DIGITAL DIVIDE 2.0

AFRICAN AMERICAN COMMUNITIES AND LIBRARY RESOURCES IN ILLINOIS

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ABSTRACT

In the information era inequality is increasingly dictated by a myriad of issues related to both access and use of computer and internet technologies. Mere access to the web is an indisputably insufficient claim to equity; attention must also be paid to issues such as autonomy, skill, purposes, and perceptions related to technological access and participation in cyberspace. The final—and still yet emerging—barrier to equality is termed here as *Digital Consciousness*, a state of being which most digitally disadvantaged populations have little opportunity to develop. This is understandably so as the recipe for such an understanding includes socialization, digital literacy, and a realization of self and structure in the modern web. All of these factors are dependent upon both access and use. To develop a *Digital Consciousness* a person must have avenues and contexts available that provide these ingredients. The library is one potential space for this, but it is unclear to what extent contemporary libraries effectively facilitate this process.

The inequalities that African American communities have endured historically have been harsh, and digital inequality is no exception. To truly remedy the digital inequality for the African American people and other disadvantaged populations we must call for extensive change; a social movement situated within the context of the information revolution. This movement must embody cyberdemocracy, collective intelligence, and information freedom, each of which is dependent upon *Digital Consciousness*.

This report assesses the computing and internet resources present in numerous Illinois public libraries that serve African American populations. Library outlets are evaluated for their capacity to enable patrons to develop *Digital Consciousness.* The study finds that while libraries do a moderately good job providing basic resources for connectivity, creation, and the reception and production of knowledge, they do not live up to the potential that they could be. The paper concludes with discussion about how to best address challenges and start crafting sustainable and effective solutions.

KEYWORDS

Digital divide, libraries, black communities, digital content, authorship, digitization, Illinois

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INTRODUCTION

In recent history we have seen the progression from a primarily industrialized modern American society to a global, fluid, and fast paced information era that encompasses virtually every aspect of our lives. Production and consumption, exchange and ownership of information, and even our perceptions of identity and community have all experienced paradigm shifts with the coming of the information age. Some contend that we as a society are in the midst of a revolutionary experience—a fundamental transformation of the *"basic nature of society and the conditions for life itself"* (Alkalimat 2004, p. 3). The availability and specialization of information has skyrocketed as the internet has become an increasingly ubiquitous aspect of the first world. Just as people of the past came to depend and thrive upon electricity, the information revolution occurring developed world is now driven by information technology. For most people in the U.S. computers have become directly associated with the internet, and many other devices such as cell phones, TV's, mp3 players, and more have begun to follow suit. The new forms of media embedded in and enabled by the internet open up a new world of innovations, expressions, relationships, and communities. Perhaps more than ever before, the heterogeneity evident in the U.S. (and international) social mesh calls for new potentially revolutionary and anti-disciplinary models of epistemology and analysis.

Critical theory rather curtly brings us to a halt, however, when considering the state of affairs wrought by the coming of the information age. In a world so interconnected and tumultuously diverse not everyone shares the same experience with information technologies. The "Digital Divide," a contested term that arose in the mid-90's, has become a commonly adopted[1] conceptualization of the inequalities that have surfaced in light of the information revolution. Though the term often refers to the level of access to technology it also fundamentally relates to issues of *"workforce development, architectural and urban planning, youth and social welfare, and […] education"* (Alkalimat 2004, p. 1). Issues of inequality and disadvantage are quintessentially intersectional in nature, but increasingly information technology is becoming an even stronger factor of influence. Researchers have examined the internet for its substantive influences on community and social capital, political participation, organizations and economic institutions, cultural diversity and participation, and more (DiMaggio et al. 2001). Indeed, with the coming of Web 2.0[2] most scholars now agree that the internet has reached a point of ubiquity and merits increasingly thorough and specialized studies (Lievrouw 2004, Haythornthwaite and Nielson 2007). If disadvantaged (or disenfranchised) populations are ever to reach full (or even partial) equality they must remedy the digital divide, or as will be explained, fully address digital inequality.

The plight of the African American people is thoroughly rooted in a history of struggle (Alkalimat 2004). The process of industrialization and globalization, taking the form of colonialism (and later neo-colonialism) has fueled the oppression of nearly all of those of African descent. A legacy of slavery and institutionalized racism, from the overt Jim Crow laws to the covert real-estate discrimination during the formation of modern suburbia, has left the African American people in particular as one of the most oppressed and impoverished groups in America. The Civil Rights Movement sought to fight overt institutional discrimination, and in many ways succeeded, but Black people today still start off with

[1] See Cyberorganizing (2004) by Abdul Alkalimat for a comprehensive history and explanation.

[2] Taken to be a feasible term here, Web2.0 can be considered a technological turning point in the history of the internet, though there is little consensus as to when web 1.0 ends and 2.0 begins. Generally people use the term as a way of referring to dynamic user-driven and collaborative web services. A formal definition might include activities that include content creation and interaction, the triumph of Flickr and Photobucket over Kodakgallery, Wikipedia's thorough domination over Encarta, and the replacement of personal websites such as Geocities with social networking services like MySpace and Facebook (Madden and Fox 2006).

fewer resources and opportunities and face many new kinds of discrimination. One such form of discrimination comes as digital inequality; economic and educational conditions that force the need to depend on public computing and internet resources. African Americans, as a people, however, have proven to be incredibly resilient and adaptive and have maintained a strong cultural identity over time.

The issue of the digital divide and struggle of the African American people collide to create a point of conjecture: a drastic need to keep up with the new fleeting and emergent information society and an opportunity for social and economic mobility fueled by the internet. This complexity is an issue of community informatics and cyberpower,[3] as it needs to be fundamentally motivated and engaged by the African American community and also requires consideration of the role that information technology plays in determining social equity.

Libraries remain a social service institution that is of particular value in affording (providing) the means to overcome the digital divide to the African American population. This paper calls for a thorough assessment of the extent to which they execute this mission and examines several Illinois-based African American populations and the libraries that serve them. Though it is only exploratory it (crucially) seeds the ground for future in-depth and extensive studies on the topic.

The structure of this paper is loosely[4] based on what is known as the D-7 method. This means it first (1) **defines** a social issue, which in this case is the digital divide (or inequality), the context of the contemporary African-American community, and the role of libraries in bringing about technological change for this community. A series of research questions are proposed thereafter to explore and evaluate computer, internet, and correspondent policy and staff resources in libraries across Illinois. This is followed by an explanation of the (2) **data collection** process and dual (two-way) (3) **digitization**, which in turn leads to (4) **discovery**. Issues of (5) **design** and (6) **dissemination** are also discussed and the work leaves off on a note of the (7) **difference** all of this makes.

DEFINITION

THEORY AND LITERATURE REVIEW

To understand how the digital divide (inequality) and the African American community relates to libraries one must first overview some of the theory and literature pertaining to each. The following sections give an introduction to these topics.

THE DIGITAL DIVIDE

As mentioned in the introduction the digital divide refers inequality of access to information technology and the internet—a dichotomous gulf between the technological "haves" and "have-nots." (DiMaggio and Hargittai 2001). This simple duality, however, insufficiently captures the complicated socio-technical mesh of people and ICT's. Just because a person has access to the web doesn't mean they are

[3] A term flushed out by Abdul Alkalimat in *Cyberorganizing* (2004), it refers to skills that contribute to individual, social, and imaginary (visionary) development; the needs for total equality.

[4] Some sections have been shifted around to better reflect the natural flow of the research process. Some are considered less important than others but all are present and accounted for in the analysis.

still able to participate in equally in the contemporary[5] information society. DiMaggio and Hargittai first problematized this issue in 2001 by introducing the concept of "Digital Inequality." They chose to operationalize this notion through five dimensions:

1) **Equipment**, defined as the adequacy of hardware, software, and internet connection. Since computer standards change so quickly it remains a high priority to be able to deploy and interface with the latest technologies.
2) **Autonomy**, defined as the amount of control a person has over their use of a given ICT. Access within the home might be the optimal level of autonomy, whereas access in workplaces or public spaces might be mediated by a myriad of factors, informal or systemic, social or technical.
3) **Skill**, defined as blend of a user's varying education in regards to technology. This might include relevant competencies such as ritualized knowledge ("recipes" for how to accomplish tasks), background knowledge (knowing something about the workings behind the scenes of interfaces), integrative knowledge about how the web operates on the whole, and technical/critical knowledge of the various elements of interaction (hardware, software, and effective troubleshooting).
4) **Social support**, defined as the availability of technical assistance when a given user reaches the limits of their own knowledge or skill.
5) **Purpose**, defined as the variance in the use of technologies and the web; all utilizations may not be considered equally important or valid.

This model of technological inequality is a significant step forward from the simple binary first proposed in the 1990's, however it is still lacking in its coverage. Constance Elise Porter and Naveen Donthu (2006) provide a satisfactory supplement and update to the DiMaggio/Hargittai model by examining the role perceptions make in determining digital inequality. They find that perceived ease of use and perceived usefulness help to explain, in part, the lower numbers of participation in older, less educated, lower income, and ethnic minority populations. They also make several informed suggestions for the formation of new policies, such as the integration of access tools into familiar or preexisting ICT's (like say, televisions and cell phones), increased emphasis on training programs that assess attitudes and psychological needs (learn at your own pace programs), reducing the price of broadband, implementing trade-in programs to lesson fears of rapid technological obsolescence, and offering no-strings attached trial periods to let users determine usefulness and ease of use for themselves (Porter and Donthu 2006). Effectively, perceptions can act as a 6th dimension of digital inequality, but even this six point model doesn't quite fully capture inequality in cyberspace. To complete the model the author would like to offer a collage of concepts that embody what is termed *Digital Consciousness*.

DIGITAL CONSCIOUSNESS

Digital Consciousness refers to a consummate and immersive access relationship with the internet and ICT's. The concept is perhaps best explained as a blending of two forms of access pioneered by Adam Banks in his book *Race, Rhetoric, and Technology* (2005). Banks follows Hargittai's model by outlining

[5] The use of this modifier is intentional and purposed. The information age of the 1990's was not contingent on the internet, however the dawn of the new century brought with it this new layer of technological dependence.

material access (equipment) and functional access (skills). Additionally, he adds experiential and critical access to the list, which deviate from the six point model previously explained. Experiential access refers to access to tools in a capacity that makes them relevant to a person's life. Furthermore, people must be involved in *"the spaces where technologies are created, designed, planned and where policies and regulations are written"* (Banks 2005, p. 42). Critical access resides in one's ability to critique tools for their relevance and effectiveness. *Digital Consciousness* is dependent on both of these categories and more. It's not just a question of knowing and questioning the relevance of internet technologies, but automatically and intuitively thinking critically *with* them. The process of developing *Digital Consciousness* (the last layer of digital inequality) involves upbringing (socialization), literacy, and the rectification of self and structure online.

UPBRINGING AND SOCIALIZATION

Users who grow up in contexts interlaced with the internet have different perspectives relating to self, family, and real and virtual communities that enable them to be more at comfort in cyberspace (McMillan and Morrison 2006). Sally McMillan and Margaret Morrison explore the impacts and implications of this in their piece *Coming of Age with the Internet: A qualitative exploration of how the internet has become an integral part of young people's lives* (2006). The study required over 70 college students to write autobiographical accounts about their experiences on the internet. Many students found the internet parallels their active and passive development of self as they determined their identities growing up. Most participants felt the internet was an active place of participation where they could solidify their offline identities and utilized an instrumental more than hedonic approach in their exploration (McMillan and Morrison 2006). Students acquired skills more so on their own then from the aid of educators, parents, or other outside forces because they found motivation as a result of relevance of the internet to their everyday lives. McMillan and Morrison's study, in agreement with numerous others, found that most of the time youth were not concerned with radically altering their personality online and felt their identities on and offline were not substantially different.

