

**THE CHALLENGES OF REDRESSING THE DIGITAL DIVIDE:
A TALE OF TWO U.S. CITIES**

ABSTRACT

In this paper, we examine efforts undertaken by two cities—Atlanta and LaGrange, Georgia—to redress the digital divide. Atlanta’s initiative has taken the form of community technology centers where citizens can come to get exposure to the Internet, and learn something about computers and their applications. LaGrange has taken a very different approach, providing free Internet access to the home via a digital cable set-top box. Using theoretical constructs from Bourdieu, we analyzed how the target populations and service providers reacted to the two initiatives, the how these reactions served to reproduce the digital divide, and the lessons for future digital divide initiatives. In our findings and analysis, we see a reinforcement of the status quo. When people embrace these initiatives, they are full of enthusiasm, and there is no question that some learning occurs and that the programs are beneficial. However, there is no mechanism for people to go to the next step, whether that is technical certification, going to college, buying a PC, or escaping the poverty that put them on the losing end of the divide in the first place. This leads us to conclude that the Atlanta and LaGrange programs could be classified as successes in the sense that they provided access and basic computer literacy to people lacking these resources. However, both programs were, at least initially, conceived rather narrowly and represent short term, technology-centric fixes to a problem that is deeply rooted in longstanding and systemic patterns of spatial, political, and economic disadvantage. A persistent divide exists even when cities are giving away theoretically “free” goods and services.

Keywords: Bourdieu, Case Study, Critical theory, Digital Divide, IT Policy, Municipal government

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INTRODUCTION

The presence of a digital divide between information “haves” and “have-nots” has become a critical public policy issue in nations worldwide. In this paper, we present a study that examines efforts undertaken by two U.S. cities—Atlanta and LaGrange, Georgia—to redress the digital divide. Atlanta’s initiative provides community technology centers where citizens can come to get exposure to the Internet, as well as computers and their applications. LaGrange has taken a very different approach, providing free Internet access to the home via a digital cable set-top box. This research examines three research questions:

1. How have the target populations and service providers reacted to the two initiatives?
2. What were the effects of the two initiatives on the digital divide?”
3. What lessons can be drawn from the studies for future digital divide initiatives?

In the U.S., digital divide policy is largely based on survey research on the diffusion of computers and Internet access and use in the home, at work, and in public places. These studies typically identify and measure demographic factors such as ethnicity and race, geographic location, household composition, age, education, and income level (Hoffman and Novak, 1998; Katz and Aspden, 1997; Lenhart, et al., 2003; Lenhart, et al., 2000). Similarly, national diffusion rates are used for examining global digital divides, particularly the noticeable gaps in information and communication technologies (ICT) infrastructure between the developed and the developing countries of the world. In the latter, many aspects of the technology may even be seen to constitute an inevitable luxury – they simply cannot afford to do without them, yet can they afford them financially! Castells introduces the concept of 'technological apartheid' to refer to this process of disconnecting complete countries and poor neighborhoods from the world's economic and social systems (Castells, 1998). According to Norris (2001) divides occur at three levels:

- a global divide between the developed and undeveloped worlds
- a social divide between the information rich and the information poor
- a democratic divide between those who do and those who do not use the new technologies to further political participation

In this paper, we examine the technological and social aspects of two digital divide interventions to support low-income citizens in two U.S. cities. More specifically, we analyze the impacts of these initiatives on participants and municipal service providers, and provide policy recommendations for future initiatives. We begin by summarizing background information regarding the digital divide. Next, we present our research approach, which follows a critical theorist perspective and draws upon Bourdieu's work. This perspective provides a theoretical foundation for considering not only the technology artifact, but also the social, economic, and cultural factors that conspire to structure Internet and computer access and use. In the second section of the research approach, we describe the actual conduct of our fieldwork. We conclude the paper with a portrayal of the empirical evidence from our fieldwork, as well as scholarly and policy implications for digital divide initiatives worldwide.

BACKGROUND

Debates about the digital divide and the relationship between social inequality and the proliferation of ICT, are becoming increasingly important. These debates and the research that informs them can be categorized into two broad categories: policy studies and social impact studies. The policy study approach follows what Kling (1980) would refer to as a systems rationalist perspective. The systems rationalist perspective emphasizes the technical capabilities of computing devices, and the cooperative adoption of ICT by "have nots" if provided with access, basic computing skills and an understanding of the potential benefits of ICT. Technology pundits, policy makers and government officials who implicitly assume that there is a marked consensus on major social and economic goals relevant to computer use, largely determine these potential benefits. Scholars who adopt this perspective tend to view ICT as a useful tool, assume that the digital divide is primarily about access, and employ survey methods to analyze trends in access to ICT along demographic lines. ICT use is generally framed as a comparison of the applications and services used by various demographic groups.

The social impact study approach follows what Kling (1980) would refer to as the segmented institutionalist perspective. From this perspective, the digital divide is shaped

by a complex web of social, political, historical and cultural factors. Social impact studies also tend to focus on differences in skills and capacity to use ICT as well as the differential benefits that various groups derive from ICT use. Researchers and politicians who view the digital divide from this lens would argue for research which makes use of intensive field-based methods and refined survey methods to analyze the outcomes of ICT use in complex social environments. They would not only study computer users, but are likely to emphasize other parties such as vendors, politicians, employers, and policymakers who play a role in creating, maintaining and minimizing the digital divide. In what follows, we highlight recent literature published by scholars in both camps.

Policy Studies

According to the 2003 Nielsen Net ratings, 580.78 million (9.57%) people worldwide have Internet access. The U.S. accounts for 29% of the global Internet access, followed by Europe with 23%, Asia-Pacific with 13%, and Latin America with 2%. (Nielsen Netratings, 2003). U.S. households have experienced a rapid gain in computer and Internet access with two million new Internet users per month. In September 2001, 143 million Americans (54%) were using the Internet, and 174 million Americans (66%) used computers (U.S. Department of Commerce 2002). The gains are largest for low-income families (those earning less than \$15,000 per year increased at a 25% percent annual growth rate versus 11% for households earning \$75,000 and above), and under represented ethnic and racial minorities (33% for Blacks, 30% for Hispanics, 20% for Whites and Asian American and Pacific Islanders). American Internet users are also engaged in a wide variety of activities - 45% use e-mail, 36% use the Internet to search for products and services, 39% of individuals are making online purchases, and 35% are searching for health information (U.S. Department of Commerce, 2002).

Despite these gains, a growing number of surveys have documented a persistent but rapidly closing gap in computer and Internet access (Anderson and Melchior, 1995; Katz and Aspden, 1997; Goslee and Conte, 1998; Hoffman and Novak, 1998; Norris, 2001; U.S. Department of Commerce, 2002;. Mossberger, Tolbert and Stansbury, 2003). These findings consistently demonstrate that the patterns of access are most related to ethnicity and race, geographic location, household composition, age, education, and income level. Hence, the digital divide does not create new fault lines in society. Rather,

the digital divide, at least when defined in terms of physical access, tends to replicate existing patterns of social stratification.

The demographic profile of computer and Internet users ...reveals that growth in computer and Internet use is broadly based. In every income bracket, at every level of education, in every age group, for people of every race and among people of Hispanic origin, among both men and women, many more people use computers and the Internet now than did so in the recent past. Some people are still more likely to be Internet users than others. Individuals living in low-income households or having little education, still trail the national average. However, broad measures of Internet use in the United States suggest that over time Internet use has become more equitable (U.S. Department of Commerce 2002, p. 10-11).

