mechanisms.
Looking at the community technology center, nurturing relations with external
stakeholders is central to the sustainability of the organization. Much of the authority and
autonomy that is enjoyed by the organization is delegated from external stakeholders.
Sustainability, therefore, hinges on positive relations with more powerful institutions.
The technology center can employ boundary-spanning activities, such as filing financial
records to the City Council, as a strategy to increase the material and symbolic resources
that it derives from external stakeholders (i.e. positive effect of bridging social capital).
Conversely, neglecting boundary-spanning activities can threaten the sustainability of the
organization, and force the organization to engage in a struggle for legitimacy.
11.1.2 Selection of Appropriate Control Mechanisms

A second theme that emerges from this literature is the selection of appropriate control mechanisms. Falkenberg (1995), for instance, found that management is rarely able to predict and create formal organization controls. To manage uncertainty, managers employ informal controls. Furthermore, these informal controls fluctuate from being strongest to the most fragile types of control mechanisms.

Eisenhardt (1985) conducted a study of this type, which used organization, economic and agency theory, to examine the role of task characteristics in the choice of control strategy. She found that as tasks become more programmable, and as outcomes are more measurable, control mechanisms move from outcome oriented to behavior oriented. Alternatively, as outcome measures and task programmability decrease, control mechanisms shift from behavioral to clan oriented. Henderson and Lee (1992) also examine behavioral and clan controls. These authors conclude that behavioral concerns were regulated with managerial controls, while outcome measures were best regulated by team controls.

This dissertation research largely supports the preceding findings. The inherent difficulties of predicting and creating formal control mechanism limited their usage to the most programmable tasks that govern behaviors such as attendance and registration of participants. Informal controls such as encouraging participants to help one another were used considerably more often by the classroom facilitators to govern cultural norms in the classroom.
11.1.3 Imposition of Power

In the case of Kling and Iacono (1984), organizational politics are viewed as structural and ideological. These map roughly to formal and informal controls respectively. However, the main contribution of this study is that managers gain their authority and resources through a champion or steering committee. Together, they form a cohort to build ideology, legitimacy and control the information systems development process. Kirsch (1997) found similar results in a case study that examined the portfolio of controls used by groups of stakeholders in two organizations during the information systems development process.

The findings of this dissertation research extend prior research by examining the powerful influence of societal barriers, history, and social class in structuring actors’ relation to information technology. Through formal controls such as job requirements, and informal controls such as mainstream expectations that everyone has an email address, information technology becomes a mechanism for controlling access to life chances such as education, social services, and healthcare. Members of underserved communities are a dominated social class that has been historically marginalized. As powerful institutions continue to unify the discourse of information technology, and impose technology in the classrooms and workplaces, information technology becomes yet another mechanism for managing and controlling social order.

However, the outcome varies based on age groups. Those least marginalized are senior citizens because their purpose for using technology is primarily for communication and entertainment. Therefore, they are less likely to be negatively sanctioned for lacking digital skills. Conversely adults of working age feel compelled to gain digital skills as
part of their strategy for social mobility. Their use is instrumental, and they seek hands-on training. Teens seek a high degree of autonomy in their engagement with information technology. Finally, there are those actors who choose to totally exclude themselves from information technology. Self-exclusion is the most effective control mechanism because the determining forces of societal and institutional structures are so severe as to completely annihilate actors.

11.1.4 Control Mechanisms and Organizational Change

A fourth theme found in this literature is that of challenging the assumption that information technology introduces radical organizational change, and critiquing the assumption of technology determinism. Orlikowski (1991), for example, debunked the technological deterministic view that information technology usage dramatically alters the organizational structure. Rather, she found that controls are embedded in information technologies, and are used to strengthen the status quo. Similarly, Klein and Kraft (1994) compared TQM implementations at two factories and found that information technology extends control of managers, engineers and programmers.

The dissertation research supports the findings presented in these studies. I would argue that these findings are in some ways more powerful because they demonstrate how information technology can be a reproductive force even when the intent is to empower underserved communities. Ironically, while community technology centers provide services to populations that would not otherwise have access, the improved life chance derived from use is in some ways deficient. There exists the stigma of catching up, and a sense that relying on public computers is not “real” access.
11.1.5 Resistance

Finally, Markus (1983) argues that studies of power and control must also consider resistance if they are to lead to better implementation strategies and better outcomes. In my research, I did find instances of resistance that resulted in increased social capital. However, social capital and resistance can be both positive and negative forces. On the positive side, participants rallied and testified before the Finance Committee Meeting on behalf of the community technology centers. On the negative side, participants had no mechanisms for sustaining or channeling these social networks to enact social change.

Generalizing from specific observations, I found that bridging social capital between participants and staff is increased when the community felt threatened by external crisis such as threats by the Finance Committee hearing, while bonding social capital increased in response to internal crisis such as broken computers and lack of textbooks. This insight was brought to light by a participant’s observation that “at the cyber centers we have friendships, broken computers and no textbooks”. Even though the participants would complain about the broken equipment and lack of reference materials, they’d confront anyone from the outside that attempted to do harm to their program – “Don’t mess with our technology program”.

11.2 Contributions to Technology Acceptance and Diffusion

This section situates the research findings within the Diffusion and Technology Acceptance literature. Figure 6 consists of three concentric circles that depict the relationships between three theoretical models – diffusion models, intention models, and practice models. The innermost circle contains diffusion models that typically treat the
adoption decision as a binary choice to accept or decline. The locus of analysis occurs at both the level of the individual adopter or the diffusion patterns over a larger society. These models are placed in the innermost circle to highlight their focus on the innovation or technology.

The next circle contains intention-based models that more broadly examine the interaction of the individual with the technology. These models trace their intellectual lineage to social psychology, and assert that the intentions and perceptions of a potential adopter will lead to the decision to actually use a technology. Use is typically measured in terms of the extent and the increased efficiency attributable to technology utilization.

Finally, the outmost circle contains practice-based models that incorporate technology, individuals, and society. Like the prior models, technology acceptance is influenced by individual perceptions and characteristics of the technology. However, this approach is rich in contextual factors such as history, social structure, and dispositions. Theories of practice are rooted in sociology, and require the researcher to situate the individual into broader societal contexts. As Bourdieu often writes, all practice occurs at the intersection of the field (societal context) and the habitus (the individual).

11.2.1 Diffusion-Based Models

Based on a review of Rogers’ theory of diffusion, Kamsah and Wood-Harper (1998) found four general concerns in diffusion research: the pro-innovation bias, individual-blame bias, issues of equality, and recall problem. The first three concerns are strongly demonstrated in the dissertation research. Beginning with the pro-innovation bias, diffusion theories assumes that an innovation should be diffused and adopted by all members of a social system; that it should be diffused more rapidly; and that the
innovation should neither be reinvented nor rejected. The concerns that entire segments of the US population are being “left behind” or are on the “wrong side of the digital divide” are consistent with the pro-innovation bias. Following naturally from this bias is the policy remedy of community initiatives to diffuse information technology to citizens that would otherwise not have access. In this dissertation, however, I demonstrate the mechanisms by which political, technical, cultural, and social aspects of the technology complicate diffusion to historically underserved communities.

Figure 6: Models of Information Technology Adoption and Use
Second, the individual blame bias assumes that failure to adopt the innovation is due to some individual inadequacy. However, as I have demonstrated in this study, historical inequalities with respect to race, ethnicity, income and employment make adoption more difficult for some members of society. This highlights the importance of one’s ability to adopt. The study also suggests that the problem may not be with the individual. If people choose to self-exclude themselves from technology, then maybe the source of the problem is with institutional assumptions (Gorard, 2000; Gorard & Selwyn, 1999) (Gorard, Selwyn, & Williams, 2000) (Selwyn et al., 2001).

The third assumption, equality, is clearly challenged by this research. Dominant social groups engender the discourse of information technology. As a result, historically underserved communities attempting to engage in this discourse are at a relative disadvantage. Our well-meaning attempts of inclusion and assimilation through community technology centers are met with fundamental issues that are often taken-for-granted. For instance, the diffusion theory postulates factors such as relative advantage, compatibility, complexity, observability, and trialability. All of these factors focus on the characteristics of the technology and how well it fits some task. In historically underserved communities, however, simply finding an immediate purpose beyond curiosity or distant notions of future employment is a challenge. In other words, there is no immediate task at hand that is compelling them to use the technology. The driver is ideology, not a specific purpose.

11.2.2 Intention-Based Models

Moving from diffusion-based models to intention-based models of technology acceptance, the Technology Acceptance Model is the dominant theory in information
systems literature. This model is rooted in social psychology, and examines the determinants of information technology adoption and use by individual users (Davis, 1989). In many information systems studies, use serves as a surrogate measure for information systems success (DeLone & McLean, 1992), and has been studied as a key dependent variable in its own right (Rose & Straub, 1998; Venkatech & Morris, 2000). While much of the technology acceptance literature conceptualizes use in terms of extent, duration and intensity, this study suggests that the consequences of use are also crucially important.

While highly cited and employed in information systems research, the Technology Acceptance Model (TAM) makes assumptions that are challenged by this research. First, the Technology Acceptance Model assumes that beliefs about usefulness and ease of use are postulated a priori, and are always the primary determinants of use decisions (Davis, 1989). Users assess a technology’s usefulness and evaluate whether that usefulness exceeds the costs associated with gaining access to it or learning to use it (Orlikowski & Iacono, 2001).

However, the dissertation research highlights the importance of social norms. Participants typically came to the technology centers out of fear of being left behind, and to improve their ability to communicate with young people in their lives. This feeling can best be described as a yearning to become a member of the information society. They were driven by the desire for social inclusion, not instrumental concepts of usefulness or ease of use.