In regards to older internet participants, McMillan and Morrison's study found the family was partitioned into two halves – the young and the old. Siblings and other younger family members were perceived as insiders embedded in the social webbing of the net and acted as catalysts for the learning and usage of technology, whereas parents and older persons were classified by respondents as hesitant and less capable users who were seen as lacking confidence and sometimes were even 'afraid' of the internet (McMillan and Morrison 2006). In contrast, the youngest generations were viewed in positive terms as they were fated to grow up even more so immersed in new media. Last mentioned in the McMillan-Morrison study was that though the internet was considered fundamental in sustaining and enhancing real communities, the medium spurred profound impacts in student conceptions of community – enabling them to connect to global and virtual social groups in ways previously unknown. Some respondents in McMillan and Morrison's study even expressed definitions of community or society determined by technology; their grandparents and parents generations were defined by telephones and the television, and their generation was hallmarked by the internet. This kind of outlook sounds almost reminiscent of technological determinism, suggesting that the sheer gravity of perceived influences of the internet is a significant factor of socialization. Most respondent portrayals of the internet found themselves housed in the utopian/dystopian dichotomy, either hating or loving the impacts and wonders of virtual and global communities. Inherent to every level of analysis was a certain level of dependency on the internet – respondents typified a life built and fueled largely upon access and usage of the web. Details aside, the on-going theme was the emphasis and notability of the internet and its integration into daily-life; students were thinking naturally with the web in mind.

The development of *Digital Consciousness* may start at an even younger age, however. Child's play is sometimes denaturalized and seen as a problem, and yet this is potentially part of battling the digital divide (Sandvig 2006). Understandings of the internet's purpose are often restrictive when considering early youth development. Authorities in schools and libraries often presume computers have a specific purpose, or as volunteers at one CTC for children regarded them, are *"essentially a transmitter of important information that is to be learned"* (Sandvig 2006). This ideology is problematic because it qualifies important information as types of a non-recreational sort. Games and play are all too often chastised as inappropriate or inefficient uses of ICT's. In the same venue use of MySpace by teens in libraries ought not to be seen as atrocious or inappropriate behavior. Certainly some uses of such cyberspaces might be problematic, but on the whole it's one of the places now-a-days that teens grow up and experiment with who they want to be.

While games and play might not match educator goals precisely they may still address digital inequality. Play can be considered a form of computer literacy (to an extent) and may influence hand-eye coordination or problem-solving skills but it is unclear as to how much more effectively such tasks can be done on a computer than in other, less expensive or involved non-electronic forms. Even still it would match Bank's notion of experiential access, and from an early onset help to build *Digital Consciousness*. Instead of inappropriately applying old-world values to children's practices it may be better to set realistic expectations in the formation of policy.

LITERACY

Digital Consciousness also involves a degree of digital literacy. Hawisher, Selfe, Moraski, and Pearson (2004) explore the complexities of digital literacy in their piece *Becoming Literate in the Information Age.* In the work they outline several key themes:

1. Literacies have life spans.
2. People can exert their own powerful agency in, around, and through digital literacies.
3. Schools are not the sole—and, often, not even the primary—gateways through which people gain access to and practice digital literacies.
4. The specific conditions of access have a substantial effect on people's acquisition and development of digital literacy. Access is best understood as part of a larger cultural ecology.
5. Families transmit literacy values and practices in multiple directions. Information about or related to literacy flows from young to old (and vice versa) and from electronic to print (and vice versa).

(Hawisher et al. 2004).

This set of themes holds several implications. First and foremost, it supports the notion that *Digital Consciousness* is something new. If literacies have life-spans and new forms of literacy are required in the information era, then the *Digital Consciousness* is an embodiment or inclusion of those. One's capacity to influence and understand (realization of *Digital Consciousness*) also involves literacy. Schools are one place where the skills for digital literacy might develop, but there are many others, such as libraries. Youth are growing up in an increasingly networked world, as danah boyd[6] explains in her presentation *Information Access in a Networked World* (2007). According to boyd they acquire information in three ways, osmosis, push, and pull. Osmosis refers to the ability to pick up information

[6] danah boyd has legally changed her name to all lower-case. See http://www.danah.org/name.html for a full explanation.

passively in a world more saturated by media than ever before. Push is the process of getting information directly in a purposed fashion from teachers, media, peers and family; the usual suspects when it comes to socialization. Pull is information or content that individuals actively seek in an interactive fashion. Wikipedia might be a good example. To understand it, according to boyd, involves knowing how to *"(1) understand the assembly of data and information into publications, (2) interpret knowledge, (3) question purported truths and vet sources, (4) analyze apparent contradictions in facts, and (5) productively contribute to the large body of collective knowledge."* (boyd 2007). *Digital Consciousness* involves the ability to fluidly translate the offline to the online, be it print media to electronic media or face-to-face values and concepts to digital values and concepts.

The humanities and social sciences are becoming increasingly tied to the discourse happening on the web. The report *Our Cultural Commonwealth* (2006) by the Learned Societies Commission on Cyberinfrastructure for the Humanities and Social Sciences explains the importance and transition quite aptly:

> *"As more personal, social, and professional time is spent online, it will become increasingly important to have an online environment that cultivates the richness of human experience, the diversity of human languages and cultures, and the full range of human creativity."* (Our Cultural Commonwealth 2006, p. 2).

If disadvantaged populations are to play a role in shaping this new cyber infrastructure (and ensuring it remains truly authentic and diverse) then they must be a part of the authorship process. Equality in terms of *Digital Consciousness* must involve learning to master the strengths of social sciences, *"clarity of expression, the ability to uncover meaning even in scattered or garbled information, and centuries of experiences in organizing knowledge"* (Our Cultural Commonwealth 2006, p. 2) in cyberspace.

Realization of Self and Structure

The last portion of *Digital Consciousness* involves a realization of self and structure. Those who learn to think *with* the internet are able to reconcile their place within cyberspace. This might be a compatibility or equivalency between digital and offline identity, as McMillan and Morrison (2006) mentioned. It may also be an investment in digital technologies of self, such as characters in interactive environments like 2nd Life or World of WarCraft or as profile identities on social networking services like MySpace or Facebook. Increasingly those growing up online are constructing their identities in these arenas of performance (Ginger 2008). Through the experience of growing up with the internet (as well as *on* the internet) and developing intuitive and learned digital literacy people become digitally self-aware; they command an understanding of their digital selves in its many forms and its many relations to identity (offline or otherwise).

Realization of structure could manifest in the form of comfort with the *Permanently Beta* nature of the web. 'Beta' is a technical insider term for software or hardware that is experimental and available before formalized release. Beta products are similar to the final products but are in practice a way to get users to test the hardware or software before its official debut in the world. The modifier beta, however, is only half of the pairing. New routines and methodologies have been encoded into contemporary (web2.0) usage of the internet and values embedded in web technologies continually become evident in the development of technologies. Principles such as openness and control, marketplace and community, and more make up the structure of web2.0. The permanency of beta is an ideology and value characterized by Gina Neff and David Stark in their article (aptly titled) *Permanently Beta* (2004). They identify it specifically as *"a fluid organizational form resulting from the process of*

negotiation among users, employees, and organizations over the design of goods and services" (Neff and Stark 2004, p. 175). Software, the web, and computers in general are not stable; they're characterized by variability and adaptability. Understanding this (experiential and critical access) is just the first step, immersing oneself in this lifestyle and capitalizing upon it is the second. *Permanently Beta* technology structures rest on distributed accountability and decentralized decision making and include three key aspects: the beta test quality, encoded responsiveness, and community development (Neff and Stark 2004). Beta testing refers to a product that is close to final and so it mostly operational, but still under construction. These products are updatable and customizable and assume a dimension of realism not afforded to their static counterparts—design by the audiences they're intended for. This characteristic relates to encoded responsiveness, as programs are designed (at least in part) on account of their usage feedback features. Methods to gauge user reactions and social interpretations are purposely built firmly in to the basis of the interface and system. Community development is the final section in the ensemble; various contributors independently and collaboratively help to transform and create the product with a varying and typically minimal level of transparency by the controlling manufacturer. Marx would likely find this to be a colossal precedent – the insinuation is that the producer and consumer are one in permanently beta systems. This implies a reorganization of the offline-world economic and production structures (Benkler 2006). To participate in a permanently beta system, an individual must have a reconciled sense of unique digital structures, such as digital production.

In essence, the realization of self and structure refers to comfort with and participation in both digital identity and permanently beta aspects of the web. This in turn constitutes the final aspect of *Digital Consciousness.*

The African American Community

On some level African Americans have historically *"been deeply involved in the creation and use of a full range of technologies"* (Pursell 2005, p. xv), but all too often they haven't been recognized for it. They certainly have not shared equal experience in this regard with more advantaged groups in America. The coming of the 20th century and the information era raised questions as to how African Americans needed to position themselves in relation to technologies as well as negotiate the obligations to the emerging disparity present in the African Diaspora (Pursell 2005). Challenges such as White Nationalism,[7] the deregulation of civil rights, attacks on the black poor via the criminalizing of race and the inhibiting of access to education, negative portrayal of blacks in media, internal communities issues such as homophobia and sexism, and the employment crisis have all arisen as continuous and virulent problems faced by the African American community today (Walters 2003, Kitwana 2002). The internet, global and stratified by nature, only serves to further complicate these questions.

Even as early as 2001 studies had surfaced indicating not only differences in access to computers and the internet at home and work between racial (and ethnic) minorities and whites (JBHE[8] 2004), but also *"social differences in the ways computers [were] used at school and home"* (Attewell 2001, p. 253). Interviews eliciting the attitudes of African American teens suggest that they are indeed very aware that the digital divide is about more than internet access, and think the resources needed to overcome it include social networks, computing skills, parents and role models, governmental policies, education, and church involvement (Payton 2003). This finding echoes the call for *Digital Consciousness*.

[7] White racial nationalism in the US; radical conservative politics poised against African American needs and interests.

[8] A shorthand citation for *The Journal of Blacks in Higher Education*.

The Role of Libraries

Libraries have always been an essential source of knowledge and self and community empowerment. In the past they have provided access to information resources of all kinds—from books to microfilm to expert librarians—and continue to do so today. Back when the internet was still in its developing stages exploratory studies had begun to suggest public libraries as a viable solution to bridging the digital divide in African American communities (Bishop et al. 1999). In the coming years libraries would find their place alongside other CTC's as one of the only (and therefore crucial!) points of access to ICT's.

More recent studies have unearthed several interesting findings in regards to internet use in libraries. More patrons turn to the web (at home, work, libraries or elsewhere) than any other information sources, including experts and family members (who may be on the web) (Estabrook et al. 2007). Young adults (ages 18-29) are the most frequent library users and those who use dial-up connections are less successful than those with high speed connections in procuring material they need to address personal issues[9] (Estabrook et al. 2007). In short, internet access in libraries is important, and those who learn to use high speed access are more successful in finding information. Youth entering (or beginning in) the workforce need to develop *Digital Consciousness* and libraries are a prime-time spot for this demographic. Libraries can facilitate this process by continually evaluating networked resources, experimenting with new approaches and strategies for supplying these resources, and paying close attention to user opinions (McClure 2004).

In many ways this paper was inspired and informed by the report to the American Library Association completed in 2007 by John Carlo Bertot and associates. This report and data will be discussed later in the findings section.

A Call For Change

To truly address the digital inequality for the African American people and other disadvantaged populations we must call for extensive change; a social movement situated within the context of the information revolution. Abdul Alkalimat profoundly constructs a vision for such a movement in his work *Cyberorganizing* (2004). He calls upon three points of guidance, which are expanded upon here:

1) **Cyberdemocracy**, or the assurance that everyone is entitled to computer and web access. The insinuation of this clause is that provision of the internet—in some form—ought to be considered a public good.
2) **Collective intelligence**, defined as consensus of voice—everyone can be heard and help to create Cyberspace. This is similar to the previously stated concept of the blending of producer and consumer and the digital extension of self and community (or institution).
3) **Information freedom**, otherwise known as the guarantee of free access to information. This would ultimately combat the commoditization of intellectual subsistence and cultural heritage. Contemporary movements often know the concept as open access.

[9] The problems the report inquired about included: *"dealing with a serious illness or health concern; making a decision about school enrollment, financing school, or upgrading work skills; dealing with a tax matter; changing a job or starting a business; and getting information about major programs such as Social Security, Medicare, and Medicaid"* (Estabrook et al. 2007).

Libraries command the instrumental advantage of being a pre-established and well-respected social institution that can help to fulfill this vision. They offer all citizens[10] internet access, a physical world community base that might facilitate collective intelligence, and most purport a strong value for freedom of speech and information. The final two of Alkalimat's points, however, require more than the entitlement of simple internet access; they in fact, stand as an invocation that demands *Digital Consciousness* (that is a, a collective consciousness) for all peoples. In order for this movement to succeed libraries need to adopt dynamic and emergent strategies in their provision and allocation of computer and internet resources as well as their corresponding staff and policies.