Because the growth in computer and Internet adoption is believed to significantly and directly impact economic and employment benefits as well as other opportunities for upward mobility, policy analysts and researchers in this camp reason that the digital divide is rectified by providing broader access to ICT. Hence, policy solutions tend to focus on technology fixes such as delivering basic computer training courses, wiring public schools and libraries, and providing computing resources with Internet access in poorer communities (Norris, 2001). Over time, market forces will drive the proliferation of ICT and aggressive public policies or investments targeted to address digital divide problems will no longer be necessary (Compaine, 2001). Indeed, as the statistics report growing numbers of American Internet adopters, the use of the term “digital divide” has largely faded from the policy debates in the U.S. (Kvasny and Truex, 2001). Federal government support for digital divide programs has also significantly declined. For instance, the Technology Opportunities Program (TOP) did not receive appropriations for fiscal year 2005, and funding for the Community Technology Center program was reduced from \$32 million in 2002 and 2003, to \$10 million in 2004, and to \$5 million in 2005. The proposed budget for fiscal year 2006 eliminates funding to several educational technology programs such as Enhancing Education Through Technology, Star Schools, and Community Technology Centers (CTCs).

Social Impact Studies

While policy studies identify the scope of the problem, they do little to address the social impacts that emerge as ICT diffuses, or fails to diffuse, throughout society.

Consequently, we know much about the statistical gains in access and comparatively little about the actual impacts of increased accessibility for under represented groups. Computers and Internet access do not directly lead to “digital opportunities” for under represented groups, communities and nations. Rather, there are both beneficial and detrimental, intended and unintended consequences (Kling, 1998; 1999; Sawyer and Eschenfelder, 2002). Moreover, both technological and social aspects such as power relations, knowledge, policies, technical skills, and resources determine these consequences. Thus, from a social impacts perspective, it is naïve to assume that technological access and market forces are the sole roadblocks to expanded Internet use.

Researchers in this camp conceptualize ICT as a configurable “computing web” of social and technical factors which exist in localized contexts, and are generally concerned with theorizing and empirically examining factors that are important for understanding disparities in the outcomes resulting from computer and Internet use. Without theoretically driven understanding about the social and technical nature of the digital divide, we may simply perpetuate stereotyped notions about the perceived inferiority of under represented groups and developing countries, and propagate shortsighted and heavily prejudiced recitations of the demographic characteristics. If the demographic element becomes the focus of digital divide scholarship, why be taken aback when those who belong to groups long designated as inferior still are not engaged in what is naively assumed to be neutral technologies? Digital divide discourses that repeatedly describe under represented groups as “catching up” and “at risk of falling further behind” may in fact help to perpetuate a self-fulfilling prophecy (Hacker and Mason, 2003; Kvasny, Sawyer and Puro, 2004).

Thus, for social impacts scholars, the proposition of a rapidly closing digital divide is premised on a limited conceptualization based on access to computers and the Internet (Warschauer, 2002; Servon, 2002). ICT skills and the capacity to use them, however, are not equitably distributed even when access is largely available. For example, as under represented groups adopt ICTs, access barriers, proficiency, skills, and a wider range of technologies and applications must also be studied. In fact, gaps in knowledge, skills and experience come to the fore as access broadens. For instance, Hargittai (2001) introduces the concept of “second level divides” to signify the

considerable difference in people's ability to find various types of content on the Web and time required to complete online tasks. Age is negatively associated with level of Internet skill, experience with the technology is positively related to online skill, and gender does little to explain the variance in people's ability to find content online. van Dijk and Hacker (2003) observe that the adoption and use of ICT is cumulative and recursive because individuals must migrate to new hardware platforms, learn new software applications, and develop new skills. Access, skill, use and cost are constantly shifting and reemerging as new ICTs are introduced and as existing ICTs are upgraded.

Social impact studies also look deeper into demographic groups to gain more nuanced understandings about the ways in which ICT is conceptualized and used. Some studies, for instance, have intensively examined racial and ethnic minorities in the U.S. Schement and Forbes (2000) found that African Americans are more likely to buy computers for their children's future while Hispanic Americans buy computers for work or their business. African Americans also tend to have more positive attitudes toward ICT than similarly situated European American respondents did across a range of questions such as the importance of the Internet and computers for keeping up with the times, and for economic opportunity (Hoffman and Novak, 1998). African Americans are also more willing to learn new computer skills in a variety of ways (i.e. formal education, online education, informal education), and are more willing to use public access sites (Mossberger, et al., 2003). Even among non-users of the Internet, African Americans, Hispanic Americans, and urban residents are among the most likely to say they will use the Internet someday (Lenhart 2003).

From a social impacts orientation, the digital divide cannot be adequately addressed without some understanding of the broader context of social and economic stratification (Becht, et al., 1999; Norris, 2001). Jung, et al. (2001) propose an Internet Connectedness Index (ICI), a measure for monitoring long-term inequities in the quality of Internet connections among users, especially in terms of whether Internet connections will enhance the chances of people's upward mobility. This model moves beyond the comparison of computer and Internet access for diverse groups, by incorporating usage constructs such as time spent online, computer dependency, location of access points, scope of activities, and personal effects of ICT on quality of life to provide insights into

how the Internet is being incorporated into a world of structural inequalities. Thus, this work moves from individualistic measures of use and access to measures of connectedness that better capture broader social structures and can help to determine the effectiveness of use and access.

RESEARCH APPROACH

Reflecting upon these two opposing perspectives informing contemporary debates on the digital divide, there is a clear need for an empirical research to determine how these perspectives are actually enacted through public policy. In this research, we examine two access-oriented programs in Atlanta and LaGrange, Georgia aimed at reducing the digital divide. The Atlanta initiative provides community technology centers while the LaGrange provides free Internet access to the home. By focusing on two very different access-oriented approaches, this study represents a strong empirical investigation of the two perspectives on the digital divide.

This study is critical in that it seeks to unveil the causes of unwarranted alienation and domination and thereby enhance the opportunities for realizing human potential (Klein and Myers, 1999; Kincheloe and McLaren, 1998). We acknowledge that under represented populations can consciously act and use ICT to change their social and economic conditions. However, we recognize that their agency is constrained by various forms of social, cultural and political domination as well as resource limitations. We therefore examine the digital divide by giving primary attention to the roles that social networks, economic power, labor markets, and other social structures play in patterning access and use. Some researchers have called for more empirically based critical studies (Alvesson and Deetz, 2000; Boudreau, 1997), and this work heeds this call. Our research approach is comprised of two aspects: the theoretical foundation and the design of the case studies, which we describe in more detail below.

Theoretical Foundation

One of the key questions informing Bourdieu's work is the question of how and why relationships of inequality and domination are reproduced. In this section we theorize how digital divide initiatives may unwittingly contribute to the reproduction of social structures. This conceptualization involves a central focus upon the relationship

between culture and power as exerted through the seemingly democratic practice of education and free or low-cost computer and Internet access. We begin by defining social and cultural reproduction, and then follow by making a case for the appropriateness of Bourdieu.

Theories of Social and Cultural Reproduction

For Bourdieu (1984), social reproduction is a theory of social order that is also linked with a theory of social change. Theories of social reproduction suggest that technological innovation and change unwittingly reinforce existing power relations and modes of consciousness that legitimizes those relations (Bourdieu and Passeron, 1990; Morrow and Torres, 1995). Adopting a social reproduction standpoint, one would argue that digital divide initiatives offer an educational environment that legitimizes the power relations between those social agents with (the haves) and those without (the have nots) computing skills and access. It seeks out those without access, and provides them with an opportunity to learn and acquire computing skills for little or no financial cost. One would further theorize that, like other educational institutions, community technology initiatives are powerful institutions for socialization into a given social order and cultivation of positive dispositions like motivations and aspirations for using ICT. Adopting a social reproduction perspective enables us to break from the taken for granted notions of ICT as a unilaterally positive force in society, and examine the link between technology change and the perpetuation of inequality.