Similarly, because the Technology Acceptance Model was designed to operate across many situations, the external environment is not adequately considered in any
obvious way. This grossly simplifies technology use, situation specific factors, and barriers to use. The dissertation research demonstrates that diffusion is not simply a supply side exchange in which a change agent motivates people to adopt a technology. Willingness to adopt should not be confounded with ability to adopt. The notion of voluntariness (Rawstorne, Jayasuriya, & Caputi, 2000) has been used in the technology acceptance literature, but it does not capture the essence of this argument. There are institutional, situational, and dispositional barriers that impede actors able to adopt and use technology. In the context of a community, these issues can’t simply be assumed away, or we end up with a theoretical model that too grossly oversimplifies reality.

With respect to methodology, the dissertation was based primarily on participant observation of novice users rather than self-reported, post adoption surveys which are typically used in the diffusion literature. I had the rare opportunity to engage with informants during their initial engagement with technology. Therefore, I have greater confidence that I have captured factors that actually influenced their adoption decisions. Situating the research in a low-income, community context rather than a business organization also led me to examine individual characteristics such as age, education, prior experience, ethnicity, socio-economic status, and level of training. The lack of prior experience is important because these potential users had no direct experience on which to form opinions about general information technology. Thus, the salient referents are not managers and coworkers, but family members, the popular press, and the labor market.

In sum, the rational choice process that diffusion and intention-based models suggest does not best represent technology acceptance and use in underserved
communities. Adoption is a “temporal sequence of steps through which an individual passes from initial knowledge of an innovation, to forming a favorable or unfavorable attitude toward it, to a decision to adopt or reject it, to putting the innovation to use, and to finally seeking reinforcement of the adoption decision made” (Rogers cited in Karahanna, Straub, & Chervany, 1999). However, adoption and use do not occur in a vacuum; this process is contextualized, facilitated and constrained by institutional structures and social forces.

Thus, people do what is reasonable, not what is rational. Technology use is conceptualized as a practice that requires a “feel for the game” or improvisation rather than a strict adherence to rules or stages. It is the difference between a chess player that simply knows the rules versus the chess master that understands strategy and improvisation. From this perspective, adoption is not an “innovation decision”; it is a strategy for assimilation. Adoption is not replacing some existing practice with a more efficient or useful computer-based mechanism; it is a matter of not wanting to be excluded. It is a salient belief in the ideology that technology is good.

11.3 Contributions to Community Informatics

The broader impact of this study is that it extends information systems research from business organization settings into the actual community settings where people live, leading to an analysis of societal impacts (Gurstein, 1999a). This community-based approach to research has been termed community informatics. Romm and Taylor (2000) define community informatics as a technology strategy or discipline that focuses on the application of information technology strategies to the social, economic, political, and cultural goals of territorial communities. From the community informatics perspective,
information technology can provide resources and tools that communities can use to pursue their goals in such areas as local economic developments, cultural affairs, civic activism, electronic democracy, self-help, advocacy, and cultural enhancement.

What new insights does community informatics offer to the information systems research community? In many respects, community informatics is an extension of the socio-technical approach to systems design, but shifting attention from the organization to the community (Gurstein, 1999a), (Gurstein, 1999b). In addition, community informatics is keenly interested in communities that currently lack access to information technology. The application of extant theories to groups who have little interaction with computers enables researchers to examine the explanatory power of these theories for different populations. Finally, community informatics suggests new problem domains and social phenomena that emerge when ordinary people use information technology, and these new domains may challenge and extend some of the fundamental assumptions that the field makes about technology.

Community informatics is emerging as a legitimate research topic in the information systems discourse as evidenced by an increasing number of calls-for-papers at information systems conferences and special issues of information systems journals. These venues provide valuable outlets that support a budding group of community informatics scholars. This is crucial research to support community-based technology initiatives that are vying to remain operational, and are woefully in need of systematic analysis to develop best practices and to raise new questions for future inquiry.

The major contribution of this research for community informatics is that it provides an in depth account of the impact of information technology on residents in
historically underserved communities. Often times, those of us comfortably entrenched in technology uncritically assume that information and communication technologies such as the Internet and the World Wide Web will be a boon to poor countries and people around the globe. This study debunks this assumption by demonstrating how information and communication technologies introduced into historically underserved communities can perpetuate social inequality. Information technology acts as a multiplier of inequality; it takes initial competencies of the user and multiplies them through its knowledge-enhancing qualities. Given that the literacy requirements for effective information technology use are concentrated among the more privileged classes and these knowledge-extending tools are concentrated among the more privileged classes, inequality can be exacerbated. Thus, in important ways, basic knowledge and learning must precede effective information technology use. Otherwise we are subjecting communities to oppressive training regimes in which they are enticed to participate in, but they must do so at a deficit (Patterson & Wilson, 2000).

In addition, this study raises a number of methodological issues. For instance, community-based studies require engagement with different types of informants such as underrepresented minorities, children and teens, seniors, and those physically challenged. The researcher must practice an extremely high level of cultural and ethnic sensitivity, and ethnicity and social class become important constructs in the analysis.

Anthropologists often discuss two intellectual disorders associated with conducting multicultural studies - ethnocentrism and tempocentrism. Ethnocentrism is the belief that one’s own culture sets the standard against which all others are to be judged, and tempocentrism is the belief that our time and our generation are the standards
against which all history and all policies are to be judged (Bohannan & Elst, 1998). These concepts are also important in community informatics.

These new user communities also present challenges for data collection methods prevalent in information systems research. First, the construction and dissemination of text-based instruments is problematic because residents generally have low educational attainment. The anthropology literature offers several pictorial scales such as Cantril’s (1965) ladder of life and Andrews and Withey’s (1976) faces scale that might relevant for community-based research. Granted these scales may not be portable to information systems research “as is”, but they at least provide a starting place. Second, mail and telephone surveys may be problematic because living arrangements are sometimes transient and employment is precarious. Third, door-to-door surveys may not be feasible as these communities are distrustful of outsiders. Finally, Web-based instruments are problematic because people may lack the technical means and digital skills to access them.

11.4 Summary

This chapter situates the findings of this research into three research streams in the information systems literature – diffusion and technology acceptance, community informatics, and power, politics and control. The major contribution of this study is that it provides rich insights into technology adoption and initial use by a community underrepresented in the information systems literature. The unique characteristics of this population enable one to think with and against extant theories that were developed in business organizations.
The findings support much of the existing power and politics literature, and add to the emerging area of community informatics. However, the findings are at odds with some of the founding assumptions and philosophical orientations of the technology acceptance literature. Most notably, this study suggests that we consider the individual ability to adopt, and that the adoption process can be conceptualized practice rather than a rational act.
XII. Implications

This chapter begins by recounting the implications of this research for me as a researcher and as a human being. I turn the reflexive gaze upon myself, and situate this research in broader discourse about ethnicity and the digital divide. The chapter concludes with the discussion of the implications for practice and theory. These are presented as a three-pronged attack at the levels of public policy, management of community technology centers, and design of information technology.

12.1 Personal Implications

My initial reason for looking at reproduction was that the digital divide rhetoric led me to think about technology as a deterministic mechanism for sustaining the status quo. Closing the divide was usually construed as building one-way bridges. By this I mean that the only legitimate uses of technology were those ways defined by the elites. In my world of experience, for example, I saw African American youth finding innovative and creative ways of using beepers. “Hit me on the hip”28 quickly became part of the vernacular as pagers became a popular means for communicating in low-income communities where many families have sporadic or sometimes no telephone service.

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28 Slang term for “page me”.

257
In these communities, a telephone is in many ways a liability (Mueller & Schement, 1996). Without a phone, the home is beyond the reach of bill collector and is protected from collect calls from friends and family members. No one can run up outrageous long distance bills, and youth are prevented from calling peers who may be bad influences. Rather than rely on public telephones that were often broken, or relying on the kindness of neighbors, people found ways to code their messages and communicate via pagers. However, this creative use of technology was generally criticized in the popular press. African American males in particular were typically depicted as deviant drug sellers.

For me, a cultural disconnect occurred between my life experience and the media portrayal of the same practice. The press talked optimistically about technology, but only for people who consumed technology congruent with their mainstream values. Through empirical analysis, I wanted to counter the overly optimistic discourse of the democracy and freedom that are uncritically associated with information technology. The conservatives and the liberals, the George W. Bushes and the Al Gores, the engineers and the artists, the corporations and the activists who oppose them, accept computers and the Internet as empowering to individuals and democracy (The Internet & The Illusion of Empowerment, 2000). And while I too accept that computers can provide a feeling of power, I also know that technology has not been a boon to all, even when access is available. As one participant in at the community technology center wrote “Science and technology can sometimes be dazzling still. Human knowledge has not made life secure and happy for most people.”
So I came to this study with a focus on reproduction, but now I am left wondering if it was wise to craft a study that contributes to a discourse that naturalizes the notion that African Americans are further marginalized by information technology. Yes, I’ve produced a list of new insights and raised some critical questions, but I haven’t offered concrete solutions. Because I could not come up with solutions, I feel that this research may facilitate the social reproduction that I am passing judgment on.

Conversely, since social stratification exists in all human societies (Grusky, 1994), I submit that maybe the best we can hope for is a reduction in the amount of social suffering. Technology is not equipped to solve age-old problems. Perhaps I am led to this pessimistic conclusion by way of the theories that informed this study. Indeed, both Bourdieu and Foucault argue that there is no chance of successful resistance. There are no critical intellectuals who would successfully penetrate the “instrumental reason”, reach the truth, and effectively help humanity in self-liberation (Mucha, 1999). Goffman makes a similar observation when he states, “he who would combat false consciousness and awaken people to their true interests has much to do because the sleep is very deep. And I do not intend here to provide a lullaby but merely to sneak in and watch the people snore.” (Foley, 1995, p. 177)

12.2 Implications for Management

The mantra that comes from this study is that access not enough. In many respects, the community that I studied is an underserved market. I’m not advocating that these communities become dumping groups for old PCs. What I am saying is that these communities will participate when attractive services are offered. Managers need to find
innovative ways to reduce the situational, institutional and dispositional barriers that impinge on residents’ ability to engage with information technology.