RESEARCH QUESTIONS

There are many indications that use of the internet has been slipstreamed into the daily grind of American life. In 2006 and 2007 around 70% of the population used the internet at least occasionally (PEW Tracking Survey 2006, Horrigan and Smith 2007) and if growth has remained roughly constant the figure is somewhere around 75% today. This means those that do not have access (of some sort) are part of a numeric minority. If they do not have skills pertaining to internet use they are likely to be at a disadvantage in the over 54% of workplaces where people use the web regularly (PEW Tracking Survey 2006). Well over 90% of web users depend on email online and over two thirds look to the web for news (PEW Tracking Survey 2006). Others (over 91%) look to search engines for all kinds of information and accomplish other common tasks such as acquiring driving directions (over 86%) and participate in product, service, or person feedback systems (over 32%) (PEW Tracking Survey 2006). Those without access, skills, or motivation to use web resources will find themselves left behind as more and more social, economic, government, information and communication services shift over to the digital world.

In 2005 about 35% of all internet users had posted content to the internet in the form of blogs, websites, literature or multimedia (Horrigan 2006). Of these users 71% of them were using broadband from home (Horrigan 2006), which indicates the significant bearing connection speed has on the capability for authorship of content online. If someone could not afford or receive broadband in their home they might (and should) look to a library to provide it for them instead. Since only 47% of the total population has home broadband (Horrigan and Smith 2007) over half of all potential library patrons could stand to benefit. The prospective benefits for broadband use increase when one includes emphasis on specific populations. Those older than 65 years of age, those with a high school (or worse) education, those who make under $30,000 a year, and those living in rural areas are all significantly less likely to have a home broadband connection (Horrigan and Smith 2007). African Americans are only slightly less likely to have broadband at home (40%), but when combined with any of the four aforementioned categories, would likely have even lower rates than the average in those categories.

To better illustrate the concept of persons with varying levels of *Digital Consciousness* one can consult the internet user typology assembled by PEW in 2007 (Horrigan 2007). For users to truly overcome the barriers of the digital divide and develop *Digital Consciousness* they must have the opportunities to fulfill several criteria. In the PEW report these are specified as:

1) **Assets**, or the devices and services used by an individual to connect to and use the internet. This might be technologies like cell phones, computers, and video cameras or services that

[10] This is another point of inequality, actually. To get a library card you need to be a citizen, and many libraries refuse to offer a full array of services and support to people without cards. Illegal immigrants will remain in a position of disadvantage unless this structural policy changes at root.

"facilitate digital consumption, participation, and electronic communication" (Horrigan 2007, pp 2).

2) **Actions,** the activities in which participants engage, such as downloading and upload multimedia content. This also included a measure of variety and frequency of activities.
3) **Attitudes**, the perspectives users have that reflect the helpfulness of ICT's in regards to work, play, and mediating social capital.

The results push forward a colorful display of varying tech users, around half of which have only command a few technical assets. The top 31%, however, are designated as elite tech users and likely command some measure of *Digital Consciousness*. They include four groups:

1) **Omnivores** – 8% of tech users are people who do just about everything they possibly can on the web. They are responsible for much, if not most, of the original and impressive user created content on the web. They are young, have been on the web for a decade, and have a good chance of owning every type of ICT out there.
2) **Connectors** – 7% of tech users who boast full-featured cell phones and use the internet frequently. They have high levels of satisfaction with ICT's and use them to connect to others and manage digital content.
3) **Lackluster Veterans** – an older 8% of tech users who very often kick around online but are less thrilled about cell phones and ICT's in general.
4) **Productivity Enhancers** – about 8% of the group who have strongly positive views about how technology lets them stay connected, work, and learn. They connect to the internet frequently.

In general, the number, type and frequency of ICT's used as well as content creation and everyday cyberspace activities goes from high to low as you go from omnivore to productivity enhancer. These individuals represent a level of technological advantage and *Digital Consciousness* that libraries today are at odds to provide. If this is the final stage to the Digital Divide, however, then it is crucial the libraries, especially those that serve disadvantaged communities who might not otherwise be able to surmount technological barriers, learn from the elite user end of the spectrum.

One cannot immediately start demanding change, however, without having a realistic sense of where they are. Though some general statistics and indications were overviewed above, many particular aspects of digital inequality remain unknown. To address this issue this report constructed an interrogation of five major digital inequality related topics.

Basic Access

For patrons to begin to experience and shape the web in an immersive fashion they must first be able to have a place to do so. Basic information about the hours and adequacy of a library (serving capacity in terms of population served: total town size and average users per day) thus became elementary but foundational questions. In addition, questions relating to future upgrades for a few items were asked in order to get a sense of where the library was headed in the future. If libraries are to remain an effective service they must have plans to adapt to the needs of the information age. Much of this sort of information (especially hours and policy) can and should be communicated online, and as such information from library websites (if they had one) was also noted.

Public Computers

The next item to come to mind is of course a measure of the most essential and pervasive device in enabling users to connect to the web: the computer. All libraries in Illinois were required to field at least a few computers at the time of this report's writing, but they varied considerably in capabilities and number. Simple factors, such as the total number of computers available for patrons, the age of said computers (a reasonable predictor of speed), and their accessibility were first observed to get a sense of what kind of propensity for access was at hand. More detailed specifics were then collected about two primary concepts: **connection** and **creation**. Essentially these questions were collectively intended to answer the key question: what can people create with and connect to the computers?

Internet Services

In the information age one cannot speak of creation and connection without mentioning the internet in the same breath. The type and speed of network access available is arguably equally (if not more) important than the abilities of the computers connecting to it. Libraries might offer walk-up (Ethernet jack-based) or wireless internet for patrons. The coverage and speed of such networks becomes an important evaluation of their capabilities and offerings for patrons. Ease of use and perceived usefulness are significantly affected by connection speed. Viewing and creating multimedia, or even advanced content operations, such as creating a website, require a moderately powerful connection. With a continuous fast connections users and can drop on and off to snag information, photos, check email, and more. Those suffering under a dial-up setup have to endure long log-in times and limit their browsing in a more linear and single-minded fashion and they also have a more limited array of activities they can perform online (reduced usefulness). Libraries without broadband might suffer from other ill effects as well, such as losing the ability to use the phone line while surfing the web.

Software

Experiential access in many ways begins with the viable use and knowledge of various programs. Libraries can provide opportunities for patrons to practice and learn more complicated internet tasks by offering programs (outside of those that are web-based) to facilitate them. Many advanced operations require a modernized basic computing environment, like a recent operating system (OS), web browser, and machine kept safe and usable by updated anti-virus. If users plan to connect and create print, multimedia, and literature-based content then they would also need programs to assist these processes, such as media players, office sweets, and knowledge databases. Computers also open up a whole new world of applications in regards to archival, communication and education. Libraries might field programs to trace lineage, chat online, or educational games or databases for children.

The advent of Web2.0 and scripting technologies like Flash and Java have severely reduced the need for pre-installed programs, however. Indeed, with suites like the Google office package users can accomplish the tasks many forms of software previously addressed, and with the added benefit of integrated collaboration. For this reason the survey of specific programs was de-emphasized and more attention was paid to bigger factors, such as web browser and connection speed.

Policy and Staff

And finally, and perhaps most importantly, to enable *Digital Consciousness* users must have policies and staff members that support their process of learning and use. If younger visitors can use computers and spend significant amounts of time on them then they will be more likely to experience the effect of growing up with the internet. Libraries that have staff who can provide support might also help to encourage and foster computer literacy for aspiring patrons. And, on the negative side, the amount of

freedom afforded for patron computer use, such as the ability to install programs or save files, critically impacts the way they can accomplish digital authorship tasks.

Data Collection

Data collection for the project was driven by a general goal: creation of a sustainable database.

Sampling

To appropriately study libraries that serve African American communities one must first consider what constitutes a significantly African American community in the first place. Like many Midwest states Illinois is a mixture of large cities, stretches of open rural areas and clusters of suburbs. People come from a wide array of class backgrounds and occupations and may consider their local community to be anything from the just neighbors down the road to an entire city. Likewise, African American communities exist in many capacities in Illinois and in order to illustrate a state-wide and accurate portrayal a theoretical sampling of six counties was taken. Three variables were considered in the county selection process: total county population, the proportion of African Americans, and median household income. These three variables served to operationalize the concepts of locale (rural and small town/city), racial composition (that is, African-American presence), and class (defined here by income). Figure 3.1 shows a relative comparison. The following data was pulled from the public 2000 census records.

Illinois County	Library System	Total Pop	Percent Afro-Am	Total Afro-Am Pop	Median Household Income
Pulaski	Shawnee	7,348	31.0%	2,278	25,361
Alexander	Shawnee	9,590	34.9%	3,347	26,042
Champaign	Lincoln Trail	179,669	11.2%	20,122	37,780
Peoria	Alliance	183,433	16.1%	29,533	39,978
St. Clair	Lewis & Clark	256,082	28.8%	73,752	39,148
State	N/A	12,419,293	15.1%	1,876,875	46,590

Figure 3.1 *– General county statistics.*

Pulaski and Alexander County were chosen to represent the rural areas in the southern parts of the state. They both hold similar histories and are generally economically disadvantaged when compared to the rest of the state. They hold African American communities that are nearly twice those of the state at large. Consequently it could be said that they are poor, rural, and largely African American.

Champaign and Peoria County at first glance appear to have African-American populations that match the state-wide averages. Upon closer investigation, however, it is revealed that they contain townships with both large numbers and high proportions of African-Americans. St. Clair County, on the other hand, clearly has a larger African-American population. These three represent a mixture of small-suburbs/towns, small-city and rural life and have a mid-level median income that sits just below the

state average. Together they can be labeled as working -class, medium-size and mixed locale, and somewhat African-American.

Together these counties represent a variety of African American communities that reside in a diverse set of arrangements, from small city to rural, from working class or poor to middle class, and from largely African-American to only somewhat African-American. Large urban centers, most notably the Chicagoland area, were exempt from this analysis for two reasons. First, too little attention is paid (and funding given) to small community libraries. Second, the analysis of the Chicago metropolitan area would be considerably more complex, initial mappings of the area identified over 40 libraries that could be candidates for the survey. Time constraints would not permit a study of such a scale.

Libraries, however, do not serve entire counties, nor do most communities span entire counties. To really understand which libraries serve individual Black communities we need to turn up the microscope. Consequently the Census 2000 data was consulted by township (and in the case of Peoria, tract) to capture more specific demographics. Two categories were created to qualify African-American communities: significant (blue) and predominant (orange). Different criteria were employed for each county, as their populations and township/precinct breakdowns differed. Ultimately the goal was to construct a list (a simple binomial typology) of libraries that served either communities that were significantly African-American (blue) or predominantly African-American (orange) based on both proportions and total population. The method used for each county are as follows:

Alexander and Pulaski

In Alexander and Pulaski county any precincts with an African-American population resting between the county average (31/35%) and 50% was marked as blue. Those with an African-American population of over 50% were marked as orange. Only precincts with over 200 individuals were eligible for selection; most of the population in each county was concentrated around the only small cities, Cairo and Mounds. Smaller precincts were screened out because they (1) likely did not have a library, and (2) proportions could easily be thrown off with such small numbers of people.

Only a few libraries exist in this area. In general if a library was closest to a given precinct it was considered to be the library that served that precinct. In some cases potential library patrons might have to drive a few towns over to get to the library. If a library served a precinct qualified as orange, then it was tagged as such, and likewise for blue.

Peoria

Peoria County merited two levels of scrutiny, as only the Peoria City township had an African-American population that comprised over 10% of the total. It made more sense to let the libraries determine the counting method, so a general list of all counties with African American populations over 16.1% (the city-wide average) was created and set aside. Each library was then located and assigned to a census tract (or several tracts) that it would potentially serve. The total number (population) of African-Americans for each census tract on the list was then calculated and added up for each library (with some overlap possible, as some libraries likely served a few tracts). Then, based on the total African-American population served at each library they were categorized as orange (the top 3) or blue (the 4th and 5th).

Champaign

As the research for this report was conducted at the University of Illinois in Urbana-Champaign, the author utilized more specific local knowledge of the libraries in the area. The Census numbers were

consulted to tag a few precincts but if one were to look at just the population proportions in comparison to the state there would be scarcely a blue precinct on the list. Instead, those with a percentage above the local average were marked as blue. Two libraries serve the Champaign area, one of which caters specifically to the African-American community. This library was classified as orange, and the other three as blue.