Reproduction also enables us to analyze the temporal nature of the digital divide. The groups on the so-called wrong side of the divide are not simply disadvantaged with respect to access to ICT; they are historically disadvantaged in many social spheres such as transportation, health, employment, and education. Thus, the digital divide can be seen as a contemporary system of social inequality that is predicated along historical systems of power and privilege. This temporal aspect ties well to critical research which posits that social reality is historically constituted, and produced and reproduced by people (Hirschheim and Klein, 1994).

There is no single general reproduction theory, but reproduction processes constitute a fundamental problem that has been tackled in contemporary sociology. Three general explanations are posited. First Bowles and Gintis (1976) debunk the century-old

ideal of public education as "the great equalizer" among disparate social classes in the U.S., Bowles and Gintis instead argued that public schooling reproduces social and class-based inequities. They adopt a Marxist perspective and argue that schools are training young people for their future economic and occupational position according to their current social class position. On the one hand, students of working-class origin are trained to take orders, to be obedient, and are subject to more disciplinary interventions. On the other hand, children of professionals are trained using more progressive methods, which give them internal discipline and self-presentation skills. The schools and their curriculum structure education so as to produce workers who will fill various socially stratified occupations, thereby maintaining class-based inequities and benefiting the means of capitalist economic production and profit. This Marxist approach, however, has been criticized as being deterministic because it assumes that social agents have extremely limited choices. Their futures are largely determined by the economic structure and their place within it.

Human agency and resistance form the second explanation for social reproduction. From this perspective, dominated agents' resistance to school is a political response to oppression and limited life chances. In Willis' (1997) study of working class male culture in the UK, he found that these males are talented enough to do school work, but they choose not to. Self-exclusion from an educational setting, which was associated with feminine qualities, was experienced as affirming a strong masculine identity. Instead of school, the youths engaged in practices such as theft, smoking, fighting and consuming alcohol, which they perceived as masculine. The youths also engage in factory work, which became another site for expressing masculinity. While resistance was initially seen as positive, after five or so years of factory work, the young men felt locked into this working-class position and unwittingly reproduced the social structure. Similar observations are made in MacLeod's (1995) study of working-class males in the U.S. In summary, resistance theories privilege human agency with dominated agents being able to act, interpret, and exert some power in their lives. This agency, however, tends to keep dominated agents in the lower levels of the economic structure.

Culture represents the third explanation for social reproduction. For Bourdieu, culture plays a paramount role in structuring life chances. Each class has its own cultural

background, knowledge, dispositions, and tastes that are transmitted through the family (Bourdieu, 1984). This is called the habitus to signal its routinization, naturalness, and embeddness within social agents' body, language, and tastes. The culture of dominant groups forms the knowledge and skills that are most highly valued, and the basis of what is taught in schools. To possess these ways of knowing and skills, which Bourdieu calls cultural capital, means that one is considered educated or talented. To not have this cultural capital means one is considered ignorant or uneducated. Academic performance and consequently the educational credentials such as diplomas, certificates, and degrees are largely based upon the congruence between what is taught in school and the cultural capital possessed by students. Thus, those students coming from more affluent homes have greater chances of excelling in school and obtaining educational credentials that expand occupational opportunities because they possess larger quantities of cultural capital that are privileged in educational settings. In this way, cultural capital inculcated by families and schools plays a large role in structuring access to desirable employment and broader life chances.

Why Bourdieu?

Our objective and reason for choosing Bourdieu is to disenchant and question the taken for granted assumptions about the digital divide. We seek to understand how social agents react to digital divide initiatives in ways that lead to cultural and social reproduction. Structural arguments based on Marxist economic theories are limited in helping us to achieve this goal because they produce macro level accounts of the role of educational institutions in training social agents for low level jobs within structured labor markets in capitalist societies. From this perspective, ICT access and training would be conceptualized narrowly as filling production-oriented functions.

Resistance theories are also less desirable for this study because they focus on counter cultures and conflict. This too is at odds with the aim of our study because digital divide initiatives are purported to support the inclusion of under represented groups. Unlike formal educational systems, digital divide initiatives are not compulsory. Social agents elect to participate. So, in a sense, we are examining social agents who have chosen to learn about ICT, and believe in the ideology of ICT as an enabler of life

chances. And while they clearly exercise human agency, this seems more like an act of assimilation rather than an act of resistance.

This leads us to a cultural explanation of the ways in which the dominant ideas of a society are related to structures of socio-economic class, production and power, and how these ideas are legitimated and perpetuated through educational systems. Cultural and social reproduction provide answers to the question of how advantages fail to be passed on to dominated groups, and how we come to perceive the status quo as natural and inevitable (i.e., legitimacy). Bourdieu argues that the status quo is preserved because it is essentially unquestioned and naturalized. Agents go about their business and they tend not to pose the theoretical questions of legitimacy because the social world is embodied in both their practices and in their thoughts (i.e. habitus). They reproduce it without active reflection. This does not mean that the oppressed do not reflect on their position, but their perception of themselves as oppressed is often impaired by their submersion in the reality of being oppressed (Freire, 1970). Much of Bourdieu's work is focused upon the ways in which inequalities are made to appear natural and fair, and the way in which dominant groups are able to justify their privilege to themselves and others. We discuss the concepts of cultural arbitrary, capital, and symbolic power to explain how this reproductive process unfolds.

Education carries an essentially arbitrary cultural scheme, which is actually based on power. What Bourdieu means by arbitrary is that cultural schemes are not based on any natural principle or biological fact. For instance, there is no law of nature that would explain why ICT access and use would yield a more equitable society. Instead, the reproduction of culture through education (cultural reproduction) is shown to play a key part in the reproduction of social systems (social reproduction).

In order for a society to survive, its culture must be passed on. Consequently every society has some form of educational institutions that serve to reproduce and legitimize dominant culture values. This process of cultural reproduction inevitably entails a form of power, which Bourdieu (1993) refers to as symbolic power. This is power exercised through hegemony of norms and techniques for shaping the mind and body without the use of physical force or laws. The "have nots" are identified and then persuaded to defer to educational institutions that will enable them to partake in the

cultural practices such as online banking and electronic commerce which are privileged by more dominant agents. However, social groups have different experiences, histories, dispositions, cultural needs, desires and tastes (i.e. habitus), but these differences are not treated as equal. The dominant agents are better positioned to define their cultural arbitrary as superior to that of the working classes, and thereby to naturalize their superiority through symbolic power. Educational institutions serve as sites that provide everyone with a chance to be co-opted into the groups possessing symbolic power. Freire (1970, p. 33) notes “our advanced technological society is rapidly making objects of most of us and subtly programming us into conformity to the logic of its system. To the degree that this happens, we are also being submerged in a new ‘culture of silence’” and fail to discover how to participate in the transformation.

While the cultural arbitrary and symbolic power are useful for theorizing how and why social agents come to believe that ICT access and skills are necessary and desirable, culture capital is important for understanding how ICT is consumed. Cultural capital refers to the collective value of knowledge, skills, competencies, family background, socio-economic class, and investments in education that influence success. Cultural capital represents the social agent’s knowledge and capacity, and can be increased through education. It cannot, however, be accumulated beyond the appropriating capacity of a given social agent. This capacity includes the social agent’s physical and mental abilities, resources available through their social networks (social capital) as well as personal sacrifices of time and money (economic capital). Social groups distinguish themselves by way of their lifestyle choices in terms of speech, music, sports, clothing, and household decorations. Differences in economic capital partially explain these differences, but cultural capital also plays an explanatory role. Without the proper cultural capital, one cannot consume cultural goods like ICT in the manner demanded by labor markets, governments, corporations, schools and other institutions. Thus, from a cultural capital perspective, digital divide initiatives are not so much sites for the distribution of computing skills and access (i.e. cultural capital) but sites to legitimize the cultural capital demands (i.e. cultural arbitrary) created, reified and rewarded by dominant groups and institutions. Culture and power are firmly intertwined for Bourdieu, and certain forms of cultural capital necessarily elevated over others.