Managers should also anticipate that these users may not follow the usage patterns of more established consumers (Schement, 1998). Individual differences may explain this diversity of use. Context is also an important discriminating factor because most of our knowledge of information technology use is based on organizational settings, not the public sphere. Thus, a demand-side approach to understanding the unique characteristics of the community may lead to culturally sensitive and ultimately more favorable technology consumption. It should be pointed out that demand-side approaches such as the “Cyber Bus” that eliminate transportation problems by bringing the information technology into local communities are already being employed by the community technology centers in this study.

12.2.1 Participant-Centered Needs

After engaging with a core set of participants for 14 weeks, I’ve learned that social capital is a key resource that community centers have at their disposal. The nurturing classroom environment truly draws participants into the centers, and as participants begin to engage with one another the social networks are reinforced. Management can facilitate this type of bonding social capital by providing physical resources to facilitate communication. This would include resources such as bulletin boards where people could post business cards or flyers, tables and chairs away from the computer labs where people could collaborate. Since most residents learn about the centers through word of mouth, perhaps there is a way to reward participants for bringing in referrals. To strengthen existing physical ties with virtual equivalents, newsletters,
email, and the community portal can be employed. The critical insight is that these virtual networks should overlay pre-existing physical connections.

While the prior discussion has focused on bonding social capital to build cohesion within the community, there is a parallel need to increase bridging capital. Management should find ways to give residents a stake in the sustainability of the program. This tends to occur naturally anytime an external institution threatens the program, but it would be beneficial to find positive ways to initiate this type of cohesion. Bridging social capital is also important for encouraging continued use of the facilities and for social mobility. Management should establish linkages with existing neighborhood institutions to provide residents with an umbrella of services. The way the field is currently structured participants don’t have adequate support mechanisms to facilitate continued learning and entry into the job force.

To increase the learning experience, it is important to note that age matters. Teens, adults and seniors have quite different needs and expectations. Contrary to popular opinion, it is my contention that parents of working age are the crucial audience. Parents are coming to the centers not only for their own advancement but also to increase the life chances for their kids. They want to learn the basics of the PC, but the ultimate goal is to purchase a PC for their homes. However, as Attewall and Battle (1999) found, the average educational benefits that African American and Hispanic teens gain with a home computer is less than those gained by Whites. While the authors could not offer a good explanation for this racial disparity, I would argue that African American and Hispanic parents generally have lower computer literacy rates. Therefore, these parents
are less able to guide their children’s computer use. Nonetheless home access is important for residents because they feel that institutional access is not real.

Another mechanism that can be employed to increase utilization of the facilities is to provide learning opportunities that do not require a human facilitator. Providing computer-based training, for example, gives residents a purpose for ongoing computer use and it improves the users’ autonomy. Sustainability is crucially important to non-profit organizations. Since training software is much cheaper than a classroom facilitator, budgets can be stretched over longer periods of time.

Although the discussion up to this point has focused on increasing demand, this must be balanced with supply-side growth. As one of my informants puts it, there is a need to reconsider the quantity / quality tradeoffs. When seeking to increase the utilization of existing centers, management should carefully consider location. This is one of the most important issues because it plays a large part in determining the composition of the participants.

Where are the best places to locate the centers? Researchers such as Jeremy Campter (2001) are using Geographical Information Systems to build maps of community resources to determine the areas in the community most in need of public access centers. However, this approach is useless to some extent if the political environment makes the most optimal sites untenable. Thus managers should maintain positive relationships with partners such as corporate sponsors, government institutions, and community based service providers.

Managers must also demonstrate contextual sensitivity when selecting locations. Libraries and universities are popular places for collocating technology centers, but these
are perhaps not the best choices. These institutions carry a tremendous ideological weight, and for many residents, these are uncomfortable environments. One interesting approach being used by the initiative in this study is to place centers in public housing complexes ("City Opens Cyber Center at Capitol Homes," 2001). This overcomes institutional barriers and situational barriers like transportation, and puts the technology closer to the home.

Finally, this study has found that participants tend to stop visiting the center once they complete the structured training courses because they no longer have an immediate purpose for using the technology. They often remark that they don’t know what to do next. This leads to an underutilization of resources, especially the Open Lab. The implication that comes from this observation is that the centers need to provide services that will entice participants to continue to use these facilities. These services could include computer-based training, and Cyber Clubs for graduates who want to continue learning with their classmates. Also linkages to providers of more advanced training would be beneficial. These and other services would improve the infrastructure for the sustainability of the community technology center by getting the participants to actively participate in the center’s development. The participants become agents of change rather than passive learners in the classroom.

12.3 Implications for Policy

All technologies have unanticipated and unintended effects, and a central function of policy-making is to avoid or minimize undesirable outcomes (McChesney, 1996). The digital divide policy, for the most part, has been largely confined to the issues that the “have nots” pose for the government and big business, and how the “have nots” are to be
included and integrated into the information society. The implication is that corporate market institutions define what it means to be a member of the information society, and everybody must simply fit in. What this standpoint fails to acknowledge is that the digital divide is rooted in historic inequalities, which are constitutive elements of American culture. Therefore, I contend that serious discussion of the digital divide must begin with problems of longstanding inequalities in access to life chances rather than simply access to information technology.

Although public access centers are valuable community assets, they ultimately do not solve the problem of digital inequality. On the one hand, the centers provide basic training and access to communities that would otherwise have none. This at least opens up opportunities, and gives residents a chance at participating in the information society. On the other hand, in creating public access centers, we have effectively formed an unfair two-track system of users. There are those who can work freely from their homes, and there are those who must work under the controls imposed by the institutions in which they obtain access. It is a system that perpetuates separate and unequal access.

The implication is that broader access is a necessary but insufficient remedy for the digital divide. While the middle- and upper-income families build entertainment centers and computer networks in the home, low-income families are still being forced to obtain access in public institutions. These home fortresses enable the middle- and upper-income families to totally avoid contact with the lower echelons of society; the result is that low-income communities become even more invisible. Moreover, simply providing a PC in the home does not solve the problem. In fact, the integration of technology into
the home often introduces new stresses and constraints on time and coordination (Frissen, 2000).

12.3.1 Rethinking Universal Service

The universal service discourse has to move beyond the deterministic assumption that access to technical apparatus will lead to benefits for citizens. Because most of the digital divide research describe characteristics of the gap rather than analyze the impacts of these gaps, issues such as the quality, autonomy, and purpose of use are often under theorized. However, these are precisely the issues that come to the fore when low-income families obtain their access solely from public centers. Although participants greatly appreciate and benefit from the services provided by the community technology centers, participants stated that public access doesn’t feel like real access. The participants felt that they were only getting a taste of technology, and that institutional access went against the prevailing trend of the home computer.

Schement (1996) points out that new technologies offer new potential for communication, and encourage the rethinking of universal service, which has always been technology dependent. The provisions of the Telecommunications Act of 1996 state that access to advanced telecommunications services must be extended to all citizens, starting with schools and libraries. However, not much work has been done to analyze the impact of universal access. Are low-income residents using these services? How are they being used? What problems do they face when using these services? What communities are we still not reaching? What differences has access made in the lives of low-income residents?
These are the tough questions that need to be examined if we are genuinely concerned with delivering services that are universally accessible. What this study has shown is that, despite our laudable intentions, universal access has the potential to perpetuate inequality. Clearly the systematic exclusion of entire segments of the population from the chance of participating with information technology is undesirable.

At the same time, we should accept that there are groups that will remain beyond our reach (Luke, 1998), and it is not clear that community technology centers will alter this. These barriers can be categorized in terms of situational, institutional and dispositional. Nonparticipation can be partly explained by the relatively higher costs for low-income groups, whether defined by unemployment, low wages, gender, or area of residence. Financial costs such as transportation to the technology center and opportunity costs of taking time out to go to the community technology center pose additional problems. Then there are the institutional barriers such as hours of operation, rules for remaining quiet, cost of printing documents, ability to save data onto diskettes or CDs, and time limits on use. Situational barriers such as childcare commitments impinge most heavily on women of all ages. Finally, dispositional barriers such as feeling that “technology is not for people like us” can also lead to nonparticipation.

From the perspective of the service provider, policy creation to address these barriers is problematic. On the one hand, mandates for equality in the provision of advanced telecommunication services may be detrimental to the bottom line. If service providers have to provide “reasonably comparable” rates and services for all consumers, regardless of their size or the character of their demand, suppliers may be unwilling to introduce these services at all (Mueller, 1997). The centrality of business interests to
community technology center initiatives means that business will contribute only as long as it is in their economic interest to do so. On the other hand, preventing low-income communities from the damage caused by social exclusion may actually benefit those in power by helping them to meet the requirements of the production system (Gorard et al., 2000).

From the perspective of the residents, if they do not wish to take part in information technology training offered by a community center, it is quite possible that the problem lies in the elitist assumptions built into these provisions, and not in the non-participants. For instance, Gorard et al. (2000) suggests that merely providing additional access to information technology in existing educational sites will not necessarily overcome the traditional institutional, situational and motivational barriers to learning that have prevented many individuals from choosing to learn their previously. The vast majority of community access to information technology will be provided through centers housed in existing institutions such as schools, colleges, and libraries, merely repackaging, rather than overcoming, existing institutional barriers to participation. Thus, there is a need to examine places such as Laundromats, grocery stores, and sports bars as possible sites that would help to alleviate barriers to make training more attractive to the community.

12.4 Implications for Design

In terms of implications for information systems research, the designers of the hardware, software, and content must take the unique characteristics of this audience into consideration. While people consume similar technologies, they do so in culturally informed ways. Thus, consumption of technology is patterned along lines of ethnicity,
social class and gender (Schement, 1998) (Schement & Forbes, 2000) (Frissen, 2000). Technology, if it is to be used effectively in this community, has to be engineered for users with different technology skills, different levels and types of literacy, and lower cost threshold than today’s “typical” consumer. The challenges are in how the new technology is communicated, and how it is positioned so that potential users understand what they can do with it (Batista, 2000).