St. Clair

St. Clair County presented a few unusual demographic circumstances. Several townships were straight forward, such as Washington Park, Centreville city and East St. Louis, which all contained African American populations making up over 90% of the total in the area and numbering in the thousands overall. Others presented challenges, such as Brooklyn village, which only had around 700 people, but 99% of them were African American. Alternatively there was Cahokia, which only was 39% African-American, but this 39% totaled over 6000 people, more than the neighboring Centreville, which was 96% African American. Those townships and precincts that represented a conflict between sheer numbers and proportion of African Americans were categorized as blue. Those both high numbers and a high proportion were tagged as orange. Libraries in the area were tracked down on Google Maps and assigned just like they were for Alexander and Pulaski County.

Figure 3.2, the listing of all libraries and locations, is on the following page.

Libraries marked in blue were considered those that served communities with significant African-American populations, whereas those marked in orange serve communities who are considered predominantly African-American. Those highlighted in gray received phone calls, those in Black were visited in person. Websites were consulted for many, but not all, libraries on the list.

County	City	Library
Peoria	Peoria	Lincoln Branch Library
Peoria	Peoria	McClure Branch Library
Peoria	Peoria	Peoria Public Library
Peoria	Peoria	RiverWest Library
Peoria	Peoria	South Side Library
St. Clair	Washington Park	Washington Park Public Library
St. Clair	Fairview Heights	Fairview Heights Public Library
St. Clair	Cahokia	Cahokia P.L.D.
St. Clair	Centreville	Centreville Public Library
St. Clair	Madison City	Madison Public Library
St. Clair	East St. Louis	East St. Louis Public Library
St. Clair	Brooklyn	Venice Library
Champaign	Rantoul	Rantoul Public Library
Champaign	Mahomet	Mahomet Public Library District
Champaign	Urbana	The Urbana Free Library
Champaign	Champaign	Champaign Public Library
Champaign	Champaign	Douglass Branch Library
Alexander	Cairo	Cairo Public Library
Alexander	Olive Branch	Dodge Public Library
Pulaski	Mounds City	Mounds City Public Library
Pulaski	Mounds	Mounds Public Library
Pulaski	Dongola	Dongola P.L.D.

Figure 3.2 *– A Typology of Communities and Libraries*

Once the list of libraries had been collected three databases were consulted for address, phone number, and website information: The Illinois Public Library Statistics report for the 2005-2006 fiscal year (put out by the Library Research Center at UIUC), Public Libraries.com (a free non-affiliated informational website), and eliillinois.com (Every Library in ILLINET, a state governmental website). Use of these three sources gave up to date information and the ability to cross check. They also provided some basic information (hours and population served) for the database.

A sample of a few libraries was then contacted from each county. Websites were consulted for many, and phone calls were made to a few. The author went out to visit the Urbana Free Library and both branches of the Champaign Public Library in person. At the time of this report's writing all together twenty one libraries had been surveyed for the database. The ground work for the survey of 34 additional libraries has been laid, and future updates will expand this analysis to construct an encompassing and accurate image of libraries that serve African-American communities of various classes, locations, and proportions.

Survey Design

As with most research studies the survey design experienced several changes and revisions over time. It quickly became apparent just how non technical most librarians answering the survey were. Several areas had to be simplified and many items were condensed to become a bit more subjective in their collection. This might actually be considered a beneficial alteration, as it ensures that the data remain accessible for general readers. In any event, data in some form or another was collected for each category: general, public computers, internet services, software, and policy and staff. Additional documentation information was included for each library to help reflect and clarify some of the issues and responses that might not fit into the database design.

In order to help capture a sense of each library's serving capacity and also to build in an immediate usefulness into the database contact information (address, phone number, and website) was recorded for each specific library, as well as hours of operation, population served, and total staff. In many ways the database can serve as an outright resource right off the bat—a comprehensive listing of every library serving African American communities in the 6 selected counties (minus Chicago, of course).

Other questions were asked to mirror those collected on a state-wide level by Bertot. Computer workstation availability, plans for upgrades, the factors that influence said upgrades, and details about internet access all were collected in manners that would present them as comparable to the larger dataset.

Some items had to be dropped because they either didn't make sense or were just not found. For instance, no libraries surveyed featured rooms for private computer use.

Digitization

Digitization occurred two ways in the process of this project. On the one side, several websites and databases were accessed (as previously mentioned) to gather information about the various libraries. This implicitly tested and verified their usefulness and also cited potential needs. For instance, the *Every Library in Illinois* state database did not have hours for several libraries. On the other side of the coin all data collected the web, phone, and in-person was entered into a spreadsheet that, once fully populated, could be easily utilized as a source of statistical comparison data. It will also be freely available on the web to help assist future research and policy studies. The data is organized and documented, and if properly integrated into a data-driven website, could be very searchable.

Discovery

A number of important discoveries became evident after substantial data analysis. This section reviews 4 major sets of findings: supported library availability, computer resources, state-wide comparisons, library policies, and the overall opportunity offered by a given library. Comparisons are made between counties, individual libraries, and significantly and predominantly African American communities.

Supported Library Availability

First and foremost was the number of hours per week each library was available. Obviously the more often a library is open, the more opportunity it offers to patrons wishing to increase their exposure to

and use of information technology. To truly assess the value of open hours to patrons, however, one must gauge their relative worth to target populations. Those with steady 9-5 jobs might appreciate a library that's open on the weekends, whereas a single mother working 2 jobs, one night shift and a waitressing gig on the weekends, could easily value a library open during the day. Another parent might value a library that's open after school so their kids can work on homework on the computers. Some patrons might just look for an open computer, whereas others, perhaps say elderly users, would seek assistance from a free librarian. An aspiring entrepreneur might require the help of a computer expert librarian to make a website for their new business while another could need help tracking down their family history in online archives. Though it may be difficult to measure, the more a library is open the more likely it is to hit crucial valuable times for patrons. Furthermore, the type of staff available at the library (those who can help with computers) also determine the relative value of a given library. As it turns out there is a significant gap between rural libraries and those from the mixed locale sets:

County	Hours/Week	Total Staff	Staff Member : General Population	# of staff who are computer experts	# of staff moderately familiar with computers
Peoria	47.6	13.2	1:1292	2.2	4.2
St. Clair	43.8	5.7	1: 2839	0.7	3.2
Champaign	61.4	48.2	1:541	5.2	12.8
Alexander-Pulaski	24	1.2	1:1550	0	0.8
Significant	44.8	22.3	1:1207	2.6	6.5
Predominant	43.3	8.8	1: 2162	1.1	3.3
Sample Ave	**44.2**	**16.5**	**1: 1698**	**2.0**	**5.1**

Figure 4.1 *– Opportunity for access, in terms of hours and support. Mean averages.*

Clearly the time a library is open relates to the total number of staff available as one person can only work so much. This gives larger libraries a significant advantage when offering computer-related services. There does not seem to be any difference between the ratio of librarians to potential patrons based on locale, however. As the data show, the rural libraries in this sample are open less often, and have fewer staff who can help users with computers or work to keep them maintained. The libraries in the St. Clair area appear to be largely understaffed because their librarian to population ratio is much higher than average. These numbers also likely relate to wealth, as the poorest areas have the fewest number of available computer experts.

The results can also be compared in regards to significant and predominant African American communities. Take a look at the orange and blue rows at the bottom of the table. As you can see, predominantly African American communities suffer in just about every category. Their libraries are open a slightly less per week, have fewer staff, and have a worse staff member to population ratio. That being said, in this data set the average population served for the predominantly African American libraries was much smaller, 8501, as compared to significant African American community libraries, which on average served 14,644 people. If one were to keep the staff to population ratio constant, and doubled the staff size of the libraries serving predominantly African American populations then the expert and moderately familiar staff would be nearly equal. This suggests that the larger variable at play is library size (and therefore location: rural vs. small-town/city).

Just having an expert or two on the staff doesn't assure that they're around very often, however, though it may be a good predictor. We will return to this inquiry later in the report.

Computer and Internet Resources

The old center point of the digital divide is not irrelevant, by any means. Once one arrives at a library the available computer and internet resources become a primary (and likely foremost) mediating factor. A visitor seeking to use the computers may not be the only one, and as such the number of visitors who use the computers daily, as well as the number of computers themselves, become a good predictor of

availability. Newer computers, in general, offer a greater array of capabilities and benefits. Thus the newer the machines available, the greater propensity for sufficient access. Again results were measured by county and community type:

County / Community Type	Ave computer users per day	Total number of computers*	User to computer ratio	Population to computer ratio	Ave Computer Age
Peoria	50.4	11.2	5.4	932	1.4
St. Clair	38	8.3	4.7	1156	2.0
Champaign	124	29	5.3	1052	2.3
Alexander -Pulaski	10	4	2.5	526	4.9
Significant	67.6	16.3	4.4	971	3.2
Predominant	37.6	8.3	4.7	954	2.1
Sample Ave	**55.6**	**12.9**	**4.5**	**964**	**2.9**

*This number restricted to functioning general use computers (non-card-catalog machines)

Figure 4.2 *– An overview of computer resources focused on traffic and availability as well as workstation age (and therefore a mediocre measure of its capabilities).*

Not surprisingly, small town/city areas, as compared to rural areas, generally have more users per day who use their computers, as well as more computers in general. The user to computer and population to computer ratios are better, however, in more rural areas. Rural areas are also more likely to field older machines, with an average age double or triple that of other areas. Interestingly enough the predominantly African American communities were *more* likely to have newer machines. This may suggest recent emphasis on or increased grants for these populations. Again the averages for users and computers for predominant communities are half those of significant communities, but so are their populations, thus it can be reasonably concluded that there are no significant differences here.

Internet Access

Internet access is another important facet to physical access. The survey assessed connection speed, availability of wireless, and wireless coverage, as well as if a library had any plans to add wireless in the future. As previously mentioned, the speed of a connection severely shapes the kind of actions one can take on the internet. If library computers do not allow users to save files or install their own programs then wireless also becomes important, as users can do these sorts of things on their own laptops and cell phones. Wireless coverage was rated on a sliding scale: (1) for a little coverage, (2) for some coverage, and (3) for complete coverage and outside. Internet speed was rated on a user-response basis, rated as sufficient speed (1) never, (2) sometimes, and (3) always. For convenience, both locale and community-type were combined in one table:

County/Community Type	% w/ Wireless	Wireless coverage	Sufficient speed	Plans to add wireless
Peoria	80%	2.8 (nearly complete)	2.4 (sometimes)	0%
St. Clair	30%	3.0 (complete)	2.0 (sometimes)	20%

Champaign	80%	2.8 (nearly complete)	2.8 (always)	40%
Alexander -Pulaski	0%	0 (none)	1.6 (rarely)	20%
Significant	40%	2.8 (nearly complete)	2.1 (sometimes)	30%
Predominant	60%	2.8 (nearly complete)	2.3 (sometimes)	10%
Sample Ave	**48%**	**2.8 (nearly complete)**	**2.2 (sometimes)**	**19%**

Figure 4.3 *– Libraries with wireless, the coverage it gives if present, the speed the internet (overall, includes both wireless and ground-lines) provides, and plans for future wireless.*

None of the rural areas (Alexander-Pulaski) surveyed featured wireless at their libraries. St. Clair county was also lacking in wireless at most of their library locations. Those libraries that had wireless coverage generally had most or their entire library covered, however. Interestingly enough, Champaign county was the only one with a high interest in increasing its wireless, the Urbana-Free Library even intended to add another access point for better coverage. Cairo was the only library in the rural areas that planned to add wireless, and this need was most based on the high interest in usage by those stopping by traveling down the Mississippi river. Speed was typically sufficient in small-town and small city areas. Nearly every rural location was confined to dial-up, and expressed an interest in better speeds, which would also allow them to install wireless. Access to broadband is limited in many of these areas, Cairo for instance, was planning on installing a satellite-based access provision system. The differences between significant and predominantly African American communities were relatively small. Predominant areas had a higher rate of wireless provision and expressed less interest in adding it in the near future, which the latter half of makes sense and the former seems to suggest different priorities. Perhaps some of these libraries received funding for internet provision more recently, and thus skipped out on running Ethernet cable and wired everything in wirelessly, thus saving money and keeping up to date.

Hardware and Software Capabilities

The type of computer hardware installed in each library location was not detailed above. The age of a computer tells you something about its capabilities, but ideally more information is required before one can truly know what can be done in a given library. Of all of the libraries surveyed only one, the Urbana Free, paid specific attention to assistive technologies, larger screens, screen readers, special keyboards, and walkers that could assist patrons with disabilities. Some came close, such as the Champaign Public main, which offered large flexible-arm LCD's screens and walkers, but none truly planned their computer access for blind, deaf, and mobility-challenged populations.