RESEARCH DESIGN

We take Bourdieu's theoretical constructs and the relationships among these constructs as hypotheses to be explored empirically, rather than as social facts. Our empirical investigation employs a case study design involving two sites: Atlanta's efforts to bridge the digital divide through the creation of community technology centers, and LaGrange's efforts to bridge the digital divide by giving its citizens broadband Internet access in the home through their cable TV. Atlanta was one of the first community technology initiatives to be mounted by a municipality, while LaGrange was the first city in the world to offer free and fast Internet access for every citizen (Meader, Keil, and McFarlan, 2002). These sites were selected because they were similar in that they were initiated by municipal governments to provide internet access to economically marginalized residents at no cost. Also both initiatives were in their first year of operation when our studies began, which provided a unique window for exploring the early adoption behaviors of residents as well as the initial successes and challenges faced by the municipalities. These sites also represented two very different approaches that have been taken by public policy makers to address the digital divide by providing better access to computing and the Internet. This enabled us to examine contextual differences that influence and impact the design, implementation as well as the responses to the two initiatives. (We contextualize these two sites in the Results section.) From these differences, we are then able to generalize implications and recommendations more broadly.

Case research methodology is particularly appropriate for answering "*how*" or "*why*" questions, and supports field-based research conducted in natural settings (Benbasat, et al., 1987; Yin, 1994). We employed an integrative case study methodology for two reasons. First, we were provided a unique opportunity to evaluate two municipalities early in the implementation of their digital divide initiatives. Consequently, we are in a position to produce revelatory findings and recommendations. Second, two sites provide a more robust and compelling investigation of the digital divide, a social phenomenon that some researchers argue is conceptually over-simplified and theoretically underdeveloped (Ba, et al., 2001; Selwyn, 2002). We are able to

examine both the intentions of the municipal government and the reactions of the citizens. By viewing the digital divide from the perspective of multiple stakeholders, we can develop a more comprehensive understanding of a complex social phenomenon.

Data Collection

The data collection in both sites utilized qualitative methods including interviews, participant observation and textual analysis. The research began with an extensive review of published reports and publicly available documentation on the initiatives being undertaken in LaGrange and Atlanta, Georgia. In Atlanta, the documents included strategic planning reports, press releases, newspaper articles, and requests for proposals. In the case of LaGrange, these data included press releases, newspaper articles, data on the number of digital set-top boxes deployed over time, as well as socioeconomic and usage data collected by the city. The contemporary nature of the events unfolding in each municipality meant that extensive documentation was available, and that the key stakeholders could be located for interviewing.

In Atlanta, the first author adopted an ethnographic approach with informal interviews with managers and staff at the community technology center, classroom facilitators, and participants. Over 50 informal interviews were conducted, each lasting an average of 20-30 minutes. The interviews were intentionally limited to short time frames because they were not recorded. The first author did, however, have repeated access to the same informants and used follow-up interviews to clarify and confirm her understanding. She also sat through two seven-week courses with a cohort of 15 adults, which afforded her the opportunity to gain in depth knowledge of a few key informants.

In LaGrange, the second author conducted semi-structured interviews with all of the major stakeholders including city officials, citizens, and business owners. In addition, telephone interviews were conducted with representatives from the cable operator (Charter Communications) and the Internet Service Provider (WorldGate) to obtain the perspective of these stakeholders as well. Twenty-five interviews were conducted, each lasting an average of 30-40 minutes. All of the LaGrange interviews were tape-recorded and transcribed, yielding 441 pages of interview transcripts.

Data Analysis

The selection of the theoretical lens requires some clarification as it shaped the data collection and analysis. In the Atlanta case, data collection and analysis were performed independently by the first author, and were tightly coupled with Bourdieu's constructs. For instance, habitus, cultural capital, social capital and economic capital were included in the participant observation guide, interview guides, and the coding scheme for reducing and analyzing this data. Thus, the within-case analysis was informed directly by these concepts, which to some degree limited the researcher's ability to see alternative explanations. The data collection in the LaGrange case occurred simultaneously but was not informed by Bourdieu's concepts. Data were collected and analyzed independently by the second author using an open and exploratory approach.

While we collected our data independently, we were colleagues in the same university and were aware of our respective projects. As we began discussing our work, we realized that Bourdieu's theory was helpful for making sense of the research conducted at LaGrange. To test the applicability of Bourdieu's theory for guiding the interpretation of the LaGrange data, we conducted a cross-case analysis. The initial set of codes from the Atlanta data would provide a reasonable starting point that would tie back to Bourdieu's theory. Since the data collection methods, sources of data, level of analysis, the type of intervention, and the range of informants were similar across the studies, the data were deemed comparable across sites and hence a cross-case comparison was appropriate. However, as we conducted iterative readings of the text, we expected that the pool of codes would be amended.

However, a second issue arose around the introduction of biases being carried over from the first case into the second. We adopted two strategies for controlling biases. First, we constrained the coding scheme to include a few high level codes (see table 1). This limits our ability to uncover more nuanced differences that arose in each context, but it does enhance our ability to uncover broader and more generalizable themes across contexts. Second, during this cross-case analysis we negotiated our understanding of the case materials and co-created alternative explanations for those instances in which Bourdieu's theory lacked explanatory power. In these instances, we went back to the data and the theory to look for additional evidence to help us make sense of the data. This, we believe, strengthened the analysis. For instance, during the initial analysis of the Atlanta

data, self-exclusion was seen as citizens’ rejection of the ICT cultural arbitrary, which in turn may facilitate social reproduction. However, during cross-case analysis, we noticed that ICT adoption was not as voluntary as we supposed. Self-exclusion may be caused by structural inability to participate rather than by resistance. Whereas voluntary self-exclusion would require an intervention to change attitudes and increase buy in, a structural explanation would suggest an institutional response to reduce barriers such as child care and transportation.

Table 1: Content Codes and Empirical Examples

Construct	Field-based Definition	Atlanta Example	LaGrange
Habitus	Dispositions about ICT – appropriateness and perceived usefulness of the technology, willingness to engage in computer training, aspirations for leveraging skills.	<i>People who know something about computers would still think I’m dumb.</i>	<i>With most of the older people, they feel they won’t ever be able to do that.</i>
Cultural capital	Knowledge, skills, competencies and direct experiences with computing artifacts which influence success.	<i>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.</i>	<i>However, there are a fair amount of outages. Sometimes when it goes out at the wrong time it’s frustrating, like when you are making flight reservations.</i>
Social capital	The benefits received from participating in communities and networks - information, support, guidance, or additional social contacts	<i>It has become the responsibility of those who have the ability to train others with computer skills to do so in a comfortable setting.</i>	<i>I can go to every apartment unit and put my hand on the person who lives in that section that is going to be the one who keeps their ear to the ground... If we could get those people to use the Internet and just talk in their little group, I think we would be able to expand it.</i>
Economic capital	Monetary means to support ICT purchases and maintenance.	<i>There is definitely a digital divide ... because many people cannot afford to obtain their own PC.</i>	<i>I really do hope that when they decide how much it will be, they will consider that 90% of their users are elderly people, teenagers and young adults.</i>

RESULTS

In this section, we describe the context of each field site, as well as the rationale for and the design of the digital divide initiatives. By doing so, we provide some

background for situating the research findings. Our findings are then presented and organized around three guiding research questions.

1. How have the target populations and service providers reacted to the two initiatives?
2. What were the effects of the two initiatives on the digital divide?
3. What lessons can be drawn from the studies for future digital divide initiatives?

RQ1: Reactions to the Two Initiatives

For each city, we first describe the guiding principles and assumptions (cultural arbitrary) that informed the implementation of each initiative. We then present the city officials' and participants' reactions to the initiatives. The reactions are organized around four core themes: habitus, cultural capital, social capital, and economic capital.