Who designs the technology? This becomes a critical question as technology increasingly pervades the business, government and nonprofit sectors. Information technology is embedded in many of the products and services that we use daily in our homes. And as our interactions with technology increase, the social implications of design become critically important (Alkalimat, 2001).

12.5 Summary

This chapter summarizes the implications of this research. It begins with the implications of this field experience for me as a researcher and as a human being. The discussion then turns to how these findings can be made relevant to real world issues. These are presented as a three-pronged attack at the levels of public policy, management of community technology centers, and design of information technology.
XIII. Limitations

This chapter discusses the limitations of this study. Some of these limitations were created as part of the research design to impose some boundaries on the investigation, and to maintain focus and scope. For instance, I chose to focus on the people in the classroom at the risk of having very little contact with the corporate sponsors. I chose to study the headquarters facility in depth rather than comparing and contrasting insights from several centers. Examining a single center restricts the analysis in some sense and makes the findings somewhat biased. On the one hand by focusing solely on the headquarters facility, which was the first center to be established, I missed the opportunity to observe and analyze the many improvements such as clustering of workstations in a circular configuration so that users can work in groups. Some of these improvements are a direct result of intermediate reports of the emergent findings that I provided to the staff. On the other hand, by studying the headquarters facility I gained access to some observations such as panopticonism that I would not have found at another center. In summary, I was cognizant of this tradeoff and decided to stay at the headquarters facility because it provided greater access to the staff.

Other limitations resulted from the practices of actors in the field that were beyond my control. The most significant of these is the loss of key informants due to the transient nature of organizational membership. Participants as well as classroom facilitators come and go every seven weeks. Sometime participants drop out in the
middle of the class. As a result, I was unable to theorize “use” more precisely. I knew \textit{a priori} that I wanted to explore use as the benefit that one derives from interacting with information technology. And although this moves the concept of use beyond the way it is typically operationalized in the technology acceptance literature (i.e. the extent, frequency, and the absence or presence of use), I would have liked to have devised some range of use based on what actors were actually able to do with the technology.

Since participants did not frequent the Open Lab after their initial training courses, I was only able to observe use in a structured, classroom environment. That still leaves open critical issues such as the long-term impact this training on the life chances of residents, and the extent to which participants’ sustained use over time. Clearly more research is needed in these areas.

\section*{13.1 Summary}

This chapter summarizes some limitations of the research. These limitations are categorized as those imposed cogently by the researcher, and those that result from factors beyond the researcher’s control. In addition, these limitations suggest areas for future research.
XIV. Directions for Future Research

I envision publishing five journal articles based on this research. The publication strategy for achieving this goal is presented in Table 22. The target journals listed in this table are ranked as “A” and “B” in the institution in which I am currently employed, and would put me on track for meeting tenure requirements. Additional outlets for future research that extends and complements this research include Science, Technology and Human Value; Prometheus; IEEE Computers and Society; The Information Society; Social Texts; and Social Studies of Science.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Target Journal</th>
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<tbody>
<tr>
<td>Implications of the Digital Divide for E-Commerce</td>
<td>Information Systems Research</td>
</tr>
<tr>
<td>The Political Economy of Community Technology</td>
<td>Organizational Science or The Information Society</td>
</tr>
<tr>
<td>Community Technology and the Digital Divide</td>
<td>The Information Society</td>
</tr>
<tr>
<td>Difficulties in Entering the Digital World</td>
<td>Information Technology and People, Journal of Computer Mediated Communication</td>
</tr>
<tr>
<td>Implications of Community Technology Centers for Public Policy</td>
<td>First Monday</td>
</tr>
<tr>
<td>Electronic Poll Tax</td>
<td>Prometheus</td>
</tr>
<tr>
<td>The Role of Culture in Reproducing Digital Inequality</td>
<td>Journal of Global Information Management</td>
</tr>
<tr>
<td>Contextualizing the TAM</td>
<td>Information Systems Research</td>
</tr>
</tbody>
</table>

Table 22: Publication Strategy
14.1 Planning for Future Research

This research leaves many questions unanswered, and suggests areas for future research. It is my contention that, as information technology penetrations into historically underserved communities continues, digital inequality will take on greater importance, especially in the realm of public policy. What follows are initial thoughts for empirical investigations in the domain of digital inequality. Accomplishing this agenda will require interdisciplinary collaboration, and an expansion of research methods such as large-scale surveys, logs of computer sessions, multi-site case studies, and cross-group comparisons (DiMaggio, Hargittai, Neuman, & Robinson, 2001) (DiMaggio & Hargittai, 2001).

1. A number of strategies to address divide issues have taken shape in the US. They include corporate equipment donations, state and federal programs to enhance Internet access and computer availability in schools, and the growth of public access facilities through community networks, Freenets, and community technology centers. While this study examined digital inequality, there is a need to examine additional social consequences of these efforts such as:

   a. What difference does having Internet access make to people who use publicly supported facilities?

   b. How do such public programs make socially important differences in the lives of participants? These studies could take the following forms:

      - Community building and social capital formation in low income areas
- Comparative analysis of access points such as home, work, school, library, and community telecenters, and the level of computer use
- Comparative analysis of digital skills and improved life chances for different user communities
- Longitudinal analysis of digital skills and improved life chances within a user community

2. A natural extension to this dissertation research would be deductive testing of the theory presented in Chapter 9. Markus (1994) suggests that it is actually proper and desirable to seek out a similar setting where the theory is likely to hold. Since one would expect that the theory would be supported in a similar setting, it would be more decisive if the theory were actually disconfirmed.

3. Conceptual analysis of the current research that emphasizes the consequences of access would produce a useful survey of the area, and provide direction for future research. For instance, if future work is to address the consequences of access, what are the implications for the sorts of data we need to collect? What are the important questions that our quantitative and qualitative studies need to address?

4. Community technology centers are a policy response to the digital divide. However, more work is needed to determine how and why these investments in computers and Internet technology influence other social or educational programs in both negative and positive ways.

5. One area that was not explored in the dissertation was the role of the "dotcoms" and the CEOs of major computer and networking firms in remedying the digital divide. Their involvement is interesting because it is a striking contrast to private
sector efforts in other areas of social justice and equity. Beyond explaining that such positions reflect enlightened self-interest, research is needed to conceptualize private sector roles and engagement in technology issues when "gaps" are involved.

14.2 Summary

This chapter provides a publication strategy for journal articles derived from this dissertation research. Next, a list of possible topics for future research that extends this initial is presented. Because community informatics is a somewhat marginal domain within the broader field of information systems, I wanted to demonstrate that I have given adequate thought about possible venues in which to continue to conduct and publish future research.
Appendixes
This chapter provides supplemental background materials that help to situate the study. Appendix A contains a Personal Research Profile. This essay was written in the very early stages of the proposal as a device to establish the researcher who is embedded in the study. Appendix B contains a glossary of key terms used in the dissertation. The remainder of this chapter contains forms, letters, interview guides, and other materials that were developed and used during the execution of this study.
Appendix A: Personal Research Profile

What brought me to this study? The only way that I know how to answer this question is to go back to the beginning and bring you up to the present. You see, this dissertation is a signature piece; my emancipation from the iron cage in which I've experienced life. I was born in captivity, a prison that was erected around me based on the circumstances of my birth. My mother was only sixteen, poor, Black, and unwed. Unable to care for me, she placed me into the custody of the foster care system of the State of New York. Hence, my sentence was delivered and the institution ruled my existence.

This prison controlled and restrained my youth. It influenced my every waking moment, my every word, my every action. I was always aware of my "inferiority" because I didn't come from a "traditional" family. I always felt that I was on the outside looking in, but the bars of the cage always obstructed the view. Socially, I sat on the sidelines and watched life unfold around me. I couldn't participate in the social life of my peers. My attempts at finding friendship were hindered because it is impossible to embrace others when cold steel bars keep them at bay.

But the cell did provide many comforts. Being doubly subjugated by race and gender, the cell helped to cloak my dark skin and my blossoming feminine physique. It sheltered me from the taunts of cruel peers, and provided solitude. Life behind bars enables one to distance oneself from the world and view human relations more objectively. It also cultivates a critical and inquisitive perspective. From my earliest recollections, I was always told that I was wise beyond my years. I was never a happy-
go-lucky kid. Adults always described me as inquisitive, mature, pensive, in a word -
deep. Reflecting back, I now realize that I was a social scientist in the raw concerned
with the injustices inflicted on downtrodden. Issues of power and disempowerment,
agency and structure have plagued me ever since I can remember. I’ve always been
deeply observant of and keenly aware of the dark side of culture.

Why do some live out their lives on the periphery while others enjoy life in the
core? This was clearly not the natural order of things. What had I done, other than to
be born, to be relegated to the margins?

People who live in confinement have a heightened sense of their lowly status in
the world, but are never really content with lurking in the shadows. However it is quite
easy to become invisible when you don't fit the mainstream standards. Dark skin, broad
facial features and a full figure are not the prototype of the American standard of beauty.
I am also politically named anew as "African-American" but I've never been to Africa. I
don't speak the language, I don't know the history, nor do I know the culture. I yearn to
be hyphen free. I am Black by color, not by continent. I am a captive daughter that never
got to know her mother or the motherland. Clearly, I am not African.

Nor am I quite American. My people where robbed of their heritage and their
history. In this country, my people were viewed as less than human, bought and sold like
animals. Today we still struggle for social equality. No, I was born in America, but I am
not quite American. As a child, I never felt nostalgic when I visited Ellis Island. I've
never felt patriotic on the Forth of July, and I definitely had my qualms about Columbus
Day. I tried to believe in this capitalist culture that restrained the essence of my being. I
kept telling myself that someday the powers that be would hear me, see me. Yet as I
reached adulthood, I came to realize that powerful would never hear me on my terms. The only thing to do was to learn the game. Then I could join in the discourse and have my say. The best place to learn the game is watching the action from a front row seat. So, I was on to corporate America to learn the capitalist culture at its finest.