Computer technology resources were gauged with a few different measures: the ways a machine might help a user create digital content, the methods they might connect to a computer, the sheer value of computers owned by the library, and the software offerings present on each machine. Figure 4.5 shows the overview of these factors by library.

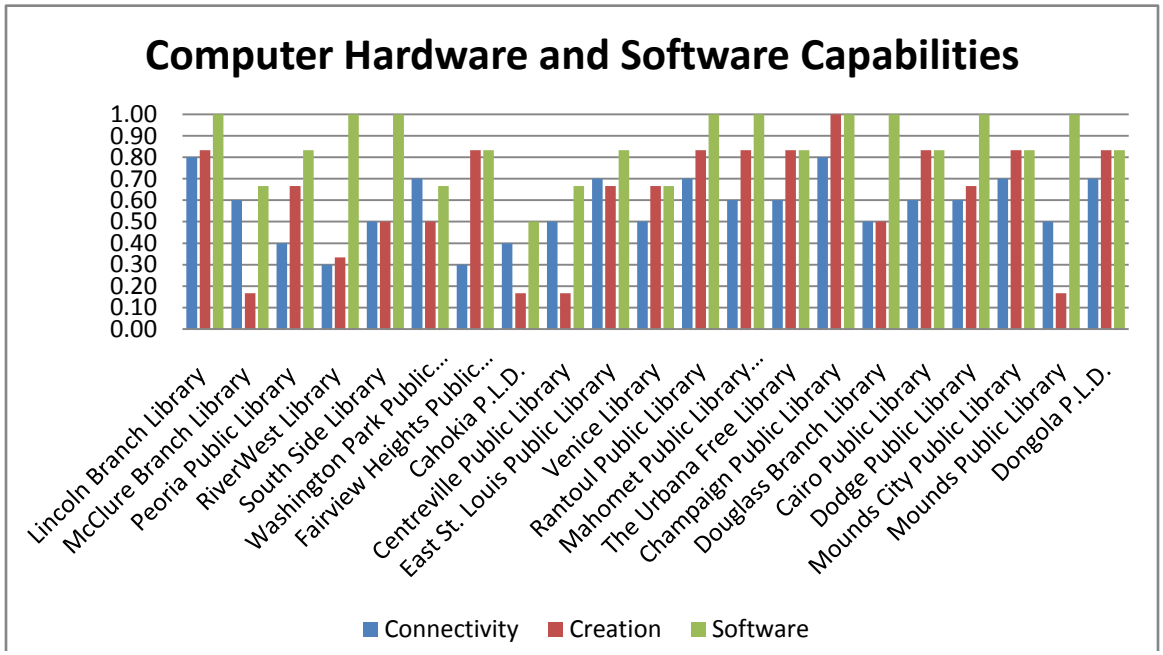


Figure 4.4 *– An overview of computer hardware capabilities by library.*

Overall, few libraries were severely limited in their capabilities. No library received a maximum connectivity score, indicating that libraries in general need to work on these items. The break down for each category can be found below:

Connectivity (%)

County / locale	USB	CD-rom	DVD-rom	Floppy	Scanner	Display*	Camera**	Speakers / Headphones	Mic	Internet
Peoria	100	40	20	80	20	20	40	100	0	100
St. Clair	100	100	50	86	16	0	0	67	20	100
Champaign	100	100	40	100	60	40	0	80	20	100
Alexander - Pulaski	100	100	100	100	20	0	20	60	0	100
Significant	100	92	42	83	50	25	8	75	8	100
Predominant	100	78	67	100	11	0	22	78	11	100
Sample Ave	**100**	**86**	**52**	**90**	**33**	**14**	**14**	**76**	**9**	**100**

*Projectors, TV's, or large monitors that might be used for instructional purposes
**Web cams, video cameras, or still digital video cameras

Figure 4.5 *– The Connectivity break down by locale and community type.*

The hardware composition of computers in each location brought a few surprises. For instance, all of the libraries surveyed in the Alexander-Pulaski counties fielded computers with DVD-roms that patrons

were free to use. This seems to contradict simple logic, as these libraries have the smallest budgets and have fewer and older PC's. This could relate primarily to policy; many of the libraries in the Champaign and Peoria county featured DVD and CD-roms but did not permit patrons to use them. Scanners, projectors, TV instructional displays, video cameras and microphones are largely absent nearly every county save Champaign. Several of the Peoria libraries would rent a still digital camera to patrons and no libraries had web cams or digital movie cameras of any sort. Most users could listen to music or video, however, as a majority of libraries had headphones or speakers at their computers. In some locations, such as the Peoria Main, patrons could purchase headphones at the desk for a low price.

A comparison between the significant and predominantly African American community libraries paints a different picture. A significant gap can be seen between most items, with the exception of DVD-roms again (presumably due to policy). Persons looking to find scanners, projectors, microphones, cameras, or even CD-roms are hard pressed to do so in the libraries serving predominantly African American communities. These libraries did feature more computers with floppy drives, but this is less of an advantage and more of a reflection of the older machines typically present.

In conclusion, most libraries facilitate for basic connections such as USB, optical media (CD/DVD), headphones and the internet, but few field equipment that can assist with the production of multimedia.

Creation (%)

County / locale	B&W printer*	Laser printer*	Color printer*	CD/DVD burner	Fax Machine	Copy Machine
Peoria	60	40	20	0	60	80
St. Clair	33	33	33	33	50	67
Champaign	20	60	80	60	80	80
Alexander - Pulaski	40	40	40	40	80	80
Significant	33	50	66	25	83	92
Predominant	50	38	13	44	44	56
Sample Ave	**38**	**43**	**43**	**33**	**67**	**76**

*Printer percentages may not add up to 100% as some libraries fielded more than one printer

***Figure 4.6** – The Creation break down by locale and community type.*

The differences in peripherals and components used for creation are relatively negligible between the different counties. The Peoria libraries had few CD/DVD burners and those that did would not permit their use. Few Peoria libraries had the benefit of having color printing available for visitors.

Wider gaps can be seen between significant and predominant community populations. Once again optical drives seem to be the exception, as more predominantly African American areas had burners. Unfortunately they lagged behind in terms of fax machines, copiers, and advanced (color or laser) printing.

Overall, libraries, especially those in predominantly African American areas, could do well to start offering color printing. Policies and hardware limitations prevented CD/DVD burners from being

common place items. In general, libraries serving predominantly African American areas suffer from fewer resources for the creation of physical items like fliers, CD's or DVD's, and are less able to offer services such as faxing a resume or signed document to an important party.

What parts exist physically inside of the computer is really only a beginning, however. The software, especially that which facilitates for the production of knowledge and media as well as keeps users safe from intrusion, is also vital. Since many of the functions previously performed by stand-alone software programs have migrated to the internet in web application form this report only collected data on a few important types of software. If users wish to take advantage of open source material and web-based software they need the most advanced web browsers available. Furthermore users with vision-related disabilities have an easier time using more recent web browsers and they offer other benefits such as increased security, ad-blocking capabilities, and tabs for multitasking. Luckily none of the libraries surveyed were horribly out of date, but some did still have Internet Explorer 6, a browser that is now generally considered to be outdated and problematic. Every library surveyed had at least a basic office suite (Word, PowerPoint, and Excel) and all of them used Microsoft-based office products. Some libraries, however, had the extended office package, which includes Publisher (usable for making websites and a whole array of print materials), Access (a database program that can be used to draft web forms and fuel data-driven websites), and sometimes FrontPage (an advanced website design program). The differences and capabilities between office versions are relatively minimal (and many librarians wouldn't know what version they had) so the interviews did not inquire about the year of product release, though generally most libraries were using Office XP and 2003. Users who wish to perform more sensitive or potentially dangerous operations on the computer, such as check bank records and pay bills, scan pictures of their children, or download programs need to be effectively covered by anti-virus. There are many types of protection available today, including ones that scan email, manage files and hardware, and encase computers in firewalls, so this report did not look to specify for each library. Instead the interviewer inquired about the overall type of anti-virus (if it were present, confirming a name) and if the librarians knew if it were kept up to date. Figure 4.8 details the items selected in this study:

Software (%)

County / locale	Modern Web Browser*	Full Microsoft Office Suite	Updated Anti-Virus
Peoria	80	60	100
St. Clair	67	16	33
Champaign	100	80	100
Alexander -Pulaski	40	100	100
Significant	75	66	83
Predominant	66	56	78
Sample Ave	**71**	**62**	**81**

*Defined as Internet Explorer 7, Safari or Firefox. No libraries reported Opera or any other web browser types.

***Figure 4.8** – Software resources broken down by locale and community type.*

Only a handful of libraries had Apple-based computers with OSX and Safari. Every other library was running Windows XP (though a few had additional old machines with Windows 2000) and none of them used Windows Vista. A few more deployed Firefox onto their workstations but the vast majority used Internet Explorer (IE) as their main web browser. Some of these libraries neglected to keep IE up to date and were using version 6. Most of these were in the rural counties surveyed, which makes sense because these were the areas using older computers. Newer computers come with IE7 pre-installed. Often times the librarians didn't know the difference and in some interviews the version type was identified by inquiring about the color of the blue 'e' icon. St. Clair County was really the only place where software was a real issue, many of the libraries were in need of cohesive and updated Anti-Virus.

Both predominant and significant African American community libraries were around the sample averages and generally in pretty good shape overall.

Very few libraries had any advanced software programs. By the end of the interview series it was decided to stop asking about them, but the few libraries that did have software beyond basic Windows and Office applications cited children's games, GED software, and media players like iTunes. This is a potential area libraries could improve. If they started to offer more advanced software, such as programs for website design, connection to corporate networks and servers (FTP/VPN), development and programming suites, audio or video recording and editing apps, graphics and animation packages, mathematics and statistics programs, simulation software, games, and educational tutorials then they might open their services to a wider array of individuals. If a library had a budget of 300 dollars and purchased a version of the Adobe Creative Suite then potentially hundreds of patrons could come use a program that they wouldn't normally have access to at home.

The internet itself is a vast archive of knowledge, but other databases are important as well. Luckily, 90% of the libraries interviewed reported access to system-wide library resources, which means patrons in most places could order a book from across the state. Even better, 95% of libraries had access to some kind of knowledge databases, ranging from simple ones Encarta and Britanica, to more advanced opportunities such as EBSCO.

A final point of comparison ought to come in the form of the total wealth, in terms of sheer amount of hardware and computers, available at each library. Since the variance in software is minimal this measure would fairly accurately predict the amount of funding a given library has for their IT budget. The hardware score was computed by multiplying the creativity and connectivity scores (comprised of the previously discussed components, such as DVD-rom's and printers) by the total number of computers available for patrons. Figure 4.9 displays this by library:

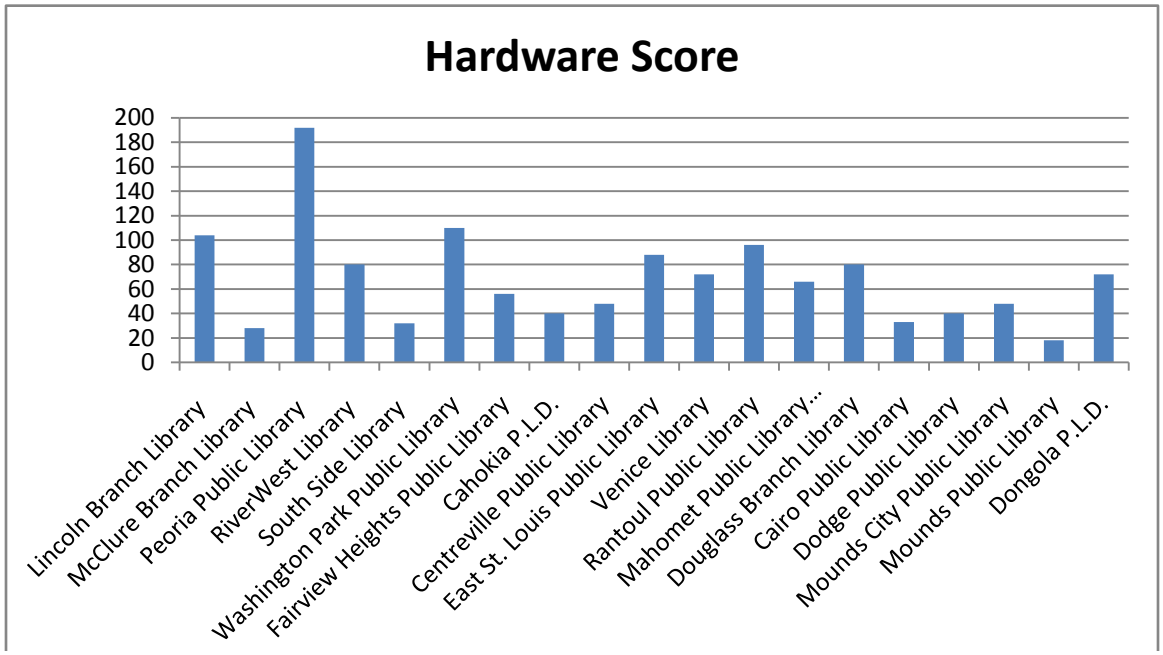


Figure 4.9 *– Total accumulated hardware in terms of number of computers, capabilities and available peripherals.* ***Champaign Public and Urbana Free were omitted****.*