The Atlanta Tale

Atlanta, host of the 1996 Olympics, is the capital city of the state of Georgia. With a population of 416, 474 according to the 2000 census, it is also the largest city in the state. The Cyber Centers began in 1999 when the Mayor launched an initiative to bring computers, Internet access and basic computer literacy training to low-income neighborhoods. Mayor Campbell believed that Atlanta's poorest residents were being left behind the technology revolution. The Cyber Centers were intended to fill the gap, and bring technology to "those who would otherwise not have access".

By making this Community Cyber Center available, we are ensuring that our citizens will have access to computers and the Internet, especially those who do not have computers in their home. We are delighted to make technology available to our children, adults and seniors in this community.

The "target population" was primarily located in the 9.3 square mile Empowerment Zone. The Federal government launched the Empowerment Zone program to facilitate the economic redevelopment of the most distressed inner cities in the U.S. Through this program, cities receive tax incentives, regulatory flexibility, block grants, and other measures to attract private investments and stimulate community revitalization. Many low-income families are socially isolated in these dispossessed neighborhoods with scarce opportunities for escaping from the vicious cycle of joblessness, illiteracy, poverty, racial and ethnic discrimination, dilapidated housing stock and physical

infrastructure, and violent crime (Wilson, 1996). These territories of social and economic exclusion “mostly operate on a centuries-old caste basis which is tolerated or reinforced by the state and by national ideology”¹ (Wacquant, 1999, p. 131). Although the Cyber Centers were located in areas of extreme poverty, they were not designed to be workforce development centers. However the executive director believed that “the training is good enough that people will be able to apply for jobs that they couldn’t have applied for before”.

City officials in Atlanta were successful in reaching low-income residents, and promoted computing skills as an integral component in a broader strategy for improving the quality of life. Part of this success can be attributed to officials connecting with the histories and experiences (*habitus*) of the largely African American residents in Atlanta, the birthplace of the American civil rights movement. For instance, in a speech delivered by the Executive Director, public access to computers is equated to civil rights.

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. ... 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.

The program involved setting up 15 Cyber Centers within the first 18 months of operation. In the first year of operation, over 5000 residents had taken advantage of the five centers that were in operation. The Cyber Centers provided two 7-week computer literacy courses and open computer labs to teens, adults, and seniors. The training courses were instructor-led, and covered topics such as file management, word processing, spreadsheets, databases, and email. The courses were provided free of charge.

Our study of the Atlanta case began in 2000, six months after the initial launch. The initiative received extensive press coverage in local, national, as well as international

¹ For a comparison of American inner cities and European disenfranchised neighborhoods see Wacquant, L. (1999) “America as Social Dystopia” in Bourdieu, et al. *The Weight of*

publications because this was one of the first and largest (\$8 million USD) digital divide programs to be initiated by a municipality. In addition, the program was novel in the level of public and private collaboration, funding, and commitment. No taxpayer funds were used for the program. Instead, the City funded the program through corporate donations and the renegotiation of a cable franchise agreement.

Since we concluded the study, the initiative has continued to grow. By December 2001, over 15,000 residents completed training at the 13 centers. These centers housed 14 computer labs equipped with 300 computers and T1 Internet connections. In 2002, the city introduced a 35-foot Cyber Bus complete with 12 computers, monitors, and electronic display boards. The Cyber Bus is accessible to disabled residents, and is staffed with an instructor and certified driver. In addition to the instructor led courses, the City offers online courses in popular software such as Adobe Illustrator and Photoshop, Macromedia Dreamweaver and Flash, and Microsoft Office. Both online and instructor-led courses continue to be provided free of charge.

Habitus

The habitus is used to understand dispositions and attitudes towards ICT. Participants were initially motivated to attend the training courses by a desire to gain computer skills and compete for higher paying and more rewarding work. Ron, a male participant at the Atlanta Cyber Center, stated that he had “an interest, hunger and desire to go through the program. But for me, it is just a stepping-stone”. Ron viewed the program as a step towards providing him with computer skills to enter the workforce. However, even with the computer training, he still perceived limited job choices:

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.

Ms. Johnson, a retired citizen testifying on behalf of the Cyber Centers at an Atlanta City Council Finance Committee Hearing, provides a narrative in which retirees could now be seen as “qualified homebodies” who could reenter the workforce.

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 World: Social Suffering in Contemporary Societies, Stanford University Press, Stanford, CA, pp. 130-139.

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.

The technology training provided a tangible means for integrating seniors into an increasingly information-based society. Another senior, Doris, espoused a powerful virtual self in which competence, self worth and legitimacy were believed to result from the acquisition of computer skills.

I thought I would be the last one to have an email address. I was once at a meeting and everyone in my group had an email address. I was embarrassed not to have one because everyone else was a senior citizen with some sort of computer knowledge.

Others viewed computer skills as a method for retaining their social status and respect as parents. One parent, for example, described young adults as “the forgotten generation” because their children possessed greater knowledge about technology than they possessed. Bill, a grandfather taking courses at the Cyber Center, describes feelings of demoralization because he perceived that his lack of computer skills detracted from his ability to perform his role as a grandparent.

Prior to my enrolling into this class, I had no earthly idea about the functions of the computer. My seven-year old grandson shamed me when he asked me questions concerning computers. Even though there is a fifty-seven year education gap in our knowledge, there is no excuse in the lack of knowledge, especially now that the technology is here [at the Cyber Center].

Cultural Capital

Cultural capital was operationalized as knowledge, skills, competencies and direct experiences with computing artifacts that influence success. Technology failures figured prominently in the participant’s narratives. Because the study took place in the initial months, there were a number of computer outages as the staff worked to configure the computers and set up the network. Problems also occurred because users would inadvertently delete files or install unauthorized software that would corrupt the operating system. One participant at the Cyber Center wrote in a letter to the mayor to share her frustration:

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 [broken equipment], if so why? We want the best.

On another occasion, someone set up the scrolling marquee screensaver with the words “Please fix our computers” on all of the computers in the lab. This represented an interesting way of using the technology to voice concerns in a non-aggressive yet symbolically powerful way. Because the computer labs were enclosed in rooms with large glass walls, anyone walking down the main corridor could look into the room and see 15 computers all displaying the same message. The executive director acknowledged the maintenance issues. He explained that the centers were geographically dispersed around the city and house nearly 300 PCs, and contracts with computer vendors were still being negotiated. Both the officials and the participants were coming to grips with the inherent difficulties of maintaining a large computer network.

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.

These initial computer problems negatively impacted the learning environment and participants’ ability to acquire ICT skills. When something went wrong, they were never quite sure if they were making mistakes or if the computer itself was at fault. Inoperable computers disrupted classes because participants would have to change seats. It also diminished participants trust in the program overall with some asking rhetorically if the program was all a show. From their perspective, politics, bureaucracy and red tape were hurting the community technology programs.

Cultural capital such as computing skills is developed with time and experience. However, participants were not afforded prolonged exposure to computers and basic literacy skills. Without the basic literacy components, the centers provide an informal and incomplete mastery of technology. 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 their instructor. Many times the participants would ask the researcher to check their spelling. When participants asked for assistance, the researcher would offer to help them use the spell checker. However, the spelling was sometimes too far off to effectively use the tool. In other instances, participants had typed the entire document in capital letters and this made spell checking a worthless pursuit.

The short training periods also led to rote memorization and mimicry of skills. For instance, Ron, an older man taking classes at the center, discussed how he had to remember steps and consult notes when he engaged with the computer.

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.

Social Capital

Many of the benefits derived by the participants at the Cyber Centers came from face-to-face social interactions. In fact, social networks brought most people to the community technology centers in the first place, and enabled the centers to develop into comfortable places with low barriers to entry and frequented by regulars (Liff and Steward, 2001). Ron shared how he is teaching a friend to use computers.