My caged existence in corporate America was hellish. For ten years, I worked diligently filling the corporate coffers. I was rated and ranked alongside my peers, but always ended up being average. Now this always intrigued me because I knew that I had to be at least as good as my peers because I was over selected. Many ethnic minorities, women, and men that come from humble beginnings but manage to make it to the management ranks of corporate America are over selected. We are not the inheritors of these positions. Our fathers did not pass on a legacy. For us, the new elite, the education system has been our salvation. The educational system, the pedagogic agent for corporations responsible for indoctrinating the capitalist culture to the youth of America, sees to it that only the most competent underprivileged youth make their way through the system. For that, I am indebted to the teachers that recognized and nurtured my raw talent.

But I digress; so let me get back on track. In corporate America, I was always invisible. I didn't fit and no one took a strong interest in me. There were no role models or managers to groom me. No fast track, just dead ends. Many promises for promotions and high exposure assignments were made but never kept. Sure I was getting paid well and my performance was satisfactory. Based on the billing that I generated for the company and the large number of customers requesting me personally for subsequent contracts, I would even say that my work was more than satisfactory. But I was empty
and unfulfilled. In many ways I was like my enslaved ancestors toiling in the fields but never finding my place at the table. Wisely, I watched what was happening, deconstructed the events, and learned the ways of the powerful.

Again, school became my salvation. Going to school to obtain my Master's degree changed my life. My professors cannot imagine how much they influenced my social destiny. I was beginning to lose hope at the time I started my degree. I understood what was happening at work but was powerless to enact change. Sure I was a manager of technology, but I had no power over people, policies, or funding. The prison walls were closing in on me and I was beginning to suffocate. At school, however, I felt liberated. It was as if the only thing that mattered was the quality of my work. Sure it was difficult but my labor was acknowledged objectively. It was only then that I realized just how bright I was, and that organizational structures prohibited me from living up to my potential. More importantly, I realized that I needed to become what I always was - a critical social scientist dedicated to learning how societal and organizational structures greatly influence life chances and social trajectories. I quickly realized the arbitrary nature of the system. I also understood why so many minorities give up the fight and resign themselves to the meager social positions that they were socialized to hold. Through the university, I came to learn what it felt like to be nurtured and coached. It sure felt good to be important, to be given a voice, to stand at the front of the class and be gazed upon positively by one's peers. For the first time in my life, I felt free. There was no way that I was going back to prison. The university has granted me a pardon.
Now, the time has come for me to step out of the shadows and take my rightful place. I spent a lifetime getting to this crucial stage of my journey. The cloak has fallen. It is time to break the enchanted spell that the powerful wield over the masses. It is time to unveil and demystify the arbitrary nature of power and privilege. It is time to raise the consciousness of the downtrodden. In all these years of observing life from behind the steel grating, I have seen injustice, deceit, envy, complacency, and conformity. I have also seen the resistance and the resilience of the human spirit. Yes, they put me in a cell, but these bars can no longer contain me. The cage that the system planned for me can no longer hold me. I've grown too strong. It sure feels good to look up towards the heavens and feel the warmth of the sun on my face.

This study is about breaking people free from prisons. True to the spirit of critical social theory, this study is about emancipation. It is about examining unquestioned assumptions about power and cultural domination in technology. It is about making visible hidden structures and practices that limit the life chances of people who’ve experienced all too many “letdowns, putdowns, and unceremonious drops to the ground”. It is about raising class-consciousness. It aims to deconstruct the rhetorical devices and ideologies that perpetuate inequality. It is oriented for action and social change.

While technology has been personally liberating, it denigrates many people. Vividly I recall during the early 1990's in the heyday of corporate downsizing the mass termination of people who lacked desirable work skills. Upon my arrival at work each morning, picketers protesting the job cuts greeted me. I saw job centers erected to retrain displaced workers. I heard people wonder out loud how they were going to keep a roof over their head and food on their tables. I was ashamed because, as a technologist, my
job was never at risk. Hell, I didn't even have the opportunity to participate in any of the "voluntary separation incentives" because technologists were exempted from these programs. We were a protected class of workers to be retained at all costs while other classes of workers were deemed expendable. It was as if these two classes of workers existed in parallel universes. Many of my peers just couldn't empathize with the Other, that faceless entity too distant to warrant their interest or concern. Yes, this was clearly a digital divide but for the first time in my life I was member of the privileged people. It was at this point that I came to realize the power of possessing knowledge and competencies deemed important by the elite. Almost a decade later, however, this incident still weighs heavily on my spirit and compels me to research the digital divide.

Alas, there are dangers to being a member of this new elite. While I have learned to dwell among the powerful, in the process, I have lost some sense of being the Other. How can I speak for them when I am no longer one of them? This is the plight of the newly freed. While I have learned to speak the language of the dominant, I still look different. I don't have the soul of an elite or a practical mastery of the ways of the elite. I am still too conscious of my privileged status. It is like an unfamiliar skin that I must wear. So, I tend to hypercorrect for fear that I will be found out. I straddle two worlds but don't fit neatly into either side. I am a person without a people or a culture to call my own. But, I feel compelled to give voice to the marginalized. I feel a heavy responsibility for helping people escape the prisons that level their aspirations and expectations in life. But at the same time, I cannot fail. Fore if I falter, I may find myself back in my old dirty little cage. I feel as if I've been given this one chance to join an exclusive club and that if I do any wrong my membership will be revoked. Dismissed by
the powerful because I didn't live up to their expectations. This leaves me wondering

"Am I really free or have I just erected a new cage for myself in the ivory tower?"
### Appendix B: Glossary of Terms

<table>
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<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Community Technology Center</td>
<td>A facility located in a geographic neighborhood that provides free or low-cost training and access to information technology. These centers typically serve communities in which a large number of residents do not have access to information technology.</td>
</tr>
<tr>
<td>Cultural Arbitrary</td>
<td>The socially constructed systems of meanings about IT. The concept of arbitrariness signifies that the structure and functions of IT cannot be deduced from any universal principles or laws of nature.</td>
</tr>
<tr>
<td>Cultural Capital</td>
<td>Knowledge of prestigious forms of cultural expression. Cultural capital is also described as the accumulated stock of knowledge about the products of artistic and intellectual traditions, which is learned through educational training. Educational institutions are not as much sites of distribution of cultural capital, but sites for legitimizing the cultural capital of the middle and upper classes, which is reified and rewarded. In developing the concept of cultural capital, Bourdieu seeks to explicitly recognize the role of the educational system in reproducing the social structure.</td>
</tr>
<tr>
<td>Digital Divide</td>
<td>The gap in accessibility to technology between those who can afford computers and those who can’t, with minorities comprising much of the latter group. This is the definition provided by the community technology center.</td>
</tr>
<tr>
<td>Digital Inequality</td>
<td>The inequality not only in access but also in difference among persons with formal access to the Internet. Digital inequality has 5 dimensions – in equipment, autonomy of use, skill, social support, and the purposes for which the technology is employed.</td>
</tr>
<tr>
<td>Economic Capital</td>
<td>Monetary means such as property, stocks and money that can be employed as power resources in one’s struggles for social mobility societal fields.</td>
</tr>
<tr>
<td>Field</td>
<td>A network of structured social spaces each with its own laws of function and its own relations of power (i.e. educational field, political field, cultural field).</td>
</tr>
<tr>
<td>Field of power</td>
<td>The set of dominant power relations in a society or, in other words, the ruling class.</td>
</tr>
<tr>
<td>Habitus</td>
<td>The internalization of the principles of a cultural arbitrary. The habitus is comprised of dispositions and ethos. Each actor has her own habitus, and people experiencing a similar history would have a collective group habitus.</td>
</tr>
<tr>
<td>Information Technology (IT)</td>
<td>Computing hardware, software, and communication facilities, as well as the purposes for using these technical apparatus. The functions and features embedded in the technology are legitimized as natural. Social and cultural context help to define use.</td>
</tr>
<tr>
<td>Pedagogic Action</td>
<td>The imposition of a dominant view of information technology’s meaning and intended use onto dominated social groups. This imposition is done gently through instructional training (i.e. pedagogic action) in such a way that this imposition is perceived as legitimate. Pedagogic action is a form of symbolic violence.</td>
</tr>
<tr>
<td>Social Capital</td>
<td>Not the quantity of social networks per se, but rather the power resources that one can derive from these social networks. For Bourdieu, social capital is an individual resource that cannot be aggregated into a community resource.</td>
</tr>
<tr>
<td>Symbolic Violence</td>
<td>The imposition of a dominant view of information technology’s meaning and intended use onto dominated social groups accomplished through non-physical aggression.</td>
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Appendix C: Letter of Introduction

DEPARTMENT OF COMPUTER INFORMATION SYSTEMS

Assistant Professor of CIS
CIS department 9th Floor
J. Mack Robinson College of Business
Box 4015 • Atlanta, GA 30302-4015

Phone: 404/651-3899
Fax: 404/651-3842
E-mail: dtruex@gsu.edu

January 15, 2001

Dr. Jabari Simama, Executive Director
Mayor’s Office of Community Technology
City of Atlanta
Community Cyber Centers Headquarters
818 Pollard Boulevard, Third Floor
Atlanta, GA XXXXX

Subject: Executive Summary of Dissertation Research Plan

Dr. Simama:

One of our Ph.D. candidates, Lynette Kvasny, is seeking to conduct her dissertation research on the “digital divide” with the support of the Community Cyber Centers. This letter presents an overview of the motivation for the study and the guiding research questions. The letter concludes with a discussion of the timeframe and conduct of the study as well as the expected contributions to the sponsoring organization.