The comparison is missing the Champaign Public and Urbana Free libraries, because they have considerably more resources. The Urbana Free scores 341, and the Champaign Public dwarfs every other library with a score of 1260, which is primarily due to the fact that they have well over 100 computers and just about every kind of hardware resource imaginable in the scope of what Midwest small-town/city and rural libraries do today. This measure becomes more interesting, however, when you examine the sample average and compare it to libraries in predominant and significantly African American communities. If you *include* the Champaign Public library then significant populations score 196.2, as compared to the 71.2 for predominant communities, which would indicate an enormous gulf between library budgets. If the Champaign Public is dropped, then significant communities score 92, which is still higher, but not astronomically so. The sample average *not including* Champaign Public is 82.2. The Douglass branch library, which is part of the Champaign Public library system and serves a predominantly African American section of Champaign ranks at a score of 70, though it is a much smaller library. Since the sample is small, ergo the numbers are limited (and locale also is a mediating factor), it is hard to say if predominantly African American communities are at a sure disadvantage when it comes to hardware budgets when compared to significantly African American communities. If Champaign is anything of a comparison however, the 70 to 1260 ratio would suggest this is true.

POLICY ISSUES

As previously mentioned in regards to the CD/DVD-rom use, policy can matter a great deal in mediating the possibilities a library holds for a given patron. Autonomy of use is another significant aspect of the digital divide, but largely an unachievable one in libraries. Of those contacted none offered computers in private rooms and all of them imposed time limits on individuals. Though nearly every library allowed patrons to renew their time period if no one was waiting in line, some, like the Champaign Public and Urbana Free, imposed limits on the total time allotted to each patron per day. Regardless of the

individual aspects that varied per library, the amount of time given to a user for the first session (and perhaps only that day) limits what can be done on the workstation. Even if there were, say, a functioning DVD-rom drive that a patron was allowed to use, they wouldn't be able to watch an entire movie, much less create or edit one with web-based software. Users who hope to visit websites on topics that might not fall within the realm of generally approved topics (such as say sexual health education) might also run into barriers like content filtering systems. Other users might hope to install programs to view, create, or otherwise engage in media and knowledge, but be stopped by user rights settings. These same filters and installation limitations might also prevent users from running scripts and interfaces in even browser-based applications. If a patron started a large project of some kind, say on archival or multimedia creation and editing, they might hope to save it on the library computer to come back and retrieve it another time. Accounts flexible use policies would allow this, but computers that do not allow files to be written to the hard drive would not. These issues were addressed in the interview questions, as Figure 4.10 explains:

Policy Issues			
County / locale	**Web filtering system**	**Standard time period (ave)**	**User storage / installation**
Peoria	100%	1 hour	0%
St. Clair	67%	1 hour	33%
Champaign	40%	42 minutes	0%
Alexander -Pulaski	40%	34 minutes	0%
Significant	50%	49 minutes	0%
Predominant	78%	52 minutes	22%
Sample Ave	**62%**	**50minutes**	**10%**

Figure 4.10 *– Library policies that may negatively impact patron computer use.*

Locale didn't seem to have a lot to do with either web filtering or time period allocations. The two rural areas did have slightly lower averages on their computer time limits, but all of these libraries allowed users to renew computer infinitely and all of them expressed that they regularly had enough computers available for patrons. The possibility for users to install programs or store files was really only found in the St. Clair libraries that did not deploy locked down machines. It seemed more that the librarians at these locations kept track of their computers well enough to not worry about running out of space. No libraries had official accounts systems that would allow users to have their own working directory. Oddly enough, the only libraries that allowed users to keep files and programs on the computers long-term were those in Predominantly African American communities.

An ideal policy setup is one that includes enough librarian and parental supervision to not require a filtering system, so as to not inhibit education and ensure all websites are reachable. Renewable time periods are also a must, but to really get more done before being kicked out for another user libraries should do what they can to not limit patron time on computers while still ensuring enough computers will be open for use. Finally, libraries should look into user file storage options for projects they might create using library software or web-based applications. It is this kind of flexible and open policy setup, that when paired with appropriate supervision and virus protection, can best foster uninhibited development of Digital Consciousness.

The official *Report to the American Library Association* completed in 2007 by John Carlo Bertot and associates enacted as a formal guide to many of the questions asked in the interviews for this study. One of the main functions of this study was to go beyond this information, but it's also essential to make comparisons when possible. The report is intended to *"provide national and state policy makers, library advocates, practitioners, researchers, government and private funding organizations, and a range of other stakeholders, with a better understanding of the issues and needs of libraries associated with providing Internet-based services and resources"* (Bertot et al. 2007) and draws on a sample of nearly 7000 library outlets from all over the country and from rural to suburban or urban areas. Overall, the report effectively summarizes many of the challenges libraries face in regards to the items it measures. The areas of intersection are overviewed below in Figure 4.11:

Public Library Outlets that have Patrons Waiting to use its Public Access Internet Workstations (%)

Location / Community	Yes, there are consistently fewer public Internet workstations than patrons who wish to use them	There are fewer public Internet workstations than patrons who wish to use them at different times throughout a typical day	No, there are always sufficient public Internet workstations available
State	13.1	63.7	23.2
Sample Ave	14.3	38.1	47.6
Significant	8.3	33.3	58.3
Predominant	22.2	55.6	22.2
Peoria	20	60	20
St. Clair	33	50	16
Champaign	0	60	40
Alexander-Pulaski	0	0	100

Figure 4.11 *– Day-to-day public internet workstation availability, by locale and community.*

The sample overall does much better than the state average, though there are still populations in dire need of more workstations. St. Clair and Peoria counties in particular seem to stick out as a trouble spots, as do libraries that serve predominantly African American communities. Rural communities, however, for all of their outdated equipment and limited funding were able to effectively provide for their users, none of the libraries interviewed experienced any overcrowding.

The ALA report also addressed many issues related to future library expansion. Wireless is undoubtedly becoming the norm for internet connection, and if libraries are to stay on top of their game they need to facilitate for this. Workstation upgrades and replacements also ensure effective service to patrons and must be another facet of any future-minded administrators. These items were specifically asked about during the interview process and reflected in Figure 4.12 below:

Thinking Towards the Future: Wireless and Workstation upgrades (%)

Location / Community	Wireless	Plans to add wireless	Yes, the library has a workstation upgrade / replacement schedule	No, the library does not have a workstation upgrade / replacement schedule
State	57	10.4	69.3	27.5
Sample Ave	48	19	81	19
Significant	40	30	83	17
Predominant	60	10	78	22
Peoria	80	0	100	0
St. Clair	30	20	83	17
Champaign	80	20*	100	0
Alexander-Pulaski	0	20	40	60

*The Urbana Free library planned to add another access point to increase their wireless coverage, but the ALA report only counted libraries that planned to add wireless who didn't have it previously

Figure 4.12 *– Libraries that have wireless, those that plan to add it, and if they have a public internet workstation upgrade or replacement schedule—which could include scenarios where workstations are added, but none are replaced or upgraded.*

As outlined before, the more rural areas are in greater need of wireless, especially when compared to the state-wide average. While the sample overall featured a lower rate of wireless coverage of the libraries surveyed almost twice as many as the state-wide average expressed interest in adding it. Rural areas were less concerned with keeping a consistent and predictable upgrade/replacement schedule, but this is likely due to factors such as inconsistent grant funding and a lack of a dedicated IT person or department.

These findings further emphasize that rural libraries need to develop more cohesive and flushed out plans for upgrades—both in terms of wireless and workstations.

Different factors might impact the acquisition of workstations, however, which might help explain the lack of scheduling in rural libraries. The open-ended phone interview responses were fit into the categories below to match the ALA report data:

Factors Influence the Addition Decision for Public Access Internet Workstations by State (%)

Location / community type	Availability of Space	Cost factors (grants)	Maintenance, upgrade	Availability of staff	Availability of bandwidth	Availability of electrical outlets	Current number of workstations is adequate	Other
State	71.7	70.5	26.8	13.5	7.3	27.6	21.3	*
Sample Ave	33.3	71.4	23.8	28.6	0	14.3	28.6	19.0
Significant	41.7	66.6	16.7	25.0	0	16.7	33.0	25.0
Predominant	22.2	77.8	33.3	33.3	0	11.1	22.2	11.1

Peoria	40.0	100.0**	0	0	0	20.0	40.0	0
St. Clair	16.6	83.3	33.3	33.3	0	16.6	0	0
Champaign	20.0	20.0	0	0	0	20.0	60.0	80.0***
Alexander-Pulaski	60.0	80.0	40.0	80.0	0	20.0	20.0	0

*Insufficient data to report

**The main Peoria Public Library (HQ) controls the IT department and allocation of IT resources. They cited grants and funding as an issue, and therefore it applies to all of the Peoria libraries. The same goes for the Mounds City and Mounds Public libraries.

***Mahomet Public Library was planning on moving, which impacted the decision for additional computers, and both the Urbana Free and Champaign Public cited user software (and therefore indirectly hardware) needs as the only major reasons. The Champaign Douglass branch gets its allocation of IT resources from the Champaign Public and therefore falls under their need jurisdiction.

Figure 4.13 *– When asked what factors influence upgrades and computer additions, libraries presented these items in response.*

The main factor influencing upgrades and additions for libraries in the study was cost, which matched the state-wide measure. Most libraries had enough space, with the exception of those in rural areas. Bandwidth was not an issue, surprisingly, for any of the libraries, thought it is possible that some of those in the rural areas did not understand this could apply to the need for multiple phone lines for multi-computer dial-up. Both Peoria and Champaign generally felt their computer setups were adequate already. St. Clair county and both types of African American communities called for a greater need for staff (presumably ones who could help with computers) than the state-wide average. Rural areas had a definitive need for this, which strongly matches their average number of computer experts (that is, 0).

In conclusion it can be stated that rural libraries and those serving African American communities in general have a need for more computer-knowledgeable staff if they are to upgrade and add computers in the future. All libraries could use more funding from grants and donations to add or improve PC's.