I want to be able to share my knowledge with others. Like, I got this friend who works for [the transit authority] 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.

Most participants at the Cyber Center have adopted this form of diffuse education as a responsibility of those within the community that possess computer skills. With the computing skills and friendships that develop in the classrooms, they increase both their cultural and social capital, respectively. Participants shared leads on jobs and apartments, swapped recipes, tell one another about useful government services. One woman practiced her keyboarding skills in preparation for a new job as a data entry clerk. As they gained more confidence, two women began studying for the General Equivalency Diploma (GED) test, an examination which certifies that the taker has attained American high school-level academic skills. Older males would often loan books on African American and Native American history to the younger men and women in class. When the books were returned, the older gentlemen would question the borrower to make sure that he or she actually read the text and learned about the history of people of color in

America. The centers were more than a place to learn about computers; they provided a social setting where people could go to learn or simply to escape loneliness. Ginny, an older female participant, noted:

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.

Economic Capital

Although residents now have public access points, they still have to contend with the time and financial expenses of traveling to the computer centers. Because of these constraints, most of the participants were not able to spend much time working independently in the computer lab. They tended to only come to the centers for structured classroom time.

Some people were able to overcome economic constraints and purchase second-hand computers from friends and employers. 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. Five of the 15 participants in this study owned computers, but came to the centers to develop additional skills. Of those who owned home computers, none had Internet access because they were unable to afford ISP charges. Therefore, they especially wanted to learn more about the Internet. And as they became more knowledgeable about computers and the Internet, those with computers at home wanted high speed Internet, digital cameras, color printers and software that they used at the centers. They realized that their computing experience in the home was inferior to the experience that they received at the centers. Bill recounted his experience at a local Best Buy electronics store:

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.

The LaGrange Tale

LaGrange, Georgia is located 60 miles southwest of Atlanta. Approximately 27,000 residents live within the city limits with another 30,000 residing in the

surrounding county. LaGrange was unique for the reason that operations were financed largely by sales tax and utility revenues, which allowed the city to operate without having to levy property taxes. Of the city's \$70 million budget, approximately three quarters was financed by the "enterprise fund." The revenues in this fund came from the provision of non-traditional government services such as utilities. Services provided by LaGrange that contributed to the enterprise fund balance included natural gas, electricity, sanitation, and the provisioning of telecommunications services to commercial and residential customers. The Internet TV initiative used digital set-top boxes, which gave residential subscribers access to digital cable TV services from Charter Communications. The Internet access service was provided to Charter by WorldGate Communications Inc. and operated much like any other channel such as a sports or news channel. In locations outside of LaGrange, the WorldGate service was typically offered to a cable company's customers as a premium service for a fee ranging from \$4.95 to \$16.95 per month. In LaGrange, however, a financial arrangement between the City, Charter, and WorldGate enabled citizens to obtain the service free of charge (that is, no additional charge beyond that required for basic cable TV). The WorldGate system operated using a thin-client architecture with a television, wireless keyboard, and digital set-top box working together to provide input and display functions. The user was presented with an interface similar to that of a traditional Web browser.

LaGrange Mayor Jeff Lukken was credited with the idea of offering it for free to city residents. He explained:

If I charged for this, the people that would come up and pay for it would be those that could afford it that already had computers and the Internet in their home.

The WorldGate system was made available to city residents beginning in June 2000. By April 2001, 4,137 out of 9,100 eligible households had ordered and installed the WorldGate system. City officials had hoped the demand for the system would be greater, somewhere closer to 6,000 - 7,000 units. In conjunction with the rollout, three training videos were developed through a partnership with a local university and were broadcast on the cable system. These videos covered e-mail use, a general explanation of how the Internet could be used in daily life, and basic keyboarding skills.

The discourse adopted by the leadership of the LaGrange Internet TV initiative conveys the belief that ICT skills would facilitate the economic development of the community and its most disadvantaged residents. The intent was to encourage workforce education for unemployed and underemployed citizens. Officials believed that the value that computer skills could provide to economically impoverished residents was greater than the value that would be provided to more affluent residents already familiar with technology.

City officials expressed both surprise and disappointment that interest in the Internet TV initiative was low among this target group. The city manager of LaGrange explained:

There's much greater hesitancy towards embracing technology in our poorer areas than in our wealthy areas. What we've found is just hesitancy, a lack of understanding, a lack of appreciating what it potentially means and breaking through that. We went to a public housing project along with U.S. Senator Max Cleland. It was sort of a little tour of what we were up to; he said some really nice things in Washington about what we were trying to do. We went door to door with our installers on Saturday at a public housing project and nobody was interested. I don't know exactly what the problem is, but to some extent we're missing our target audience. I think it's our biggest concern or disappointment. You can look at the street addresses. All these areas here [pointing to a map] nobody deployed. These areas are right around our public housing projects.

Most of the people the researcher spoke with were proud of the recognition that LaGrange had received from the initiative, but some were skeptical about whether the City should continue to fund the initiative. In fall 2003, as WorldGate faced a financial crisis, the service was discontinued, marking a natural end to the experiment that had unfolded in LaGrange.

Habitus

Residents responded to this initiative in a number of ways that are best described as dispositional. For instance, many participated out of curiosity. As Ms. Williams, a LaGrange resident who owns a PC but did not use the Internet TV system, explained:

It [the Internet TV system] piqued the curiosity of those who really wanted to learn the Internet but didn't have resources or access to it. That is what it does. There have been several people I know, that have it in their homes that actually enrolled in West Georgia Tech and enrolled in classes about computers. I think that was a positive thing for those people with a mind to explore.

Positive dispositions towards technology, however, proved to be difficult to cultivate in communities that have been historically underserved. Fewer than expected households in the target community adopted the technology. LaGrange city council member Willie Edmondson, who represented the district encompassing the public housing project, explains the importance of awareness and perceived benefits as he describes the lack of participation by residents in his district:

I would think that they would have jumped on it. [I guess] if people feel like they don't need it, they won't get it. So that is one thing we have been doing educating our people. That it is a benefit not just for you, but also for your children. You might not need it but your children need it or your grandchildren or your nieces or nephews, those that can't otherwise afford it.

Tonyka Bartley was one of the residents of the public housing project in LaGrange who had adopted the system. She believed there were several possible reasons adoption was not widespread: many residents did not know about the system, they thought it was a gimmick, or they just chose not to participate because they may not have realized the benefits. She estimated that around 5% of the people she knew had the system installed.

Gwendolyn Clinton, Community Activity and Social Services Director, suggested that perceived ease of use and self efficacy help to explain adoption rate:

I think it's kind of intimidating to a lot of people. I think it's technology, people are resistant to change and just being unsure. I speak with people from various age groups. With most of the older people, they feel they won't ever be able to do that. No matter how much you say: 'it's very easy, just push that button,'-- they are kind of resistant. The younger group finds it fascinating. They're not as intimidated as older groups.

Cultural Capital

In LaGrange, cultural capital was often expressed as frustration experienced when the system was not operating reliably. The city manager believed that initial problems with the equipment might have limited adoption and use. Lorraine Golden, a city of LaGrange resident, was an early adopter of the system and used it three or four times a day for e-mail and research. Prior to using the WorldGate system, Golden had little experience with the Internet and ICT in general. Her reaction to the system was fairly typical:

I think it's a wonderful thing for people who can't afford a computer. I'd say that it's a great thing the city did education wise to get people aware of computer

life . . . However, there are a fair amount of outages. Sometimes when it goes out at the wrong time it's frustrating, like when you are making flight reservations. I would say I am satisfied with it 75% of the time; the other 25% of the time gets a little frustrating . . .