Motivation

Until recently the discourse on the "digital divide" was understood to be a reference to classes of people who were being left behind by the rising tide of economic prosperity fueled by great advances in information technology. It was a discourse about disempowerment, poverty, economic and political inequality and, ultimately, social disenfranchisement in the midst of a larger discourse in which access to information technologies is generally understood to be a necessary condition of participation in the new economy. To increase participation in the new economy governments, researchers, corporations and politicians have turned attention to understanding the digital divide and forming workable solutions aimed at resolving some of the intractable problems that arise from these conditions.
This dissertation research sounds a cautionary note on how those on the “wrong side of the digital divide” are suddenly being cast as members of the newly empowered group referred to as the “new market”. Efforts to bridge the digital divide are now being termed “digital opportunities” and “digital dividends”. This is disconcerting because, by a linguistic slight of hand, entire classes of people may be defined away without any serious discussion of the issues of reduced economic, cultural, and social capital for these populations. This view cannot be allowed to stand unopposed and unexamined.

Statistical evidence of a closing gap has led to debates about the degree to which the divide is temporary or permanent, whether the divide is widening or narrowing, or whether a divide exists at all. These opposing considerations place responsibility for future access in the hands of the “free market”. Moreover, because the discourse has only allowed a limited set of definitions for the digital divide, the solutions are largely constrained and predetermined as being solved through market forces. Those who hold that market forces will resolve the digital divide, however, fail to recognize that the problem is more complex than the unfettered access to Internet and communication technologies. The market forces argument tends to stifle further critical attention to social inequalities that are deeper than surface questions of technology, and may curtail the long-term efforts of organizations like the Cyber Centers.

Research Questions

Accordingly, these insights arising from an examination of the opposing positions about the digital divide lead to the following set of research questions Lynette Kvasny proposed to explore:

1. **What is the nature of the digital divide as construed by the various stakeholders?**

   This question seeks to present a multi-voiced account of the disparate views of the nature of the digital divide as expressed by the numerous stakeholders in the program. The intent is to frame and describe the problem empirically and from the viewpoint of those experiencing the digital divide rather than from the viewpoint of those wishing to define it out of existence. In examining the perspectives of those experiencing the divide we mean persons living on the outside looking in and persons directly working to reduce the divide itself. Once framed with empirical evidence we may demonstrate the complexity of this social phenomenon and contribute to meaningful policy initiatives to address the most salient issues.

2. **What are the essential characteristics of this community technology initiative that work for or against success?**

   As organizations develop policies and programs to combat the divide, it would be helpful to know what works well and why. In addition, it is important to understand the problems that may be created or may fail to be addressed. The answers to this question will suggest why market forces alone cannot sufficiently address this problem and will determine where such forces may be having a positive or negative impact.

3. **What are the implications of this technology initiative for the various stakeholders?**

   The thrust of this question is why should administrators of the Cyber Center, government agencies, businesses, educational institutions and participants care about this initiative? It seeks to understand the linkage between this local program and broader economic, political and social concerns.
Timing and Conduct of the Study

The study will be conducted over a nine-month period and will employ an ethnographic research style that emphasizes encountering unfamiliar worlds and making sense of them. Ethnographers place a strong emphasis on exploring the nature of particular social phenomenon rather than setting out to test hypothesis about them. This is an intensive approach to research that employs qualitative data collection and analysis techniques. Interviews will be conducted with participants, steering committee members, community leaders, and residents. The researcher will also photograph, observe and participate in the daily activities at the Cyber Centers. Archival records such as press releases, reports filed to government agencies, business plans, marketing brochures, newspaper articles, and census data will also be analyzed. Analysis of data involves explicit interpretation of the meanings, and verbal descriptions and explanations with quantification and statistical analysis playing a subordinate role at most. The research results are portrayed in a narrative account as seen through the eyes of the participants in the study.

I envision this research contributing to several important areas such as the development of community technology-building incentives by government and civic organizations, the improvement of workforce literacy and training programs, and the enactment of public policy aimed at increasing technology adoption and usage by the populace. For the sponsors of this research, the practical contributions are a set of instruments and mechanisms that can be used to assist in future research and evaluations, and an intensive assessment of the effectiveness of the program. This evaluative report serves many practical purposes such as learning about the patrons, objectives and accomplishments of the center. It may also be presented to funding organizations to provide evidence of the program's results, and included in grant proposals for future funding.

Who are the potential beneficiaries of this work? In my view, certainly the citizens Atlanta of will benefit. By finding the nature of a problem and determining what solutions work to redress the problem, we use human and economic resources more wisely. We improve the likelihood that we are addressing the right problem. We improve the likelihood of having positive impacts. Issues should be framed and the political debate should be leavened by data from those whose voices are not so often heard and are in the best position to know how the divide does or does not affect lives. The agenda should not be set exclusively by those living comfortably in a technologically empowered world. As such this research has the promise to improve the quality and honesty of the debate over the digital divide. The work in Atlanta may then impact the lives of all Americans.

Respectfully,

Duane Truex III, MBA, Ph.D.

Cc: Lynette Kvasny
Appendix D: Letter of Research Sponsorship

CITY OF ATLANTA
COMMUNITY CYBER CENTERS HEADQUARTERS
818 POLLARD BOULEVARD, SW
ATLANTA, GEORGIA 30345

Bill Campbell                 ATLANTA, GEORGIA 30345  Jabari Simama, Ph.D.
MAYOR                                            TEL  (404)880-7220    EXECUTIVE DIRECTOR
FAX (404) 584-6357

MEMORANDUM

TO:                  Duane Truex III, MBA, Ph.D.
FROM:               Jabari Simama, Ph.D.
DATE:               February 2, 2001
RE:                  Lynette Kvasny’s Dissertation

I am in receipt of your letter of introduction of Ms. Lynette Kvasny. I find her research problem an interesting one and the focus on the city of Atlanta’s Community Technology initiative timely.

We look forward to working with Ms. Kvasny and will be willing to provide the following assistance:

- Workspace at the headquarters at 818 Pollard Blvd.
- Access to computers, printers, scanners, etc.
- Access to the monthly general staff meeting
- Access to all public information and documents, including information in our departmental archives
- Assistance in gaining access to the City’s archives
- 30-45 minute monthly meeting with the executive director
- Assistance in scheduling interviews with participants, staff and contractors
- Assistance in scheduling meetings with other Senior-level city officials
- Others to be agreed upon later

I will be Ms. Kvasny’s contact in the department. Have her contact me or my assistant when she is ready to begin her study and will need to take advantage of the assistance outlined above.
Appendix E: Consent Form

DEPARTMENT OF COMPUTER INFORMATION SYSTEMS

Lynette Kvasny  
Ph.D. Candidate  
CIS department 9th Floor  
J. Mack Robinson College of Business  
Box 4015 • Atlanta, GA 30302-4015

Phone: 404/651-3880  
Fax: 404/651-3842  
E-mail: lkvasny@gsu.edu

Consent Form

I have been asked to participate in a study about overcoming the digital divide being conducted at the city of Atlanta’s Cyber Centers. If I choose to take part in this study, I will participate in informal interviews over the duration of the course. These interviews will capture my reactions to different learning activities conducted with the programs as well as personal attitudes about technology.

There are no foreseeable privacy risks associated with this study. The data collected in this study will be summarized and reported only in anonymous form. Information that is gathered about me will not be reported to anyone outside the research project in a manner that can be traced back directly to me.

The GSU Research Office (room G-76 Alumni Hall) can provide me with general information about the rights of human subjects in research. I may ask questions about this project or the researcher, Lynette Kvasny, by contacting Dr. Duane Truex or Dr. Richard Baskerville at the Department of Computer Information Systems.

If I do choose to participate I may stop at any time, and I have the right to refuse to answer specific questions during the interview(s). I also understand that I may refuse to participate in this study. If I refuse to participate or decide to stop, I will not be penalized and I will not lose any benefits to which I am entitled.

I have read and understand the above, and I agree to participate in this study.

Printed Name:____________________________________________________________
Signature:_______________________________________________________________
Date:___________________________________________________________________

Please return completed form to Lynette Kvasny
Appendix F: Interview Guides

The interviews were very casual and informal conversations. I found it very difficult to hold an engaging dialog when I tried running through a long list of questions. Therefore, I never carried a list of questions with me. I would try to cover one topic per interview and let the rest of the conversation be directed by the informant. Over time, I found that my threshold for recall of interview dialog was about 30 minutes. Anything longer than 30 minutes, and I felt like I was forgetting substantial pieces of the conversation even though I was jotting information during the interview.

In actual practice, I would go into an interview with an informant and my plan would be to discuss a particular topic. I would come up with a list of 5 or 6 questions specific to that topic, and memorize them before the meeting. During our half hour conversation, I would go through the questions on my list as well as employ probing techniques to stimulate the informant to produce more information without injecting myself in the data. On many occasions, I was not able to even get through my questions because the informant would go on one tangent after another, and I was too reluctant to cut them off. This had both positive and negative affects. On the one hand, letting the interviewee ramble on opened new lines of inquiry that I would have never thought of on my own. On the other hand, some of what they are saying would have no relevance.
Interview Guide for Staff

**Political Environment**
1. Describe the early debates?
2. What is the role of the Blue Ribbon Committee?
3. What legislative battles took place over funding?
4. What legislative battles took place between the Mayor and the City Council?
5. Do the City Council members that objected to the program initially now buy into the program?
6. What was the staff’s relationship with other city institutions before the Cyber Centers opened?
7. How have the centers been hurt/helped by being affiliated with the city? The mayor?
8. What impact has the investigation of the TDC contract had on the program?
9. What impact does the upcoming election have on the program?