The Opportunity Index

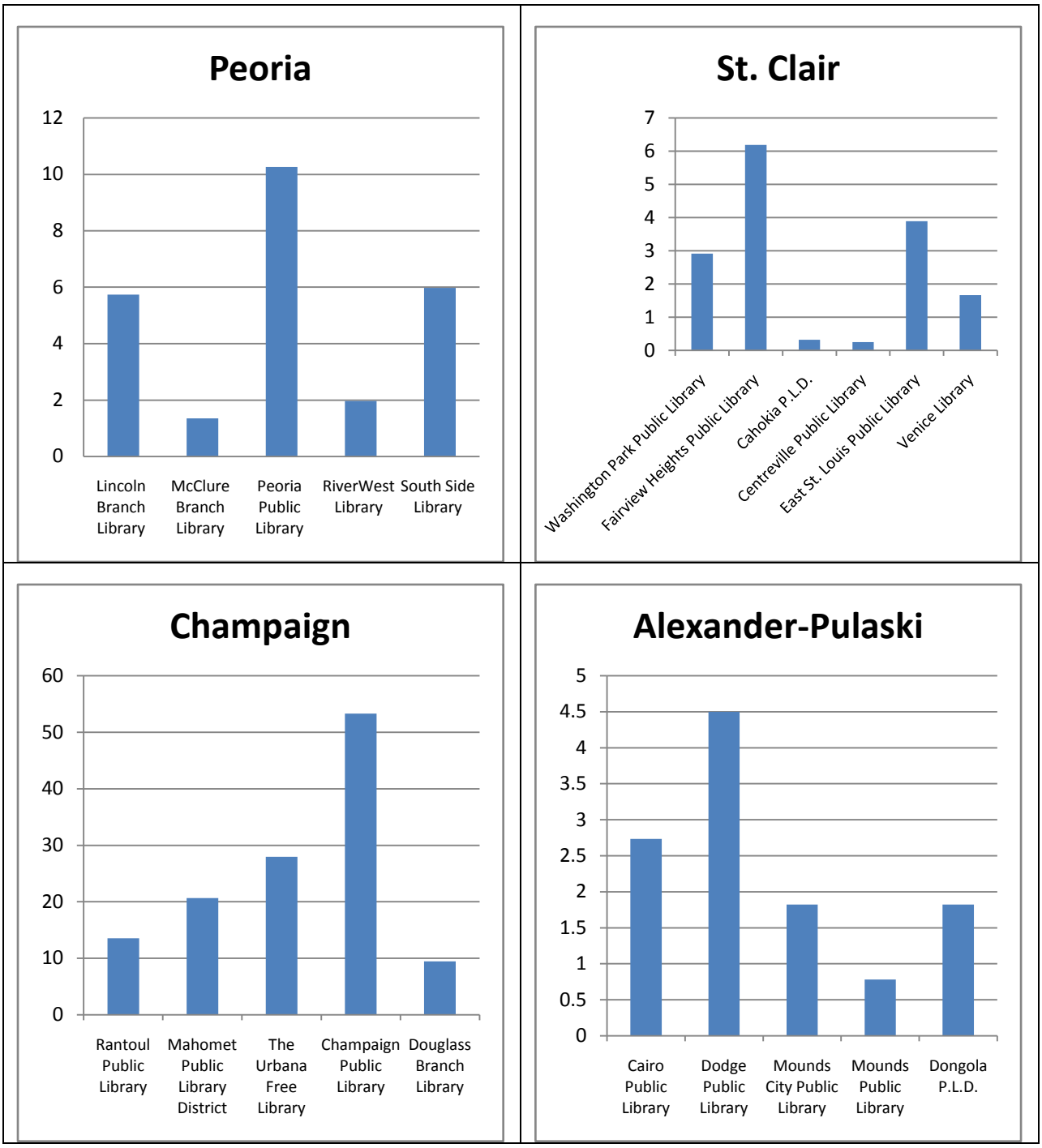
Though the analysis of each of these items is important, it is their collective measure that truly determines the potential for a library to assist in battling the digital divide and building *Digital Consciousness.* Therefore, for each library an *opportunity index* was thus calculated based on the number of hours the library was open, how often basic and expert help was available, the connectivity, creation, and software scores, internet speed (with a bonus for wireless), and the day-to-day average availability of computers. This *opportunity index* should roughly approximate a consummate predication a library's given capacity to aid users in accessing and creating knowledge, develop digital literacy, build social capital and all of the other benefits mentioned in the introduction to this study.

Complicated Calculation

Respondents to the survey were asked specifically how frequently help for patrons was available: never, rarely, sometimes, often, and always. These responses were assigned scores (0, 0.25, 0.5, 0.75, 1) and then multiplied by 1 for basic help, and 0.1 for expert help and then added together (thus giving a small bonus to libraries who have computer experts on hand). This number was multiplied with the total

hours per week a given library was open, its connectivity, creation, and software scores (expressed as a decimal based on percent of fulfillment). Internet connection speed was broken down into points (1 for never fast enough, 3 for always) and libraries with wireless received a bonus of 1 point. This number was then divided by 4 to give the library an internet capabilities score, which was in turn multiplied against the previous product of hours, help availability, and computer capabilities. Finally, this entire grouping was multiplied against the average availability of computers expressed as a decimal fraction (0.33 for never enough, 0.66 for sometimes enough, 1.00 for always enough). To some extent this measure is a fabricated and arbitrary index but it also does take into account the importance of all factors in determining a library's success rate. Some factors perhaps should be worth more than others but it seemed like library hours would be a safe mediating basis, as none of the learning, production, or magic can happen until you get through the library doors.[11] Figures 4.14-4.20 review (next page):

[11] Perhaps library websites would have been another important aspect – but it is unclear how much virtual libraries are used by general community members. If they're using a library computer then there may be a good chance that their computer at home doesn't have internet (if it is even present in the first place).



Figures 4.14-4.17 *– The Opportunity Index, a measure a library's total capacity to raise Digital Consciousness.*

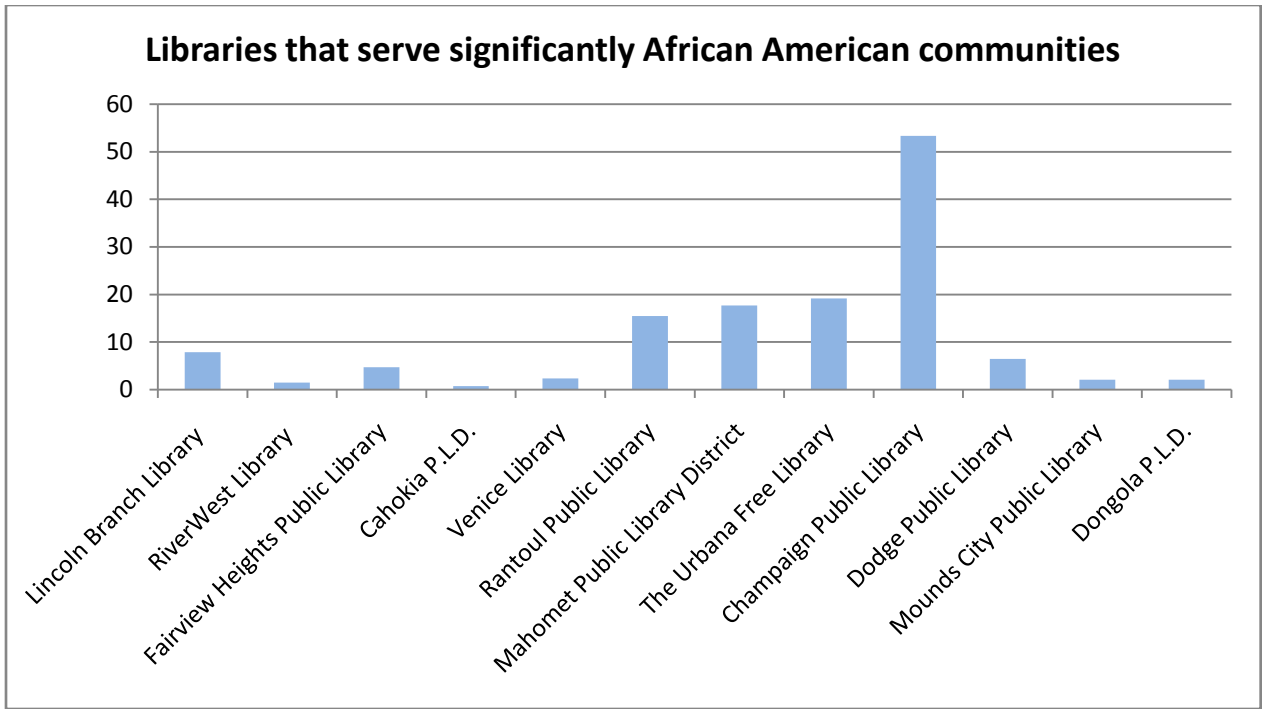


Figure 4.18 *– The Opportunity Index, a measure a library's total capacity to raise Digital Consciousness.*

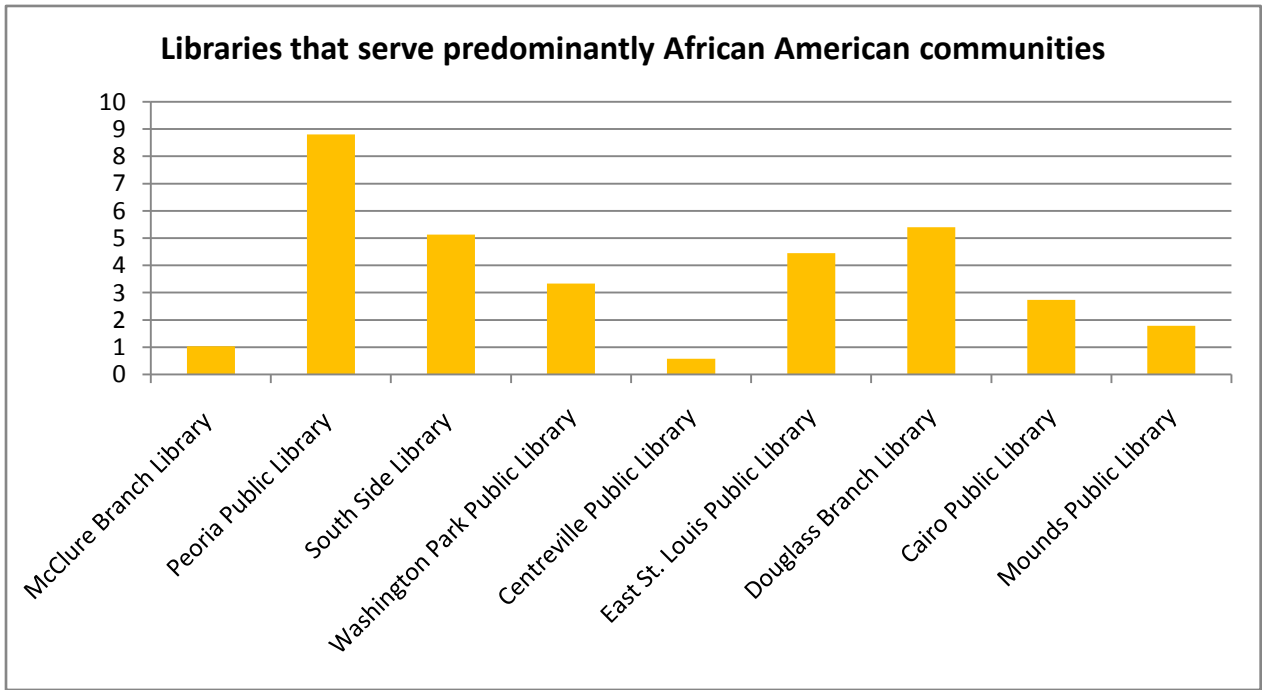


Figure 4.19 *– The Opportunity Index, a measure a library's total capacity to raise Digital Consciousness.*

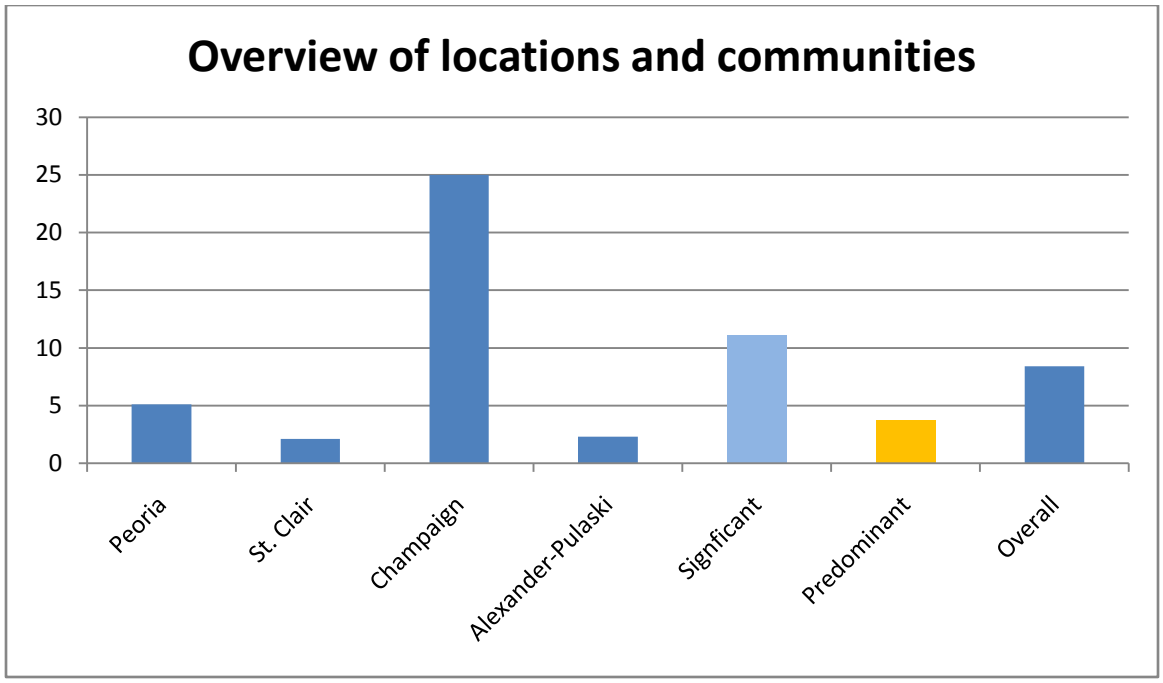


Figure 4.20 *– The Opportunity Index, a measure a library's total capacity to raise Digital Consciousness.*

It's pretty apparent Champaign dominates the measure, but this is because it is favored by the relative weight of hours of availability, all of its libraries were open much more often. Regardless, we can see that St. Clair, Alexander, and Pulaski county all stand out as places in need of assistance. Furthermore, on the whole significantly African American populations are better off than predominantly African American ones. This measure stands even after the removal of Champaign Public library, where the average for significant would still be 7.3, as compared to 3.7 for predominant.