Some people that I have talked to say if they have to pay for it they are not going to continue the service. It's like cable TV; if you're paying for something, you expect it to be working all the time. One thing I do miss with the web is not having a printer. Eventually, I will probably get a computer, because I have enjoyed it that much.

In speaking with a number of citizens, the researcher got the sense that there were many who had adopted the technology and were relatively satisfied with it, but that many had opted not to adopt it. For instance, Gwendolyn Clinton, Community Activity and Social Services Director, and Ms. Hudson, a LaGrange resident who did not use the system, both indicated that they had access to a personal computer (PC) and found that to be preferable to the Internet TV system. When asked why she preferred the PC to the Internet TV system, Clinton responded: "Because I like to print (laughter). That's it. That's the main reason." Internet TV also did not allow for local storage capability and did not support web-browser plug-in software. In addition, the system did not compare to the data rates that could be obtained with a cable modem or a DSL connection. In general, those who had access to PCs found them to be preferable to the Internet TV.

Social Capital

Bourdieu's concept of social capital places an emphasis on the power of social agents to advance their interests by leveraging social relations. Trust is a precondition of social capital, and people base their commitments on trust. Bartley, a resident in LaGrange, for instance, saw the need for respected community leaders to build trust in and maintain momentum for the Internet TV initiative. These leaders are insiders within the community who understand the needs, motivations and challenges faced by residents:

As far as this community, it would be helpful if you made sure some key people in the community have the Internet. I have found it works for me. In every little section, there is a leader that emerges. That leader, I can go to every apartment unit and put my hand on the person who lives in that section that is going to be the one who keeps their ear to the ground. He/she will go back by word of mouth and tell what is going on. If we could get those people to use the Internet and just talk in their little group, I think we would be able to expand it. More door-to-door contact and

feeling more comfortable or more trustworthy of the person giving you the information would be helpful.

Trust can also serve as a barrier to the adoption of technology, even when the power relations favor the dominant agent. In the following narrative, Nick Woodson, a city council member, explained how mistrust of government limited the uptake of Internet TV:

[Some people] didn't want it because they thought we were spying on them. I mean that sounds funny, but they really do think that you are spying on them . . . they don't trust us.

Economic Capital

In addition to mistrust of government, some residents were slow to embrace the LaGrange Internet TV initiative because the service was promoted as being “free” when it really was not. To get the “free” system, one must already have or be willing to pay for basic cable TV at a cost of \$8.70 per month. Gwendolyn Clinton, Community Activity and Social Services Director, believed that lack of basic cable TV services was an obstacle in the public housing project: “It’s free if you have basic cable. I’m not sure that a lot of us have that.”

While every resident that we spoke with was supportive of the city’s initiative, they were also quick to point out that if the service were not free to those with basic cable service, there would be limited demand for the system. As Ms. Williams, an after school activity aide and resident of the public housing project, explained:

I did a survey of 50 people for my class. About 10% of these were elderly people in my class. If it was not offered free, they would not have it in their house. If it was not free, they would not pay for it.

The lack of interest in paying for the service is consistent with the results of a survey conducted by Youtie, et al. (2002) which showed that only 16% of the households would retain the Internet TV if they had to pay for it.

While some residents were concerned that the \$8.70 per month fee for basic cable was cost prohibitive or that the city would eventually begin charging an additional fee for the Internet TV service, the city manager failed to see cost as an obstacle.

I do not believe that it is a lack of availability of cable. Under the existing franchise every home has to be served with cable if the customer requests

it. I do not believe the \$8 per month is the reason that folks in these [low-income] areas are not deploying.

RQ2: Effects of the Digital Divide

Policy makers and city officials in Atlanta and LaGrange have accomplished much by providing access and training to underserved communities. In LaGrange, Youtie, et al. (2002) estimate that the Internet TV was adopted by 4000 households (a penetration rate of about 40%), and 2,300 of the household adopters did not have prior access to the Internet. In spite of these achievements, we found that providing access to computers and the Internet—even access that is delivered “free” to the home—is insufficient to fully address the digital divide. Nearly 3,100 households remained in the “off-line” population, either quitting the Internet TV service (1,350) or never adopting the service at all (1,600) (Youtie, et al., 2002).

In LaGrange, city officials were obviously proud of what they had accomplished, yet at the same time they were concerned that more people were not using the Internet TV. As city council member Willie Edmonson put it:

[I'm] not real comfortable. I wish that everybody in the city of LaGrange was on it. We don't have as many people connected at this time as I would like to see.

The North end of town is much more affluent than the South side of town. That's where we have most of the disenfranchised people . . . poor people over in that area. Penetration is better in the North side of town.

City manager Tom Hall also expressed surprise and concern that they had not achieved more:

Two-thirds [penetration] was a number [we] pulled out. We thought we would get that. I don't know that we'll ever get there with this particular product--not until we generate interest at the low end of the socio-economic scale. We say we were a little disappointed, cause that was the target audience. We really thought the folks without computers were going to jump all over it. And what we learned is that the digital divide is not necessarily an economic problem exclusively, because economics are not a part of this deal. The problem exists on a host of levels, money is one of them, desire, interest, willingness to learn is another part of it.

Since the conclusion of this study, the LaGrange initiative has been terminated. WorldGate, the company that served as the Internet Service Provider (ISP) ceased to offer their service and the City of LaGrange did not have an alternative supplier that could provide the service over the same infrastructure. While most residents view the program as a gift, a few are bitter that the program has ended.

The Atlanta initiative was more successful in reaching their target population. Over 15,000 residents made use of the centers during the first 18 months of operation. The executive director offered several reasons for the programs success.

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 are cold, dull, and dreary. Residents are not treated like they are faceless numbers or unreasonable, over demanding taxpayers.

While policy makers in Atlanta seemed pleased with the outcomes achieved, they do not plan to continue the effort indefinitely. Their strategic plan and initial funding were designed for a five-year program. After five years time, it was believed that everyone in the target population would have had the opportunity to take classes at the center. The goal, according to the executive director, was for “the program to be so effective it goes out of business”. At that point, the city could determine what aspects of the program are still needed. The Atlanta initiative is still operating and continues to innovate with the creation of a citywide Wi-Fi network, Community Web-Portal, Community Kiosk program, and a Community Youth Portal.

From a reproduction perspective, however, the outcomes are more nuanced. City officials in both sites exerted their symbolic power by creating digital divide initiatives that are informed by taken for granted beliefs about technology (cultural arbitrary), encouraging target audiences to see their position “on the wrong side of the digital divide”, and providing participants with training which would enable them to assimilate into a computing culture (symbolic power). ICT is a product of Western spirits of innovation and invention, and as such is not culturally neutral (see Kvasny and Truex,

2001 for a discussion of symbolic power and ICT in the US). After observing and participating in the classroom environment in Atlanta, one leaves with the impression that “standard” curriculum from corporate vendors and other interested parties were not adapted to meet the unique needs of the community. For instance, one project that is used when teaching Microsoft Word asked participants to create flyers for a ski resort. The document has a picture of a blond woman with ski gear speeding down a slope with the caption “Feel the Thrill, Ski the Slopes”. This lesson represents a highbrow recreational practice which was culturally foreign to low-income participants in a warm southern climate with little or no experience with skiing. It serves as a small example of how digital divide interventions need to carefully consider the social milieu of the intended benefactors of the program.

Although many were hearty supporters of both programs, some residents reacted by not participating while others dropped out. An instructor in Atlanta noted that males, in particular, dropped out of the program due to a lack of motivation for learning.

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 play games. There is no real motivation to learn.

Based on the researcher’s observations in the classroom, the lack of motivation may be explained as a lack of autonomy when using computers. Many of the young males had basic computer literacy skills but all of their computer access was obtained in institutional settings such as schools, libraries and community technologies centers that limit their use. Thus, the young men had very low autonomy or time to explore and gain new skills. When they attempted to multitask and surf the net or play games during class, the instructor would ask them to stay with the class and not go off on their own. A system administrator also encouraged the instructors to limit some of the youths’ computer activities.