**Vision**
10. Advice to others developing a community technology center using this model
11. How is this similar to PATV?
12. What barriers do you currently face?
13. What barriers have you overcome?
14. What disappointments do you have?
15. What things are you most proud of?
16. Does it really matter to such a poor community?
17. Why is this important for the city?
18. What is the extent of the impact? Feeling or quantified?

**Partnerships**
19. Tell me about your relationships with external institutions like BellSouth, APS, library, MS, SkillLearning, GA Tech, CBITS
20. Do you have a relationship with any city agencies like the workforce development agency, dept of social services, empowerment zone?

21. Describe the funding situation? What type of account? Who controls it? What is the protocol for requesting funds?
22. How much time does the staff spend with classroom facilitators? Participants?
23. Describe the city politics environment? (Summerhill and the Olympics, Summerhill and the family entertainment center, EZ successes/failures, gentrification)
24. Why focus on Community Portal/content development?
25. Why is center designed in this manner?
26. To what extent does the Strategic Plan inform the program?
27. What is the relationship between this program and other Community Based Technology Programs?
28. What challenges are there in terms of sustainability, outreach, marketing, funding?

**Operations**
29. How do you decide where to place centers – official account vs. actual account.
30. Space. How easy/difficult is it to find space? How is it paid for?
31. Costs What are biggest expenses?
32. Why is Morris Brown center so snazzy? Why is library center sectioned off? Why different look – n – feel for each center?
33. How is staff funded? City or community technology center
34. No technologists on staff. Why?
35. Classroom facilitator turnover?
36. Workload for staff?
37. Early days challenges in getting center off the ground? Compare to challenges for sustainability. Are they the same/different?

**Sustainability and Strategy**
38. Tradeoffs of quickly building more centers or fewer centers of greater quality?
39. Statistics of who comes, what they do, how long do they stay, learning outcomes
40. Strategy – five years of operations still sound? Not a permanent institution?
42. Workforce development focus?
43. Prospects for program after election? Any new news?
Interview Guide for Participants

*Grand Tour Questions*
- What is the digital divide?
- Why and how does the divide materialize?
- What are the implications of the divide?
- What would it take to bridge the divide?

*Your attitudes/beliefs/opinions*
1. How do you learn about technology?
2. Why are people here?
3. What does the technology mean in your life?
4. What is at stake if you do not learn about technology?
5. Attitudes towards technology?
6. Thinking about your background, past experience, etc. what are your expectations from this class?
7. What do you believe are your chances for success?
8. What roadblocks or challenges do you face?
9. If you do not consider your background, past experiences, finances, etc. what are your desires/aspirations?
10. What types of jobs would you like? Do you think you have a real chance of getting jobs once you receive training? What has life like in a tech society been like without have those skills?
11. How do the practices of employers / city keep the people down? In other words, how does technology innovations hurt people?
12. Many of have PC at home already. How did they get the PC? Why do they still come?

*Community Portal*
13. What types of information would be useful for you?
14. What would give you an incentive to actually build this content?
15. What are the barriers to building this content?

*Ideas about the program*
16. What is working?
17. What motivates you?
18. What are your ideas for reaching people similar to you? For instance, if you’re a young Black woman with teenagers in your home, what would be the best way to reach other young Black women with teens?
19. What differences exist between youths and adults?
20. Where do you want access?
21. What are your training needs?
22. What are the effects of access and training on
   a. Inclusion
b. Empowerment
c. Employability
d. Self-perception
e. Quality of life

23. Under what circumstances would you prefer open lab where you could work independently at your own pace and classroom facilitator led classroom training?

24. What are some unanticipated effects? Positive and negative.

**Purchasing a PC**

25. What would it take for you to get a PC?

26. What would you have to give up to get a PC?

27. Where would you put the PC in your home?

28. What is it that makes PC different from earlier inventions like VCR, TV, cell phones?

**Responses to prevailing attitudes/opinions/beliefs**

29. Many people say that:
   a. You don’t see the significance of not having technology.
   b. You can afford a PC if you give up cigarettes, lottery tickets, liquor, newspapers, etc. What is your response?
   c. PC is cheaper than a TV. Since you have a TV you can afford a PC.
   d. You can get access through your employer, school or library
   e. Race is not an issue.
   f. Many households will reject computers altogether

30. Some people say that the digital divide does not exist. You can get free computer, software, services and Internet access. There is no economic reason why anybody cannot have a PC. Your response.
Appendix G: Participant Observation Sheets

Participant observation took place primarily in the classroom environment. I sat in the last row of the classroom so that I could see the computer screens as the participants worked. Initially, I knew that I wanted to look for incidents, observations, and conversations that could be represented by one of the constructs from my theoretical framework (see Figure 2). So I constructed an instrument to facilitate the participant observation. On an 8 ½ X 11 inch piece of paper, I created a series of cells each of which contained theoretical concepts from the literature. The concept “Serendipitous Effects” was initially used as a catchall category for those observations that seemed important but had not been defined a priori. These Serendipitous Effects were later examined for emergent theoretical concepts. Data analysis was conducted in a top-down manner in which the a priori and the emergent concepts were refined into low level constructs.
<table>
<thead>
<tr>
<th>Cultural Capital</th>
<th>Social Capital</th>
<th>Economic Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
<td>Relevant Content</td>
<td>Relevant Curriculum</td>
</tr>
</tbody>
</table>

Serendipitous Effects
My experience with the cyber center was very rewarding. I enjoyed my classmates and the instructor. I wish that the cyber center would have more advanced classes. For example the powerpoint class should be five weeks, word should be five weeks, etc. My overall experience was great and I try to recommend as many people as I can to take advantage of this learning.
The Cyber Center: Bridging the Digital Divide

As a student, I have grown in the following ways because of the foresight of the Mayor’s computer program: intellectually, spiritually and physically.

Intellectually—I have acquired the knowledge to perform basic computer skills while incorporating the use of graphics. I can now create a document in Microsoft Word which includes columns, pictures, tables, borders, headers and footers.

Spiritually—I have raised my awareness and increased my self-esteem simultaneously because I no longer have any fears of embracing computer technology.

Physically—I feel revitalized and highly energetic. I find myself more eager to exercise and to properly care for my body. I know that this renewal of energy is a direct result of the positive reassurance I’ve gained through this program.
February 23, 2001

To: Community Portal

Re: Introduction to Computers Class

Dear ACP:

I have just recently completed an Introduction to Computers class held at the Mayor’s Community Cyber Center. Having been away from school for about nine years; this was truly a welcomed challenge for me. I’d only briefly embraced computer technology during high school and college; therefore, this was truly a remarkable experience. I have an eight-year old son who has demonstrated more basic computer knowledge than I have revealed in the past. The data and hands-on training that I have obtained in the classroom will allow me to share and provide additional computer skills to him.

The instructor has been exceedingly informative and extremely patient. Those characteristics have made my learning experience a tremendously easier task. I honestly believe that all my fellow classmates felt enormously relaxed because of the learning environment that our instructor provided for us.

I cannot simply express the gratitude I have for the mayor and the staff that are primarily responsible for giving me an opportunity to obtain the computer skills that have now become almost necessary to obtain many entry-level jobs in today’s job market. I’d like to offer my support and prayers that this program will remain intact for our future generations. There is definitely a digital divide in the area of technology when it comes to African Americans mainly because many people cannot afford to obtain their own personal computers, and access to computer training have not been prevalent in our communities. Additionally, our older generations tend to feel intimidated by computer technology. It has become the responsibility of those who have the ability to train and provide others with computer skills to do so in a comfortable setting.

Again, thanks for a wonderful opportunity. The information I’ve acquired through this class will remain invaluable.

Best wishes,
**Who takes part in the Community Information Technology**
We the members of the Cyber Computer Lab was thrilled to be given the opportunity to be part of the information community becoming computer user friendly.

Through this program we are taking computer classes that have connected us with the great information divide, we are no longer left behind. We started our learning journey on January 8, 2001. We are still traveling on the road of information freedom and enjoying every minute of it. There is so much to be learned, and the information is available because we made the first step, receiving information and taking the steps to change our future in the usage of the computer in our everyday life. We now realize that the Internet is the mode of travel for today as well as tomorrow.

**Why you should participate**
To be able to access information rapidly is important, knowing how to surf the Internet makes the information as close as your keyboard. We are learning to also use computer applications, Microsoft Word, PowerPoint, Excel and Access just to name a few have brought us into the twenty-first century.

**People are participating**
Our class is made up of very special people and the group is exceptional, the linkage is we all share a common goal, and the desire to enhance our ability to communicate. We enjoy and get very excited about the classes, we have grown together spiritually, socially and connecting communities together, being that we come from different communities in the area.

**Program instructor**
The instructor is extremely knowledgeable in the field of computer language and the use of it. She has excellent communication skills, she exemplify the adage that we shall over come, we shall learn, we shall accelerate in the computer field together. Many training programs exist, but many times one leave these program with little information or confused when they leave.

This class is different, learning and understanding is paramount here, and should be the catalyst for future classes. Our instructor made every session enjoyable that the time just fly by.

**Program components**
To see class projects unfold such as making business cards, flyers, writing letters, using clip art, surfing the internet, networking, net chat and phone chat, different applications that’s available. Achieving what we thought in the past, impossible, now is a reality.

The training is invaluable and the cost is beyond belief. In this day and time it is hard to believe a program of this magnitude is offered free to all residents of the metro area. The center have three different time slots, 9-11, 12-2 and 6:30-9, there are also available for the after school program. Progress is being made at the Cyber Center lab, assisting in making leaders of tomorrow and helping us to utilize these skills we are learning today.
As student I have learned more about the computer than I have ever dreamed this training that I have received has helped in my business and in my church. The knowledge of technology is one of the greatest things invented by man.

---

My Cyber Center Experience

I am attending the computer applications class at the Cyber Center. I will learn a lot of computer applications when I finish this class. I will be able to get a better job and better opportunities. I will conquer the digital divide. We all need to learn these computer applications. We will need this information to be successful in the business world. Afro-Americans have basically been left behind in this arena. We must make progress. The Cyber Center will help us to accomplish this mission.