As it stands, rural, impoverished, and predominantly African American areas are in the greatest need of help when it comes to library resources. These needs come in many forms, and when added up together, weigh heavily upon the library.

Design and Dissemination

At this point the Design and Dissemination stages beyond this paper are largely unaccomplished. The dataset, as well as the summaries above, will be posted online and made available for future research by any interested parties. The website could even be data-driven then it will likely also come in the form of a searchable database. Upon final feedback and approval, the report will be spread via IDEALS,[12] the open access archive for the University of Illinois, Urbana-Champaign, the author's up and coming personal community informatics website,[13] and eBlack Illinois.[14]

Discussion

[12] http://www.ideals.uiuc.edu/
[13] Address TBA, but it will be linked off of http://JAG-wire.net
[14] http://eblackillinois.net/

The libraries examined in this study do not provide enough resources to inspire and cultivate *Digital Consciousness*. Many libraries have expressed a strong desire to fulfill these needs, but until they are recognized on a greater scale, they will remain unanswered. Bertot's report to the ALA (2007) suggests several functions that libraries ought to perform:

1. *Provide and sustain public access Internet services and resources that meet community public access needs*
2. *Install, maintain, and upgrade the technology infrastructure required to provide public access Internet services and resources*
3. *Serve as a public Internet access venue of first choice within the libraries' communities for content, resources, services, and technology infrastructure (e.g., workstations and bandwidth), rather than the access point of last resort/only option*
4. *Serve as key technology and Internet-based resource/service training centers for the communities that the libraries serve*
5. *Serve as agents of e-government*
6. *Fund their information technology investments*

The community access needs mentioned in the first objective should include fostering digital consciousness in as many populations as can be effective. If libraries are to become the "first choice" venue as objective three describes, then they will need more than just some work stations and bandwidth. Modern libraries must rise to the occasion by first addressing their own hindrances, and by going beyond these to incorporate new technologies, people, and policy strategies.

Recommendations and Solutions

This report pushes forward a number of recommendations based on the previous analysis. By beginning with these first librarians can effectively solve immediate issues and move on to more innovative tasks. The following are suggestions that work in that school of thought – remedy and improve.

- **Spruce up the Staff and Training** - All of the smaller libraries in Illinois (those in Alexander and Pulaski County and a few in Peoria and St. Clair) only had one librarian (staff member) to head up the entire establishment. In those cases the weight of helping to maintain computers and help users with tasks fell on a person already overstretched for tasks. These areas could use more staff, and the staff available at them could use more IT training. This may even be easy to integrate with current work schedules. Librarians could be enrolled in classes online (which they might even do during slow times at work) or perhaps have a distance support service who might help with IT trouble-shooting issues.
- **Don't add, Upgrade and Bolster** - As outlined previously, rural areas often have more computers, but they're generally considerably older PC's. They have fewer peripherals like color and laser printing or scanners and recording devices. Consequently more money could go towards helping these locations upgrade or switch out workstations and add technology beyond computers, such as wireless, DVD burners, and scanners. Upgrading workstations could also fix other problems, such as the need for newer anti-virus or web browsers, and also facilitate for more advanced software programs, like graphics editors or educational software, which many

people would not be able to afford for their home PC. Overcoming the gulf to achieve *Digital Consciousness* is related to immersion and literacy with advanced technologies—both software and hardware.

- **Think Open, Think Free** – None of the libraries in this sample deployed Linux on their computers. Distributions such as Ubuntu have quickly become as usable as any Windows OS and offer a wide array of free, virtual community supported, programs that can do anything from your taxes to make pictures to help you chat with friends. Libraries who are pressed for monetary resources could avoid buying expensive software by installing free and open source programs (with or without Windows).
- **Rock Out the Connectivity Peripherals** - Many libraries facilitate for basic connections such as USB, optical media (CD/DVD), headphones and the internet, but few field equipment that can assist with the production of digital multimedia. Adding scanners and still digital cameras could be an easy first step, but eventually libraries might find ways to implement more advanced and exciting tools like web cams, digital drawing tablets and TV tuners. Some of these devices are relatively inexpensive and might be purchased in place of just a single book or DVD.
- **Enable Innovation, Invention and Creation** - Overall, libraries, especially those in predominantly African American areas, could do well to start offering color printing. Policies and hardware limitations prevented CD/DVD burners from being common place items. It seems to be a contradiction to field PC's with powerful tools like DVD burners and yet prevent visitors from playing the DVD's they rent from the very same library on them. Clearly libraries don't want to aid in piracy but at the same time they could help to educate users about fair use. A library could hold a contest for the best digital remix made completely of its own content.
- **Empower the Community with Creation Resources** - In general, libraries serving predominantly African American areas suffer from fewer resources for the creation of physical items like fliers, CD's or DVD's, and are less able to offer services such as faxing a resume or signed document to an important party. These communities might have even more need than others when it comes to local social/political movements, entrepreneurial start-ups, and community programs.
- **Rework Policies** - An ideal policy setup is one that includes enough librarian and parental supervision to not require an internet filtering system, so as to not inhibit education and ensure all websites are reachable. Libraries could consider offering time extension bonuses for patrons doing tasks like searching library databases or working on long term projects, like archival of family history. Finally, they should look into user account-based file storage options for projects they might create using library software or web-based applications. It is this kind of flexible and open policy setup, that when paired with appropriate supervision and virus protection, can best foster uninhibited development of Digital Consciousness.
- **Compromise on Policy, Save Money, Prepare for the Future: Install Wireless!** - In 2006 over 31% of all internet users owned a laptop with wireless capabilities (PEW Tracking Survey 2006). This number has likely climbed in recent years with the rising popularity of WiFi. Libraries can help offset restrictive computer use policies by providing wireless internet for laptop users, allowing them to act unhindered and still in work in a location featuring all of the benefits of a library. Furthermore, wireless networks to not necessitate expensive switches or network cable, allowing for each future expansion. Even items like printers could be wirelessly linked. In the future many phones will be able to take advantage of wireless and most people who will own a computer will own a mobile one.
- **Keep the Door Open!** – Libraries who are open longer are better able to facilitate patrons of more kinds. Not everyone has a simple 9-5 job, especially populations who might not own a computer and instead work 2 jobs. Obviously more time open requires more staff, but the more

resources a library offers the more incentive it might offer volunteers. An elderly person might be able to volunteer and help keep a library open longer and in turn take classes online or be given additional access to ancestry archives to create a book on their family history. Social capital can come into play – libraries can work out rewards systems and draw upon the power of the community in order to help make it that much better.

SPECIFIC SUGGESTIONS

This report also moves to make some specific suggestions regarding libraries in the counties interviewed:

- Increase the staff in St. Clair, Pulaski, and Alexander counties. They generally had too few computer experts (aka none) and often (St. Clair) had to deal with unfavorable potential patron to librarian ratios.
- Pulaski and Alexander county need newer computers, and they and St. Clair all could use more wireless coverage. For the rural counties this also means broad-band caliber bandwidth.
- All counties are in need of more advanced connectivity devices, such as video cameras, scanners, instructional displays, microphones, and more.
- Peoria libraries need more color printing available and to change their restrictive policy on DVD and DVD-RW use. They would also do well to casually supervise youthful patrons more instead of limit users with internet filtering systems.
- St. Clair county should consider implementing a system-wide automatically updating anti-virus system.
- Predominantly African American communities generally have fewer resources and benefits than significantly African American communities. This imbalance, which likely has roots in the tradition of institutionalized racism, needs to be offset by matching the capacities of more fortunate libraries.
- Champaign Public library could put more of its vast array of resources into the Douglass branch, particularly multimedia technology related ones that could be integrated into children's activities and youth digital education efforts.

LIMITATIONS

There were several limitations to the study design. First and foremost the sampling was plagued with issues of definition. Rural, suburban, and city communities may not only be defined by total population, but other factors like population density and activity. Though consideration was given to qualifying African American communities by both proportions and total population numbers, only the survey of Peoria County truly deployed a method that could identify specifically segregated populations. To really get an idea of a predominantly Black community you'd have to consult proportions, sheer numbers and the extent to which people cluster together (census tracts) in their living, as well as all of the qualitative measures of community (talk to locals and find out how they identify and associate). The assumptions about community employed in this paper are probably flawed but could be better rectified if they were considered to be an initial exploration conducted from a bird's eye view.

The assumption that libraries serve the communities most immediately located around them may also have drawbacks. People who have to drive from far away might just go to another if it's better or preferred; if the difference in driving time is not significant then they could easily switch. The location

principle also does not address other variables that might influence library choice, like traffic, parking, or speed limits. People who can't drive might not go to the library in the first place, and those who need public transportation might be channeled to a certain library.

Data collection also had its own challenges. The in-person visits were fiercely more effective methods of gathering data than telephone calls, which were ten-fold better than looking at websites, of which only the well-off libraries even had. Many librarians seemed to want to positively answer and cater to questions, without really critically thinking them over. Others were just uninformed and still some might have been ignorant (say, being unable to know how to identify a DVD-rom drive or IE7).

A substantial amount of discovery came during the process of the interviews, as the questions had to change to better suit the answers provided by librarians. The first few calls did not ask about card dedicated catalog computers specifically; often general computers share this function, but not always. Many libraries, particularly those surveyed in the St. Clair area had non-functional computers and equipment (scanner, wireless). To list their total computer lab size as those that were working wouldn't really reflect this problem. Other libraries presented conflicts between policy and actual activity. For instance, Peoria's official computer usage policy forbids users from using optical media (CD's, DVD's), but the library at one branch surveyed reported that users could use them there. Obviously figuring out how to fit phone interview data into statistics categories has its challenges.

The scope of the study itself had several sweeping limitations. Obviously only 5 of the dozens of counties in Illinois were selected, leaving many populations out. The normal drawbacks of phone interviews, such as hang ups, call backs, and partial interviews also all applied. And finally, for this report's release, the small sample of 21 libraries was not enough information to indisputably present conclusions, but instead only render suggestions (and perhaps suspicions).

Future Research

These limitations of course beg new avenues for future research. The most obvious would be in-depth case studies of the various libraries in the database, to add comprehensive documentation or explore user behaviors, interests, and methods that they might achieve *Digital Consciousness*. Future research could also widen the scope of the project to include all counties in Illinois, or at least more of them. The ground work has already been laid to examine 34 some odd libraries in Cook county alone, Chicago city itself holds probably another 30-40. Others might compare libraries that serve different populations, such as Asian or Latino/a to get a sense of services and opportunities for ethnic minorities in Illinois in general. The dataset might also be expanded to include new variables and categories, such as more specific questions about policies and staff knowledge. Many libraries had websites but this study did not seek to evaluate them for their effectiveness in communication and provision of knowledge and other library-related resources. They could be examined for helpfulness, accuracy, and ease of use. Overall, there is a great deal more research that awaits. May this study be the inspiration.

Difference

This report illuminates the final stage of digital inequality, *Digital Consciousness*. It is one of the first to do so (certainly the first with this term) and stands as a guide for the development of computer and internet resources, policies, and staff in libraries across the country. Those that serve disadvantaged populations, such as African American communities, should not be the last to get on board with the

movement: cyberdemocracy, collective intelligence, and information freedom. In fact, these libraries ought to be among the first, as they can offer valuable, diverse, and effective contributions and do so with the advantage of being a traditional and instrumental social service and information provision institution. As more people growing up in these communities are able to develop *Digital Consciousness* and become cyberorganizers more momentum will build behind us. Change is coming one way or another, but we must be the ones to ensure it is just.

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