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 [operating system].

Participants experienced gains in social and cultural capital, but were still unable to gain full access to the advanced economic opportunities increasingly critical to social inclusion and mobility in the U.S. The instructor noted that many participants hoped to leverage ICT skills in the labor market.

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. 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

Thus, the digital divide initiatives represent a light training mechanism for cultivating computing skills (cultural capital), providing free access (economic capital), facilitating social relationships (social capital), and influencing positive dispositions towards ICT (habitus) in individuals. While individuals expressed the desire to move beyond what could be achieved in these digital divide initiatives, we saw no evidence of any collective action that would facilitate social change. Thus, we heard city leaders speak of cyber rights, but saw no political process aimed at breaking down the structural barriers that limit human agency. In fact, the LaGrange residents are back where they started in the sense that the experiment has ended. It is disheartening to raise the hopes of underserved people, have them believe in ICT and work hard to learn computing skills without gaining the social, political, and economic advancement that they expected. Valdez (2000) contends that it doesn't matter how well participants accepted the professed ideology of greater employment opportunities for people with computer skills, because this ideology does not provide solutions for overcoming the structural constraints of racial, geographic, and class bias. These oppressive structures won't disappear unless the objective conditions for change occur. These objective conditions include not only computer training, but also transportation, reliable computers and Internet connections, basic literacy skills, meaningful jobs, and the autonomy to find culturally salient uses of ICT. One Atlanta participant became rather bitter when reflecting on the structural barriers.

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 [expletive deleted].

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?

And while this participant sees the Internet as representing White, middle class strivings that he can't achieve, most were not as disheartened. However, they still acknowledged that digital divide initiatives have only provided marginal benefits. One participant in Atlanta noted:

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.

RQ3: Recommendations for Future Municipal Digital Divide Initiatives

While the digital divide has been the subject of much debate, few empirical studies examine how policy makers have approached the issue and whether their initiatives will ultimately be successful in addressing the problem. What can we conclude from the experiences in Atlanta and LaGrange? There are both scholarly and public policy implications. From a scholarly perspective, the systems rationalist approach is important for highlighting broad patterns and trends. In fact, it was just these types of studies that helped to initially identify and quantify the digital divide. However access oriented interventions alone are not likely to redress the digital divide. It is here that we find empirical support for Kling's (1980) assertion that a segmented institutionalist perspective provides a more useful lens for understanding the social impacts of ICT in complex social worlds characterized by considerable inequities of wealth, power, computing resources and expertise. This perspective enables us to find adequate theories to explain why the proliferation of "free" computers and Internet access regardless of mode of access (home or public) may be problematic for public life, and thus better understand the vulnerability of the target populations. It also enables us to explain the conflicts that may limit ICTs role in contributing to broadly desirable social outcomes. These conflicts include socio-economic class, history, race, and legitimate uses of ICT.

From a public policy perspective, attention has been largely focused on access, training and the economic costs. However, both cases provide rich insights into why the digital divide remains a persistent problem in spite of sincere efforts to include impoverished communities. To understand the digital divide, we contend that attention must also be paid to the *social* aspect of the problem. Kling (1998) defines social access as the abilities of diverse organizations and people from many walks of life to actually use the services offered by these municipalities. Social access will be critical if computers are to move from the laboratories and pilot projects into widespread use where they can improve the life chances of the world's most disadvantaged people, nations and economies.

Reproduction theories tend to see education as creating docile bodies and reinforcing people's place in society. Humanity is stolen from historically disadvantaged people as they come to be seen as have nots, the unemployed, and the urban poor. This loss of humanity creates a "fear of freedom" in which people acquiesce to an unfair system.

However, education can also be a "practice of freedom" with the potential to transform rather than conform (Freire, 1970). To promote transformative uses of ICT, designers of community technology initiatives should enter into dialogue with the people to construct alternative representations of working class subjects and uses of ICT, not to win them over with training programs that reinforce the status quo. The working class should not tacitly accept the dominant class values, but critically interrogate their class position and engage in self-actualizing activities that will enable them to integrate ICT in their everyday lives. The awakening of class-consciousness is often bound up within a process of rehabilitating and rebuilding self-esteem, and reaffirming cultural dignity (Freire, 1970; Giroux, 1983; hooks, 1994). It is transformative in that it inculcates the habitus by forcing the agent to critically reflect upon arbitrariness of the symbolic power being exerted upon them. Agents can then resist this symbolic power, and begin to find ways of using ICT to support the issues that are important to their social life situations such as employment, housing, environmental, safety and transportation.

Thus, we must respect the particular point of view of the world (habitus) as well as the social and cultural capital held by historically underserved people. We must

genuinely engage with them so as to understand the nature of their objective situation, raise critical awareness of their situation, collaborate to realize alternatives, and create localized interventions for bringing about change. For residents and organizations in these target communities, computers represent an unrealized opportunity for strengthening linkages to existing workforce development programs, adult education programs, child and elder care programs, transportation, and other social services that enable participation by people who have been historically disadvantaged and excluded. Engagement along the lines advocated by Freire provides a path for how municipalities can promote social access to ICT.

The LaGrange Internet TV initiative is a powerful reminder that social access cannot happen in a vacuum. A persistent divide exists even when cities are giving away a theoretically “free good” or service directly into the home because historically disadvantaged users generally have fewer family members and friends with technical expertise. Thus, they possess less of the social and cultural capital needed to sustain effective computer and internet use. In Atlanta, novice users benefited greatly from the technical assistance and encouragement that they derived from the social networks that formed in the classrooms at the Cyber Centers. When faced with technical problems, participants would often times bring in their computers, or ask the instructors questions about upgrading and purchasing PCs. Perhaps some of the slow uptake in LaGrange can be explained by the lack of opportunities for people to learn collectively, to share knowledge and skills, and to build social relationships.

In addition to relationships that facilitate the flow of social and cultural capital, the quality of training and opportunities for continued use also broadens social access. Kvasny (2002) observed that the most disadvantaged social groups face significant barriers to effective computer use. Often times, they have received fewer years of formal education, work longer hours, and have less experience with computers on their jobs. They are also exposed to technology training for the shortest length of time. These short courses leave upon participants the stigma of “catching up”. Digital divide initiatives must therefore supplement their basic training with more advanced learning opportunities in various formats such as self-paced training software, instructor-led training, and online

courses. Residents must also become more proactive in seeking out advanced training that builds upon the basic skills, if they are to compete effectively in the labor market.

CONCLUSION

In this paper, we employed Bourdieu's theory of cultural and social reproduction to inform our study of digital divide initiatives in two municipalities. Our findings suggest that isolated initiatives like those in the two cities, which are focused exclusively on technology access and training may only have limited success unless some prerequisite requirements are met. Since most participants in these initiatives were motivated by perceived economic benefits and employment opportunities, we speculate that these prerequisite requirements should include a decent quality general education, which must include mastery of arithmetic and simple algebra, spelling and associated reading/writing ability, and vocational skills that are generally expected from a competent work force. Without an adequate vocational education, participants are not likely to obtain meaningful and reasonably paying jobs even if such were available. Computer literacy must be built on top of a solid basic education, but cannot replace it².

Social reproduction theories provide a conceptual lens for examining the role of educational institutions in creating and perpetuating intractable problems such the digital divide. Habitus, cultural capital, social capital and economic capital were used to frame our understanding of city officials' motivations and objectives for creating digital divide interventions, as well as citizens' responses to these programs. Through our analysis, we problematize taken for granted notions about the ability of ICT alone to redress uniquely human problems of social justice and equity.

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² This insight was suggested by a reviewer for this paper.

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