---

The Cyber Center

Skill Learning Lab

The cyber center is a wonder place that I plan to learn a lot about my self and what computer plan to be like in days to come. It sure be a great day when to obtain an education without an pressure free class room sitting. Maybe every one in the future will be able to use a computer without the headachy. This is place where I can to help my son with information to help with his homework.

---

The New Millennium

What Does the Future Hold for You?

Knowledge That leads to Life

Science and technology can sometimes be dazzling still. Human knowledge has not made life secure and happy for most people.
THIS IS MY FIRST WEB PAGE!!!!

HOW YOU LIKE ME NOW?

YOU MAY NOT AGREE WITH MY STYLE OF WRITING BUT THATS OK. WHAT YOU SEE IS WHAT YOU GET.
Community Centers

We have discovered that community centers are one of the key elements to strengthening and enriching our community. We know that a community means a body of people having common interest, or living in one locality, possession of things or ideas in common. Community Centers should be and could be the nucleus for every community.

A center is a place in the midst of activity. It is a place where the young and the old come together for various activities. Summer programs and after school programs for children. Youth recreation activities are also provided. For the community it provides an ideal facility for programs and projects.

The cyber center has been very rewarding to many people in the community, and the surrounding area. It is important that more people utilize the many services that the centers have to offer. We hope the time will never come when elected officials feel there is no longer a need for the centers.

The instructor at the cyber center is a loving and experienced teacher the students have bonded with each other in many ways. We will be friends after the class has ended.

THE CYPER CENTER

SKILL LEARNING LAB

My main reason for studying computer is to prepare my self-better for finding jobs that lead to better pay, new career in the job market.
My Cyber Center Experience

THE CYBER CENTER HAS BEEN AN EXCELLENT OPPORTUNITY FOR ME TO BECOME MORE SKILLED IN THE USE OF THE COMPUTERS. OUR CLASS IS MADE OF MOTIVATED STUDENT WHO VIEW TECHNOLOGY SKILLS AS BEING NECESSARY IN SOCIETY TODAY.

WE ARE GRATEFUL TO OUR INSTRUCTOR FOR HIS INTEREST IN US AND FOR HIS EXCELLENT TEACHING ABILITY. HE IS NEVER TOO BUSY TO HELP AND IS BOTH COURTEOUS AND PROFESSIONAL.

WE HAVE LEARNED MANY THINGS. AND ARE STILL IN THE PROCESS OF LEARNING NEW SKILLS EACH DAY. HOWEVER, THE FOLLOWING THINGS ARE A SAMPLE OF WHAT I HAVE LEARNED:

<table>
<thead>
<tr>
<th>TECHNOLOGICAL TERMS</th>
<th>COMPUTER LANGUAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPEING TECHNIQUES</td>
<td>STANDARD FOR BUSINESS TEXT</td>
</tr>
<tr>
<td>ACCESSING THE INTERNET</td>
<td>SETTING UP E-MAIL ACCOUNTS</td>
</tr>
<tr>
<td>HOW TO PURCHASE A COMPUTER</td>
<td>LOCATING APPROPRIATE VENDERS</td>
</tr>
<tr>
<td>SETTING UP TABLES</td>
<td>FORMATTING TABLES</td>
</tr>
<tr>
<td>INSERTING BORDERS</td>
<td>INSERTING HEADERS/FOOTERS</td>
</tr>
<tr>
<td>WRAPPING TEXT AROUND GRAPHICS</td>
<td>ALIGNING PICTURE/GRAPHICS</td>
</tr>
<tr>
<td>INTRODUCTION TO POWER POINT</td>
<td>HOW TO COMPOSE SCRIPT FOR PRESENTATIONS</td>
</tr>
<tr>
<td>SENDING E-MAIL ATTACHMENT</td>
<td>BOTH PICTURE, GRAPHICS AND TEXT</td>
</tr>
<tr>
<td>HOW TO DELETE AND ADD TO A TABLE</td>
<td>DECREASE/ADD COLUMNS OR ROW</td>
</tr>
<tr>
<td>USING DIFFERENT DRIVES</td>
<td>CREATING, SAVING AND OPENING FLOPPY DISK</td>
</tr>
<tr>
<td>COPYING FROM HARD DRIVE TO FLOPPY DISK</td>
<td>CREATING/SAVING/RETRIEVING FILES</td>
</tr>
</tbody>
</table>

HOSEA 4:6 OF THE BIBLE SAYS, MY PEOPLE ARE DESTROYED FOR THE LACK OF KNOWLEDGE, BUT I THANK GOD FOR THE MAYOR’S CYBER CENTER CLASS. IT DOES’T HAVE TO BE THAT WAY, THIS FREE KNOWLEDGE IS OPEN FOR ALL WHO SO EVER WILL LET THEM COME. THE DOORS ARE OPEN. I AM VERY PROUD OF THIS CYBER CENTER . AT THE O. I. C. BUILDING , IT HAS MADE ME MORE ABLE TO USE THE COMPUTER AND I UNDERSTAND MORE ABOUT HOW IT WORKS AND THE USE OF IT. I CAN’T LEAVE OUT OUR FANTASTIC INSTRUTOR. THANK YOU

The Cyber Center Bridges The Digital Divide And Promotes Empowerment Of Computer Knowledge.
My Cyber Center experience

It has been warm and gratifying experiences to be able to help the people that come with open minds and hearts that thirst for knowledge and skills of the computer and its applications. I have seen so many students increase in confidence and self esteem in the months I have instructed here. It’s a wonderful thing to see students when the eyes of their understanding become enlightened.

Much thanks to the mayor for this wonderful precedence setting decision to initiate the Cyber Center Programs and bridge the digital divide in the great international city of Atlanta. Truly lives have been touched and improved in ways you may never know and many are sincerely thankful and inspired to do more. However if the program is to advance and be more fruitful we must not forget to listen to the voice and needs of the people on the front lines and in the trenches….the students and the instructors.

Sincerely

Together We Stand Divided We Fall
It has been my experience to advise anyone interested in computers to take this course. Learning here is fun, the teachers here are knowlegible and more than willing to help you in anyway. These centers are located all over the metro area. Computers are the way of the world, don’t get left behind!!! The mayor has designed this program for Atlanta at no cost, this alone should make you want to call for more information. Please call today to invest in your future, you will be glad you did!!!!!!!!!!
I’ve been coming to the cyber center for the past 9 weeks and it’s my belief that I’ve learned a great deal since I’ve been coming here about the operations of the computer. I’ve learned how to create a document, file and a folder. I have created a document and attached a picture and clip art to it. Also I have improved my typing a great deal. The class instructor has found a way to communicate to nearly each member of the class. He mostly moves as fast as the slowest man or woman. It’s been my experience in the past that most instructor are unable to do this when teaching people from different backgrounds and educational levels so it says a lot for the persons technique. But our instructor should to get us more time or days so we could become much better than we are as a class and me as a person who has never has any computer experience at all until coming to the cyber center.

During this exercise I learned the following things about MS WORD 2000:

<table>
<thead>
<tr>
<th>Technological Terms</th>
<th>Computer Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typing Techniques</td>
<td>Standards for Business Text</td>
</tr>
<tr>
<td>Accessing the Internet</td>
<td>Setting Up E-mail Accounts</td>
</tr>
<tr>
<td>How to Purchase a Computer</td>
<td>Locating Appropriate Venders</td>
</tr>
<tr>
<td>Setting Up Tables</td>
<td>Formatting Tables</td>
</tr>
<tr>
<td>Inserting Borders</td>
<td>Inserting Headers/Footer</td>
</tr>
<tr>
<td>Wrapping Text Around Graphics</td>
<td>Aligning Pictures/Graphics</td>
</tr>
<tr>
<td>Introduction to Power Point</td>
<td>How to Compose Script for Presentations</td>
</tr>
<tr>
<td>Send E-mail Attachments</td>
<td>Both Pictures, Graphics and Text</td>
</tr>
<tr>
<td>How to Delete and Add to a Table</td>
<td>Decrease/Add Columns or Rows</td>
</tr>
<tr>
<td>Using Different Drives</td>
<td>Creating, Saving and Opening Floppy Disk</td>
</tr>
</tbody>
</table>
The greatest treasure in the world is knowledge of self.

The technology of the computer will help to bridge the gap of obtaining knowledge.
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Schiller, J. (2000). Bridging Northeast Ohio's Digital Divide: Internet's Virtues Still Less Accessible to Poor, Minorities. Plain Dealer Reporter, pp. BUSINESS; Pg. 1H.


VITA

Lynette Kvasny
KPMG Doctoral Scholar and Instructor of IST
002N Thomas Building
School of Information Sciences and Technology
Penn State University
University Park, PA 16802
Phone: 814.865.6458
Fax: 814.865.6426
Email: lkvasny@ist.psu.edu

Date and Place of Birth: August 11th
Valhalla, NY

Research Interests:
Digital Inequality
Community Informatics
Workplace equality, policy, and practice

Education:
2002  Ph.D. Computer Information Systems
Georgia State University
1996  M.S.  Computer Information Systems
Georgia State University
1988  B.S.  Computer Information Systems
Mercy College

Professional Experience:
1997-2000 New Product Life Cycle Manager
Avaya Communications, Atlanta, GA
1995-1997 Member of Technical Staff
Bell Labs, Atlanta, GA
1993-1995 Software Specialist
AT&T, Atlanta, GA
1988-1993 Software Developer
AT&T, White Plains, NY

Professional Organizations:
• PhD Project Information Systems Doctoral Student Association
• Association of Computing Machinery (ACM)
• International Federation for Information Processing Working Group 8.2 (IFIP 8.2)
• Association for Information Systems (AIS)

Publications:
Kvasny, L. (under review). From Participants to Change Agents: Improving the Sustainability of Community Technology


Presentations:


