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Multidisciplinary Approaches to Information Poverty and Their Implications for Information Access

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MULTIDISCIPLINARY APPROACHES TO INFORMATION POVERTY AND THEIR IMPLICATIONS FOR INFORMATION ACCESS

By

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In memory of Elfreda A. Chatman
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ABSTRACT

Information poverty is a term frequently used to describe a condition associated with economic poverty. No comprehensive analysis exists determining the delimitations, definitions, or parameters of the phenomenon of information poverty. This study explores and critically analyzes the concept of information poverty through an examination of the literature, models, and theories used to further understanding of information poverty as used across the social sciences.

This study reveals trends in information poverty research over the past thirty years, demonstrating that information poverty research has, for the most part, followed trends in poverty research. National information policy has focused on infrastructural components of information poverty during liberal administrations and cultural/behavioral components during conservative administrations. In the mid-1990s library and information science researcher Elfreda A. Chatman suggested a small world approach to information poverty. Her theory of information poverty is a notable addition to a more complex understanding of information poverty; however, there is still much to learn about information poverty.

The study presents a model of information access that can be useful for further study of not only information poverty but also other aspects of information access. The model takes into account the three layers of information access described in the information poverty literature: the information infrastructure, the social sphere, and the small world. This work suggests that all three of these layers of information access should be considered when discussing information access in general and information poverty in particular.
CHAPTER 1. AN INTRODUCTION TO INFORMATION POVERTY

Introduction

A primary aim of research is to find patterns of regularity whereby we can better understand the universe and everything in it through organized, methodical logic and observation (Babbie, 2001). This methodical process of observation is organized by means of shared lenses through which phenomena are examined. Thomas Kuhn (1962), in his classic work exploring the nature of scientific revolutions, describes scientific research as being guided by theories and paradigms, paradigms being the larger frameworks used to guide examination of various phenomena, and theories being more specific explanations of particular phenomena within the scope of the paradigm. It is not the goal of research to discover new paradigms, he claims, but rather to use empirical research to attempt to increase the accuracy of the reigning paradigm through the articulation of theory (i.e., via empirical research) and to explore alternative ways of applying the paradigm to new areas of interest. Only when what is observed with empirical findings does not fit within the existing paradigm is the paradigm reconceptualized, creating a new paradigm and providing a new way of looking at phenomenon. This study makes no assumptions about the phenomenon of information poverty, not even that it exists. The study does assume, however, that the literature on information poverty will reveal its own assumptions, results, conclusions, and failures.

According to Kuhn, it takes time for the new paradigm to be accepted. Both new and past research results must be examined or re-examined through the lens of the new paradigm. Only after sufficient empirical evidence has demonstrated that the new paradigm answers the questions that the older failing paradigm does not is the new paradigm accepted and the old one discarded. Thus, the aim of what Kuhn calls “normal science” is to find that the paradigm or lens through which one sees a phenomenon is completely accurate; in Kuhn’s words, “normal science does not aim at novelties of fact or theory and, when successful, finds none” (p. 52).

It is the existence of original theory within a discipline, Kuhn mentions, that marks the maturity of that discipline. Researchers within fledgling disciplines attempt to apply extant paradigms to new areas of interest, borrowing theories from more mature disciplines. Again, the objective is not to find fault with the borrowed theory, but rather to explain findings within the scope of an established paradigm. The borrowed paradigm and/or theory are then retained until empirical findings indicate that they no longer successfully explain the phenomenon observed.

Thus, it is not a problem that library and information science (LIS) research has been noted as borrowing heavily from other disciplines in its attempt to understand information-related phenomena (Hall, 2003; Pettigrew & McKechnie, 2001). It is through this process that
paradigms are either examined, expanded and reinforced, or else found lacking, a new paradigm soon thereafter taking its place.

The purpose of the current study is to explore this theoretical process by close examination of the research related to a single information phenomenon—information poverty—to determine the success or failure of the research in increasing understanding and thus fleshing out the larger paradigm or paradigms within which the research is set. This work consists of an in-depth conceptual, historical, and citation oriented explication of information poverty as the term is used in selected disciplines. The purpose of this research is not to create an all-encompassing definition of information poverty. Nor will this research identify the most effective methodologies for information poverty research. The express purpose of this study is to lay the groundwork for a future more comprehensive theoretical conceptualization of information poverty. Included in the question is whether or not information poverty exists.

As a multi-disciplinary field, LIS draws upon research and conceptual frameworks from any other field of study available, indicative of the flexibility and overarching applicability of the scientific study of information. It is the author’s observation that the LIS research on information poverty has closely mirrored social science trends in poverty research. This study analyzes similarities, differences, and relationships between the multidisciplinary views of information poverty, exploring what can contribute to a more complete comprehension of the concept, as well as discovering what impact research in these disciplines has had or has not had on clearly defining the concept of information poverty. Information poverty has largely followed poverty paradigms in its study. Thus, before turning to the paradigms that frame studies of information poverty, it is necessary to discuss broader conceptualizations of poverty.

**Poverty Paradigms and Research**

Traditionally, poverty has been studied using one of two paradigms, namely 1) the structural/economic paradigm and 2) the cultural/behavioral paradigm (Jordan, 2004; Rodgers, 2000). Through the structural/economic lens, poverty is seen as a result of a lack of equal opportunities. This lens tends to be emphasized by moderates and liberals (Jordan, 2004). The cultural/behavioral view, generally favored by conservatives, is that poverty is a consequence of “the behavior, values, and cultures of the poor” (Rodgers, 2000, p. 69). This is not to say that all research falls cleanly within the scope solely of either one or the other. Some structural/economic discussions include behavioral components, and cultural/behavioral research often cites lack of opportunity as leading to cultural marginalization and anti-social behaviors. Still, the poverty research since the 1960s in particular has aligned rather closely with either one of these two paradigms.

In the early 1960s the US was already one of the richest and most powerful nations in the world. The US and Soviet Union were the notable superpowers of the world, with global cultural, economic, military, and political influence (Fox, 1944). As communist antagonism grew, the US appeared to be a shining example of the prosperity of democracy. Unemployment was low and 62 percent of Americans were homeowners, an increase from 55 percent in 1950 and 44 percent in 1940 (US Census Bureau, 2003). In the midst of financial prosperity, American sociologist Daniel Bell (1960) foresaw an economic trend of decreased dependence on production and industry in the US and an increased reliance on service relationships and communication between individuals. He called this the *post-industrial society*. According to Bell (1960), the post-industrial society relied quite heavily on information, and this information was one of the factors that helped decrease disparity in Western society. As information and
communication technologies (ICTs) advanced, information was increasingly available at the push of a button.

Within the US democratic ideology, ease of access to and availability of information among the populace is fundamental (Hacker, 1996; Jaeger & Burnett, 2005; Smolla, 1992). The federal government historically has strong interest in the global spread of democracy, information, and continued American prosperity. During the 1960 presidential campaign, both Republican candidate Richard Nixon and Democratic candidate John F. Kennedy promised policies that would foster continued national economic progress (Farber & Bailey, 2001). Upon election, Kennedy promptly outlined federal economic plans that would provide tax cuts and additional economic opportunities for Americans.

Within a few years, however, a book by social activist Michael Harrington (1962) reportedly “jarred the country” (Miringoff, Miringoff, & Opdycke, 2006, p. 1). Harrington’s book revealed that during this time of unprecedented prosperity and focus on democracy nearly one quarter of Americans were living in poverty. Harrington’s poverty calculations were similar to the typical government poverty instruments, derived by setting dollar figures “with greater or lesser amounts of supporting details and rationales” (Fisher, 1994, n.p.). Harrington’s (1962) dollar figure for poverty was “somewhere between $3000 and $3500 for an urban family of four” based on a calculation in which he took a recent US Bureau of Labor Statistics “adequate” budget for urban family of four living ($6,147) and then halved it (pp. 181-182). This poverty measurement may seem somewhat arbitrary by today’s standards, but it was no more arbitrary than the standards the government used at the time. Harrington wrote of his poverty line, “If some statistician should find an error in technical approach, if he could say, there are 10,000,000 less poor, that would not really be important. Give or take 10,000,000, the American poor are one of the greatest scandals of a society that has the ability to provide a decent life for every man, woman, and child” (pp. 172-173).

Harrington’s discussion of poverty in America was one of the major catalysts for serious government consideration of the poverty problem as well as the impetus for creating a more carefully designed poverty threshold (Fisher, 1994; US Department of Labor, 2006). Harrington called upon the federal government to offer “real opportunities to these people by changing the social reality that gives rise to their sense of hopelessness,” creating an extended welfare package, and ensuring the longevity of social security (p. 167). He also recommended that the federal government oversee “the political, economic, and social integration of the poor with the rest of society,” noting that slums and other low-income housing isolate communities of poor individuals, disconnecting them from the rest of society and making it easy to ignore the poverty problem (p. 168). Finally, Harrington pointed out that the racial prejudices of the day were stifling opportunity and creating an extra set of barriers to economic integration (pp. 169-170).

**Poverty as a Structural or Economic Issue**

What is so significant about Harrington’s book is that the federal government actually responded to it, implementing policies that attempted to provide at least the basic tools a person might need in order to succeed in modern America. Kennedy increased the federal focus on combating American poverty with a plan that would include policy reform and social services similar to those of the New Deal era, and established a cabinet-level Office of Economic Opportunity. Before he could implement his plan, Kennedy was assassinated (in 1963) and his Vice President, Lyndon B. Johnson, was sworn into office and continued the “war against poverty” (Johnson, 1964a, p. 375).
Martin Luther King Jr.’s leadership in the civil rights movement had already helped turn the nation’s attention to the grave disparities in economic and social status between white American citizens and minority groups. With the increased focus on intercultural understanding, race relations also slowly improved. The same year that Martin Luther King, Jr. won the Nobel Peace Prize for his leadership in methods of non-violent protest, President Johnson signed the Civil Rights Act of 1964 (P.L. 88-352), targeting segregated schools and discrimination in the workplace that had been taking a toll on the employment opportunities of racial minorities. Title III of the Act allowed the courts to enforce desegregation in education, and Title V outlawed discrimination in employment, creating an Equal Employment Opportunities Commission to review complaints of hiring rejections “on the ground of race, color, religion, or national origin” (P.L. 88-352 § 201).

The Economic Opportunity Act of 1964 officially began the push for “The Great Society,” a place of “abundance and liberty for all” (Johnson, 1964b, p. 704). The Act created Kennedy’s designed Office of Economic Opportunity and provided free training and temporary financial subsidies for unskilled workers so they could “break out of the pattern of poverty” and “strike away the barriers to full participation in our society” (Johnson, 1964a, pp. 377-378). The Act included support for policy that would include all members of the American public to “participate in the workings of…society” by offering opportunities for “education and training, the opportunity to work, and the opportunity to live in decency and dignity” (P.L. 88-352, Introduction).

**Poverty: Relative or Absolute?**

Poverty literature describes a spectrum of poverty measures ranging from relative poverty to absolute poverty. Relative poverty is comparative deprivation, definable only in relation to others (Fisher, 1996; Iceland, 2003; Sachs, 2005). To assess the relative poverty of a family, one might consider the standard of living in their geographic area or the incomes of their closest friends and family. A poverty line could be drawn (e.g., Americans who make less than the median income for the city in which they live could be considered poor), but would change immediately as circumstances changed in the world around them.

On the other hand, absolute poverty is measurable with poverty lines and thresholds that theoretically remain constant, updated only for changes in the general economy (i.e., inflation) (Fisher, 1996; Iceland, 2003; Sachs, 2005). In a sense, even absolute poverty thresholds must have a relative component in that they cannot be wholly arbitrary and must take into account what is needed for a humane existence. Harrington notes that his poverty line set at $3,000 to $3,500 a year for a family of four was about the same as what federal assessors were using at the time to estimate national poverty figures. For example, the 1964 Report of the Council of Economic Advisers contains a chapter on American poverty that sets a poverty line of $3,000 for families (regardless of the number of family members) or $1,500 for a single person living alone (Fisher, 1992). Whether the family or individual had a vegetable garden, lived in California or Alabama, or had employment at the time of the survey were irrelevant to this absolute measure of poverty.

Around this same time, a document published in the US Social Security Administration Bulletin by economist Mollie Orshansky (1963) entitled “Children of the Poor” was circulating in the nation’s capitol (Fisher, 1992). This document contained a calculated poverty threshold by which one could assess the relative risks faced by families (with children) living at low-income status (Fisher, 1992). While Orshansky’s formulae for calculating poverty charts for different groups are complex, basically she used US Department of Agriculture food consumption survey
results and US Bureau of Labor statistics to calculate the minimum income necessary for an individual to be able to meet his or her nutritional needs for one year. She based her calculations on nutritional intake because there was “no generally accepted standard of adequacy for essentials of living except food” (Orshansky, 1965, p. 5). Orshansky used Engel’s Law of Economics, which is that the proportion of income spent on food rises or decreases inversely to rise or decrease of income (“Engel’s Law,” 2005). For example, an individual with a low income will spend a higher proportion of his or her salary on food (perhaps 50 percent) than an individual with a higher income (who might spend only 15 percent of his or her salary on food). Using Engel’s Law, Orshansky calculated the lowest income a family could have and still maintain physical health. Various charts accounting for differences in family size, ages of family members, farm and non-farm households, and so forth were created to ensure a realistic assessment of American poverty.

When applied to US income statistics already collected, Orshansky’s instrument helped determine that nearly 20 percent, or one in five Americans, were living at poverty levels (see Table 1)—a little better than Harrington’s numbers but not by much.

Table 1. Percent of All People in the US below Poverty Level (US Census Bureau, 2005)

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent Below Poverty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1959</td>
<td>22.4</td>
</tr>
<tr>
<td>1960</td>
<td>22.2</td>
</tr>
<tr>
<td>1961</td>
<td>21.9</td>
</tr>
<tr>
<td>1962</td>
<td>21.0</td>
</tr>
<tr>
<td>1963</td>
<td>19.5</td>
</tr>
<tr>
<td>1964</td>
<td>19.0</td>
</tr>
<tr>
<td>1965</td>
<td>17.3</td>
</tr>
<tr>
<td>1966</td>
<td>14.7</td>
</tr>
<tr>
<td>1967</td>
<td>14.2</td>
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<tr>
<td>1968</td>
<td>12.8</td>
</tr>
<tr>
<td>1969</td>
<td>12.1</td>
</tr>
<tr>
<td>1970</td>
<td>12.6</td>
</tr>
</tbody>
</table>

Critics have cited as a glaring problem the fact that the US poverty threshold does not describe an adequate income, but rather only measures what is inadequate. Orshansky (1965), in defense of her poverty threshold, stated that “if it is not possible to state unequivocally ‘how much is enough,’ it should be possible to assert with confidence how much, on an average, is too little” (p. 3). This too little/too much argument was not new. The Father of Economics himself, Adam Smith (1776), defined poverty as lack “not only of the commodities which are

\footnote{Food expenditure is the part of a budget of essentials that is most easily altered to suit income. Housing and utility costs remain relatively constant and so do not readily adjust when income recedes.}
indispensably necessary for the support of life, but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without” (p. 282).

Another argument is that a poverty threshold such as this takes only a point-in-time measurement of poverty. Whether this state of poverty is short-lived (e.g., one year) or longer term (e.g., a lifetime) is difficult if not impossible to trace by individual or family using these statistics. Recent research has indicated that most Americans who fall below the poverty threshold “are impoverished for a relatively short period of time,” with only one-quarter of those remaining in poverty for more than two years (Rodgers, 2000, p. 65). However, this same research indicates that 91 percent of those who have crossed below the poverty line remain at low-income levels, or on the economic margin (Rodgers, 2000, p. 66). Longitudinal analyses of poverty data collected with the poverty threshold instrument can provide some indication of the nation’s progress in addressing poverty, but the data itself is intrinsically static. It does help answer questions of where poverty is in America and who is poor based on demographic characteristics, but does not contribute answers to questions about why these individuals are poor or what possible poverty solutions might be.

Nevertheless, Orshansky’s poverty line, adjusted regularly to account for inflation, is still used in the US to determine poverty statistics. This instrument provides a yearly snapshot of the nation’s progress in combating poverty at least in monetary terms. While Orshansky’s poverty threshold has been challenged time and time again, no improved measure of economic poverty has yet been determined in the US.² In fact, government reports examining other possible poverty measurement schemes repeatedly note that Orshansky’s threshold is as reasonable as any other poverty measurement heretofore designed, and should continue to be the threshold of choice (Fisher, 2005). An individual who does not make enough money to purchase the required food for physical sustenance in the US is, since 1965, labeled “poor.”

Poverty through a Cultural/Behavioral Lens

While Harrington’s (1962) recommendations for federal reform are generally structural/economic based (i.e., the government should provide more opportunities), his book is composed of a series of anecdotes and cultural descriptions that point to cultural/behavioral problems that do not overtly tie directly to the solutions he names. Harrington’s call for government-directed integration and welfare support are counterpoised with descriptions of, among others, the “urban hillbillies,” who come from rural areas to try to survive in an urban environment without adopting the urban lifestyle, inevitably leading a very marginalized social existence (p. 96), and the “intellectual poor,” who choose a lifestyle of economic poverty, “fleeing a spiritual poverty in the Affluent Society,” often experimenting with drugs and social rebellion (p. 86).

Harrington cites what was at that time a recently framed culture of poverty theory to describe what he saw among America’s poor. The idea of a culture of poverty was first presented in social anthropologist Oscar Lewis’ (1959) book, Five Families: Mexican Case Studies in the Culture of Poverty. Lewis had spent years engaging in ethnographic observation among the poor in Latin America, Canada, Spain, and India. He had noticed a trend of poverty lifestyle “which

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²For example, a National Academy of Sciences (NAS) poverty instrument was reviewed in the New York Times on Sunday, March 12, 2006. The article describes the differences between Orshanky’s poverty line and the suggested NAS poverty line, and then suggests that poverty should not be assessed by the government, but rather by statisticians who can perform more intricate assessments of the poverty problem. This argument is not new. However, until advocates for a new poverty measurement are able to convince Congress that their updated instruments and calculations are significantly better than the traditional method, the argument is moot.
transcend[s] regional, rural-urban, and even national differences” (1961, p. xxv). According to Lewis (1961), a culture is “a design for living which is passed down from generation to generation” (p. xxiv), and within the lower-class settlements he had observed that there seemed to be a common culture, based on “similarities in family structure, interpersonal relations, time orientations, value systems, spending patterns, and the sense of community” (Lewis, 1961, p. xxv).

Lewis’s and then Harrington’s writings spurred a new wave of social research that focused less on the system or infrastructure and more on the culture or behavior of marginalized groups of individuals. Lack of motivation to change is a common theme in this culture of poverty research. Much of Harrington’s discussion, for example, centers on the routine of poverty. Harrington (1962) noted a “common sense of hopelessness” among the poor that creates a situation in which “even when there are programs designed to help [them], the poor are held back by their own pessimism … the impoverished American tends to see life as a fate, an endless cycle from which there is no deliverance” (p. 161). Harrington referred to the commonly proffered solution of education as “less and less meaningful,” since “a person has to feel that education will do something for him if he is to gain from it” (p. 161). He continues:

Placing a magnificent school with a fine faculty in the middle of a slum is, I suppose, better than having a run-down building staffed by incompetents. But it will not really make a difference so long as the environment of the tenement, the family, and the street counsels the children to leave as soon as they can and to disregard schooling. (pp. 161-162)

Thus, even though Harrington’s recommendations were for government intervention, the government action he recommended was specific: focus on the poverty culture rather than the infrastructure.

Not long after Lewis and Harrington popularized the culture of poverty theory, a government funded report entitled The Negro Family: A Case for National Action (Moynihan, 1965). This report, often referred to as “The Moynihan Report,” proposed that the “disorganization” of Black family life was a result of a dysfunctional subculture of poverty (Moynihan, 1965, chapter 1, n.p.). The Report, like the overall culture of poverty theory, was vehemently criticized as reinforcing negative racial and low-income group stereotypes. That is, the culture of poverty theory seemed to blame the victims of social disparity rather than work to ameliorate unequal socioeconomic opportunities (e.g., Coward, Feagin, & Williams, 1974; Irelan, Moles, & O’Shea, 1969; Miller, 1976; Roach & Gursslin, 1967).

Thus, proponents of the two different approaches to assessing poverty were engaged in lively debate in the 1960s and early 1970s. Is American poverty caused by government neglect or sociocultural failing? Is poverty only ameliorated through federal intervention, or are there other ways to address poverty concerns? These questions and others were on the minds of social researchers trying to understand the poverty problem. The structural/economic and cultural/behavioral paradigms both seemed to apply to different aspects of the poverty phenomenon. The difficulty was deciding which paradigm was the best fit overall.

As this dissertation will show, the limitations of these two poverty paradigms are echoed by similar limitations in conceptualizations of information poverty. This study examines the historical treatment of information poverty as it has been viewed through structural/economic and cultural/behavioral approaches borrowed from poverty research. And while international information poverty research continues to focus heavily on structural/economic factors leading to
information poverty, this study suggests that information poverty be conceptualized as a complex phenomenon that requires further study.

**The Information Disadvantage**

As mentioned previously, Bell’s description of the post-industrial society focused heavily on the increased role information was playing in society. Around the same time that Bell introduced the concept of the post-industrial society, economist Fritz Machlup (1962) was attempting to quantify the number of jobs in the US related to the production or processing of information or knowledge. Looking at employment and economic data from the turn of the century through 1959, Machlup categorized occupations as “information sector occupations” (e.g., engineers, teachers, editors, sales managers, cashiers, telephone linemen, etc.) or “noninformation sector occupations” (e.g., farmers, carpenters, floor layers, jewelers, piano tuners, dental assistants, engineering or science technicians, etc.). Using these categories, Machlup found that, while in 1900 37.5 percent of the labor force was agricultural, 44.9 percent was manual and service centered, and 17.6 percent was white collar, by 1959 only 9.9 percent was farm related, 48.0 percent was manual and service, and 42.1 percent was white collar labor (p. 382). Machlup further noted that “total knowledge-production in 1958 was almost 29 per cent of [the] adjusted [Gross National Product]” (p. 362). Machlup (1962) described the increase in information-related employment as the “knowledge society” and stated that “all information in the ordinary sense of the word is knowledge” (p. 15). Thus, one could say the idea of the information society was implicit in Machlup’s work (Duff, 2000).

The year following Machlup’s publication, Japanese ethnologist Tadao Umesao (1963) used the Japanese term *joho-shakai*, or the “informed society,” to portray the same type of changes at the international level. Umesao described a new international post-industrial social order that placed information in a central social position, thus affecting national productivity, economies, and political happenings. By this time, it seemed clear that the US economy and society, for one, were becoming more and more dependent on the information industry. By the end of the 1960s, the information society was a key subject of discussion, debate, and international attention.

In the early 1970s the terms *information poor* and *information poverty* began appearing in scholarly discussions regarding the social implications of information lack within the context of the information society. The *Oxford English Dictionary* (1989) identifies Edwin B. Parker (1970) as the first to use the term “information-poor” (p. 53) in a conference report entitled “Information Utilities and mass Communication,” afterwards printed in H. Sackman and Norman Nie’s edited conference proceedings published as *The Information Utility and Social Change*. In this work Parker suggests that new information utilities or technologies would exacerbate the information divide between technology haves and have-nots. No other works predate Parker’s use of the term, and Parker’s early work is not cited in other information poverty literature.

“Information poverty” and “information poor” appear next in a 1972 *Psychology Today* article by sociologist James S. Coleman that describes a structural difference between the modern information environment and the information environment of 100 years prior. Coleman describes the differences in American information infrastructure resulting from mass electronic dissemination of information (i.e., via radio, television) and notes that these changes in the way individuals (particularly children) access information consequently changes many other aspects of society including the lessening of adult authority and a shift in the overall structure of the education system from a focus on information dissemination to a focus on teaching critical
thinking skills and moral judgment. In the Coleman article, the environment 100 years ago was “information-poor” in comparison to today’s “information-rich” society (p. 72).

Another article published that same year by Stanford University Professors Edwin B. Parker and Donald A. Dunn (1972) about the distribution of ICTs throughout society also used the term “information-poor,” this time to describe people. They posit that “if access to … information services is not universally available throughout society, then those already ‘information-rich’ may reap the benefits while the ‘information-poor’ get relatively poorer” (p. 1396). These information discrepancies potentially create “social tensions” because information gaps, they say, contribute to gaps “in economic and political power” (Parker & Dunn, 1972, p. 1396).

The term “information-poor” appears in several other articles published in the early 1970s, describing the need for Black communities to begin focusing on becoming “information-rich” (Martin, 1973, p. 586; 1974, p. 263), discussing the social implications of unequal ICT dispersion throughout American society (Katzman, 1974; Parker, 1973/1974), and noting the lack of information available to individuals with visual disabilities (Suppes, 1974). These writings are the first of more than a three-decade-long ongoing discussion of information poverty.

The following figure (see Figure 1) charts publications from articles, books, book chapters, whitepapers, and government reports that have discussed information poverty. The chart indicates how many publications per year used the terms “information poor” and/or “information poverty” in the title, abstract, or at any point in the work’s discussion of the social issues related to information access. The collection of information poverty literature was compiled through detailed searches of social science databases such as JSTOR, ERIC, Wiley Interscience, Lexis-Nexis, PsychINFO, ISI Web of Science, Library Literature & Information Science, Library & Information Science Technology Abstracts, and Wilson OmniFile. Social Science Citation Index was also searched in both electronic and traditional paper formats. Additional searches of the World Wide Web provided various government documents and whitepapers related to information poverty, and the Florida State University System library catalog was used to identify monographs and book chapters that specifically discussed information poverty or the information poor. Finally, citation analysis within the information poverty literature was used to identify additional information poverty resources that were not retrieved with online or other searches.

As seen in Figure 1 publications discussing information poverty have increased and decreased throughout the past three decades. For example, the years 1973-1974, 1988, and then 1995-2001 show the largest number of publications on information poverty. In other years, (i.e., 1977, 1978, 1980-1982, 1990, and 2003) no publications at all used the terms. It is interesting to note that the concept of information poverty was introduced during the conservative Nixon administration (from 1968 to 1974) by researchers describing infrastructural inequalities that might lead to social disparity. Later research funded by the government during the Nixon and subsequent Ford administrations (until 1976), however, was the first to introduce the cultural/behavioral approach to information poverty (i.e., Childers & Post, 1975). After that there was relatively little produced regarding information poverty until the mid-1980s, when personal computers and other information technologies began to take center stage in American society. After 1990 in particular, information poverty publications rose markedly. This may be a result of the heavy focus the Clinton/Gore administration (from 1993 to 2000) placed on the role of information technology as contributor to the American information society.
The steep drop in information poverty publications after the change in administration to Bush/Cheney (R) in 2001 is worth noting at this point, but will not be thoroughly examined in this dissertation. Further research into the trends in information poverty research in relation to government administrations and the influence of presidential and/or congressional leanings will be left for future studies. Suffice it to say at this point that, as is seen in Figure 2, the infrastructural approach, discussing information poverty in terms of access to information technology, has been the most popular approach to examining information poverty.
In the 1980s, as personal computers grew in popularity, appearing in homes, offices, and schools, information poverty was discussed in terms of the information processing potential within the context of the information society, particularly in relation to the disadvantages Americans without ready access to computers might face (Buckley, 1987; Mason, 1986; Scherer, 1989). Also in the ‘80s, researchers began exploring information poverty in terms of the global information society, comparing the advantages the information- and technology-rich US and other developed countries had over less developed, technology-poor nations (Dubey, 1985; Gannett Center, 1987; Lang, 1988; Menou, 1983).

Throughout the 1970s and 1980s, the concept of information poverty was usually tied closely to economic poverty, and information poverty research in the 1990s continued much along the same lines of poverty-begets-information-poverty research with few exceptions. In 1995, around the time the introduction of the Internet into popular culture, the US National Telecommunications and Information Administration (NTIA) began a series of studies charting American Internet adoption and use. The NTIA studies identified the information poor as “those who are younger, those with lower incomes and education levels, certain minorities, and those in rural areas or central cities” who do not own computers or have in-home Internet access (1999, Executive Summary). This gap between these Internet haves and have-nots was termed the digital divide (Cisler, 2000). The digital divide literature often blurred with information poverty literature; however, the digital divide only accounted for one slice of the larger information poverty problem.

One of the exceptions to the poverty equals information poverty equation was LIS researcher Elfreda A. Chatman’s (1992, 1996; Chatman & Pendleton, 1995) ethnographic studies of the “impoverished information world” of non-poor demographic groups (Chatman, 1992, p. 137). Within the context of the prevailing structural/economic digital divide literature, Chatman returned attention to the cultural/behavioral aspects of information poverty. Rather than focus on ICT ownership, she proposed instead that it is “our membership within a particular social group [that] contributes to information poverty” (Chatman, 1996, p. 197). She searched for established sociological theories that might explain the information problems she observed. She found that the extant theories clarified some, but not all, aspects of information poverty. In 1996 she published her own theory of information poverty, one with a heavy cultural/behavioral focus. She described this theory as “middle range,” as it was based on a limited amount of ethnographic observation among a limited number of American subcultures.

While Chatman’s theory has been a launching point for a new wave of cultural/behavioral information poverty research (e.g., Fisher, Marcoux, Miller, Sánchez, & Cunningham, 2004; Hersberger, 2002; Jaeger & Thompson, 2004; James, 2000; Pollock, 2002; Sligo & Williams, 2001), there are still questions unanswered by even Chatman’s theory of information poverty. This study is an exploration of how information poverty has been examined to date and how these studies have advanced our general understanding of information poverty. It is hoped that an examination of how the concept of information poverty has been treated in different disciplines might provide additional insight into information poverty that has thus eluded information poverty researchers.

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3 According to Cisler (2000), the term digital divide was originally used in a story by journalist Amy Harmon in 1996 to describe the social problem that arises when a person uses digital technology at the expense of his or her real-life interpersonal relationships. The term was quickly adopted by NTIA representative Larry Irving when talking about the issues related to unequal ownership of computational technology. It is through NTIA documents that the term gained its popularity when discussing Internet haves and have-nots.
Originally, the literature review was confined to works from the time of Johnson’s declaration of war on poverty, in 1964, through today, but it quickly became apparent that information poverty was not a clear concept to address until after the start of the 1970s. Terms such as “information inequality,” “information barrier,” “information gap,” “knowledge gap,” “information disadvantage,” “cyberpoor,” “digital divide,” and “virtual inequality” are used in the literature to describe certain types or aspects of information poverty; however, these terms carry nuances beyond the scope of this study. For example, while not all digital divide studies specifically connect the digital divide with information poverty, digital divide studies in general create a backdrop for information poverty discussions that focus largely on the availability of new information and communication technologies (ICTs). Also, key works related to information and poverty, such as Greenberg and Dervin’s early 1970s studies of mass media use among the economically poor, are included to create an historical basis. Other literature discussing poverty and the connection between information and poverty is used to establish an historical basis as well.

Literature from communication, library and information science (LIS), political science, economics, sociology, social anthropology, psychology, education, and other social science fields contribute to the body of literature on information poverty. Surprisingly, there are no distinct trends in the literature. For example, communication literature does not exclusively discuss information poverty as a problem related to information and communication tools. LIS does not only discuss information poverty in light of libraries and information systems, education does not only suggest educational solutions for problems associated with the information-poor, and so forth. Likewise, structural/economic and cultural/behavioral paradigms are not exclusively used in one body of literature or another. There seem to be no patterns, in fact, for how information poverty is addressed within any one field. Even political science research varies on whether the policy should focus more on universal access or social services related to training and education.

The recommendations suggested in much of the literature focus largely on providing a more egalitarian national infrastructure—not only in relation to the provision of information, but also in relation to education and training, socioeconomic opportunities, and employment. As this research was intended to explore the issues related to information poverty and not necessarily to track proposed solutions to the problems related to information poverty, this dissertation will neither evaluate nor even fully discuss all of the suggestions provided in the literature reviewed. However, the historical review of the concept of information poverty has made it very clear that the issue is still very much an issue 40 years after the first mention in print of the problem. This work and any research that builds upon it will only help improve our understanding of the problem and will lend to solution structures that may reduce the impacts of information poverty on individuals and society, should such aid be possible.

Overview

The chapters of this work are framed as views of information poverty through the lenses of various social science disciplines. This is not to say that all the works reviewed in the chapter on the economic lens originate from the economics literature. The general categories of social, economic, and psychological views of information poverty have been used because, through repeated readings of the entire body of information poverty literature, that is the way the literature tended to group itself. The questions that guided the inquiry related to each of these topics are included in the chapter outline below.
Chapter 2. An Infrastructural Approach to Information Poverty

Chapter 2 focuses on information poverty with a universalist democratic approach, which tends to focus extensively on the national information infrastructure. The underlying notion, found in the US founding documents, is that a functioning democracy must provide information opportunity to its citizens. In the 1980s, during the Clinton/Gore administration, information poverty was discussed for the most part as a national issue tied directly to what is known as the digital divide, or a separation between individuals with digital information technologies and individuals without these information tools. This chapter overviews the historical evolution of the US information infrastructure and the concept of universal service as it is discussed in federal information policy, with a particular look at the benefits and limitations of determining information poverty based on quantitative access to information gadgetry.

Chapter 3. Information Poverty beyond the Infrastructural Approach

When opportunity abounds, what factors still keep Americans from accessing needed information? The chapter focuses on an approach to information poverty suggested by LIS researcher Childers and Post (1975), examining the effects of information processing skill, subcultural behavior, and personal attitude as components of information poverty. The chapter explores social theory and cultural/behavioral concepts and studies related to information poverty.

Chapter 4. Discovering the Small World

Elfreda A. Chatman’s research and her resulting small world theories contribute a new angle to the understanding of information poverty, with a focus on contextually specific perception and alienation within the context of society and the small world lifestyle.

Chapter 5. Conclusions and Recommendations

This final chapter synthesizes the universalist, social, and Chatman’s small world perspectives on information poverty, laying the groundwork for the future development of a more comprehensive theory of information poverty. A model of information access is introduced that takes each of the three approaches to information poverty into account. This chapter also discusses wider implications of this research and where the findings of the research may lead for future study.

Significance of the Study

The significance of this study rests on its careful detailing of the functional use and treatment of the concept of information poverty, thereby providing future scholars with an historical understanding, a current awareness, and a starting point in creating experimental designs proposed to test information poverty theories. Additionally, this research has implications for further amplification of the behavior and needs of human information seeking in the age of technology.

Perhaps there is no one-size-fits-all definition of information poverty. Perhaps it is only the information infrastructure and the global focus on information and power that has spawned notions of information poverty – not a poverty of information, per se, but a poverty of power, with information simply used as the next facade so that power can remain in the hands of the powerful by placing blame for powerlessness on the behavior of the powerless. Understanding information poverty can help strengthen information policy, provide a basis for improved information diffusion and/or service, enhance library and other information services, and provide a basis for further research and future theory development.
CHAPTER 2. AN INFRASTRUCTURAL APPROACH TO INFORMATION POVERTY

Introduction: Democracy and the Information Infrastructure

The first chapter introduced the concept of information poverty. This chapter will explore how the US focus on information infrastructure has led to the concept of the digital divide, or a gap between information technology haves and have-nots, that is said to cause information poverty (National Telecommunications and Information Administration, NTIA, 1999). As we will see, this focus on infrastructure and later the focus on the digital divide emphasizes delivery systems but ignores what information is used for. First I will discuss the concept of universal service as it has influenced the national focus on information gadgetry, then I will turn to a discussion of information poverty within the context of this rich information infrastructure.

Federal policies throughout American history have aimed to create an information infrastructure that serves all Americans equally. An information infrastructure is a subsystem of basic services, facilities, and installations that exist to support information access. This system can be both “engine and barrier for change … customizable and rigid … inside and outside organizational practices … both product and process” (Star & Ruhleder, 1996, p. 111). The modern national information infrastructure consists of telephone, postal, and broadcast services, libraries, schools, and other facilities, and electric and telecommunication installations that support a system wherein information can contribute to the realization of the democratic ideals of effective participation and enlightened understanding. The actual building of the infrastructure has for the most part been left to the private sector, with federal regulation and leadership ensuring that the infrastructure aligns with democratic ends.

Federal interest in developing the information infrastructure reflects the democratic belief that information opportunity is vital to a healthy democratic system. The relationship between democratic success and information is exemplified in the work of developmental economics researcher and winner of the 1998 Nobel Prize for Economics, Amaryta Sen. Sen spent the 1980s and 1990s building an argument that “no famine has ever taken place in the history of the world in a functioning democracy” (1999a, p. 16). The democracy of which Sen writes is more than simply a political system that has free and open elections for a ruling party. A functioning democracy, he says, is an “independent and democratic country with a relatively free press”
Unrestricted information and communication is vital for a people to know what is going on within their country’s borders, he argues. Sen even quotes communist leader Mao Zedong as saying to a conference of ruling cadres the year after a famine devastated the People’s Republic of China:

If there is no democracy, if ideas are not coming from the masses, it is impossible to establish a good line, good general and specific policies and methods…. Without democracy, you have no understanding of what is happening down below; the situation will be unclear; you will be unable to collect sufficient opinions from all sides; there can be no communication between top and bottom; top-level organs of leadership will depend on one-sided and incorrect material to decide issues, thus you will find it difficult to avoid being subjectivist; it will be impossible to achieve true centralism. (as cited in Sen, 1983, p. 759)

Note that Mao’s use of the word “democracy” clearly focuses on democratic exchange and flow of information rather than a multi-party system or voting rights or other aspects of the democratic process.

Within our own nation, democracy includes not only voting rights and a free press, but also opportunities for informed and involved participation in the democratic process. In order for the members of the nation to participate in matters of democracy there must be enlightened understanding, allowing “each member … equal and effective opportunities for learning about the relevant alternative policies and their likely consequences” (Dahl, 2000, p. 37). Likewise, citizens “must have the exclusive opportunity to decide how and, if they choose, what matters are to be placed on the agenda” (Dahl, 2000, p. 38). While true democratic participation is never forced, it is the government’s duty to ensure the opportunity for participation is available to all citizens. Those who do not or cannot participate because of economic, social, informational, or other barriers to opportunity are excluded from the democratic process.

To rephrase Sen, a government that supports an uninformed population is not a functioning democracy. Likewise, a democratic population needs to inform the government of its needs and desires. The importance of two-way communication between populace and government is clear in the founding documents of the US. Rather than expound on the theory of democratic practice and processes, the framers of the US Constitution and Bill of Rights instead outlined principles that create a democratic infrastructure. The word “democracy” is, in fact, never used in these documents. On the other hand, several of these premises for democracy focus specifically on information and communication. For example, the first and fifth sections of the first Article of the Constitution (1789) establish the basic system of federal information collection (i.e., decennial census, US Constitution, Article 1 §2) and dissemination (i.e., publication of Congressional actions and decisions, US Constitution, Article 1 §5 ¶3). This first Article establishes mandates and methods for the most basic two-way communication between the federal government and American citizens.

Perhaps the most oft cited information-related policy is found in the Bill of Rights (1791). The first Constitutional amendment decrees that “Congress shall make no law … abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.” The fourth amendment furthers these rights by including explicit control over personal documents: “The right of the people to be secure in
their persons, houses, *papers*, and effects, against unreasonable searches and seizures, shall not be violated.”

Nor is the judicial system exempt from this systematic emphasis on the importance of the open availability and exchange of information. The sixth amendment, outlining the right “to be informed of the nature and cause of [a legal or criminal] accusation” followed by “a speedy and public trial,” again emphasizes the role of information in all aspects of a free democratic society. A person cannot be legally sanctioned without first being informed of his or her offense. Again, information is deemed a basic human right.

The explicit wording related to information rights outlined in the framing documents of the nation emphasizes the importance the nation places on information as both a means to and evidence of democratic governance. These documents do not stand alone, however. Since the founding of the nation, the federal government has continuously made efforts to create and support an information infrastructure that provides the opportunities for information access necessary for democratic participation.

**Democratic Information Access**

Information opportunity begins with the ability to physically access information. Physical access requires at the very least

1. an environment with an infrastructure that supports information access,
2. the tools necessary for information communication and retrieval, and
3. the skill or ability to navigate the information environment well enough to obtain needed information.

These three aspects of physical information access are complementary. The infrastructure is not useful to someone who does not have the appropriate technology or skills. Likewise, the technologies cannot be used without a supportive infrastructure or without reasonable skill, and skills are useless if there is no infrastructure to deliver needed information or the necessary tools are unavailable.

**Creating a Democratic Information Infrastructure**

The US information infrastructure has been under construction since before the US became an independent nation. Postal services appeared in the colonies as early as 1639 (United States Postal Service, 2003). Libraries, such as Benjamin Franklin’s (c. 1727) public subscription library (which later served as the first Library of Congress) and the press were key players in the colonists’ political revolution. In fact, one of the primary grievances mentioned in the Declaration of Independence (1776) was that King George created a colonial disadvantage by frequently calling “together legislative bodies at places … distant from the depository of their Public Records.” Once the Declaration of Independence was signed, the Continental Congress had it read in public and then, to ensure an even wider audience, had it printed in at least 30 of the 38 different colonial newspapers in print at the time (Merritt, 1963; Shields, 2005).

By 1850, the US comprised 40 states that spanned from the Atlantic to the Pacific. As the nation expanded, long-distance communication became a challenge that neither newspaper nor post could adequately address. The pony express enjoyed short-lived popularity (from 1860 to 1861) as a method of rapid long-distance communication, but shortly thereafter a new technology, the electric telegraph, truly revolutionized long-distance communication (Fry, 2004). Short-distance telegraphy had been available as early as 1844, but not until 1861 did telegraph wiring reach from coast to coast (Andrews, 1964; Gamble, 1881). The infrastructure required for
telegraph communication consisted of a system of wires strung to whatever part of the nation information was to be communicated.

The telegraph ruled long-distance communication throughout the Civil War era and for a decade or so after, until the popularization of the telephone. Telephone infrastructure, too, required a physical, wired electric system, albeit a different wiring system than that used for telegraphy. While the centralized telegraph offices required that messages be relayed in code by an intermediary from office to office, the first and last mile or so being traversed by human messenger, with telephones, a wired home or office could send and receive voice messages directly to another wired home or office. As a person-to-person technology, however, the telephone introduced new communication limitations to the American infrastructure. While the benefit was that telephone owners could call associates directly, the problem was that they could only call associates who also had telephone wiring and electricity.

The idea that all Americans should have access to telephony and to the information communication capabilities it made possible was quickly shared by both telephone moguls and the federal government. The term universal service was first expressed by American Telegraph and Telephone (AT&T) president Theodore R. Vail in 1910. During the early days of telephony, competing independent telephone companies could not agree on an interoperable telephone infrastructure. Not all telephones could necessarily communicate with all other telephones. Vail’s vision was to create

“One System,” “One Policy,” “Universal Service,”… One system with a common policy, common purpose, and common action; comprehensive, universal, interdependent, intercommunicating like the highway system of the country, extending from every door to every other door, affording electrical communication of every kind from every one and every place to every one at every other place. (AT&T Annual Report, 1910, as cited in Albery, 1995)

The universal service of Vail’s vision was a communications system that offered unified, non-fragmented telephone service (Mueller, 1993). While this idea of universal service most certainly benefited the AT&T company, the federal government agreed that a unified, universal telephone infrastructure was advantageous to the nation as a whole. To the US government, universal service meant equitable and affordable communication and information opportunity for all Americans.

By 1913 the US Attorney General and AT&T had established what is known as the Kingsbury Commitment, which allowed AT&T to function as a monopoly regulated by federal oversight (originally by the Interstate Commerce Commission and after 1934 by the Federal Communication Commission, or FCC), as long as AT&T allowed independent long-distance carriers to use the AT&T infrastructure (AT&T, 2006). The Communications Act of 1934 (47 USC § 151 et seq.) reiterated the agreement with AT&T and established the FCC “for the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States, … a rapid, efficient nationwide, and world-wide wire and radio communication service with adequate facilities at

4 As telecommunication research and development advanced, AT&T began offering long-distance telecommunications via microwave and satellite technologies. The telecommunications giant could easily offer these services at lower costs than smaller competitive communications companies. In 1984 the Department of Justice decreed that AT&T was overstepping FCC regulations in their provision of long-distance services, and the AT&T monopoly was disbanded and divided into smaller regional Bell operating companies that would again focus on local telephone service, allowing smaller independent companies to drive the market in long-distance telecommunications (AT&T, 2006).
reasonable charges” (§ 151 ¶ 1). The Act promised an infrastructure that would allow Americans of all socioeconomic levels to both deliver and receive communication of information.

Universal service is of particular value in the rural context. Rural areas are difficult to reach with installations such as electricity and telephony, as wiring must travel a long distance to reach only a few homes. When the costs are passed directly on to the user, the installations for the services are prohibitively expensive. The Rural Electrification Act of 1939 (7 USC § 901 et seq.) provided loans to rural cooperatives and public power districts to promote local building of the necessary infrastructure to ensure that electricity extended to rural areas (US Senate, 1999). A 1949 amendment extended the Act to include federal loans for establishing telephone wiring and service to rural areas where the infrastructure would not otherwise reach. Farmers were encouraged to create cooperative electric and telephone systems whereby they could build their own necessary installations and then buy services at wholesale cost (National Telecommunications Cooperative Association, 2006).

Besides telephony, the FCC had oversight of radio communication. While wireless radio had been used for two-way communication since the 1890s, not until the early 1920s was the medium used for the transmission of regular scheduled programs intended for reception by the general public (Whittemore, 1929). Broadcast radio gained quick popularity as is reflected in the following quote from a 1927 article in the American Journal of Sociology:

In the past five years Jules Vernian impressions of radio and radio broadcasting have been driven into people’s minds by the active publicity man with his circus ballyhooing about the romance of radio and the wonders of wireless. The press agent has convinced many of us that there is practically nothing that radio cannot do, all the way from communicating with Mars and transmitting millions of kilowatts of electrical energy thousands of miles without wires to giving college education to the nation and keeping wayward husbands at home. (Beuick, 1927, p. 615)

The notion that mass media could be used to enhance or even be the primary delivery source of education was based on the idea that education is little more than the delivery of information. At this time in history, a literate individual was one who had basic reading, writing, and arithmetic skills (Freire, 1970). Not until the 1970s were information processing skills included as vital to the education process. This will be discussed further in the following chapter.

The Radio Act of 1927 had created a Federal Radio Commission (FRC) to “regulate all forms of interstate and foreign radio transmissions and communications” and to “provide for the use ... thereof by individuals, firms, or corporations for limited periods of time” (¶ 1) that was in effect until the 1934 Act replaced the FRC with the FCC. As mentioned above, the FCC had oversight not only of radio communication, but also telephony. Television broadcasting also soon joined the ranks as a popularized communication medium. Television was still in experimental stages when the Communications Act went into effect, but by 1941 the FCC had begun regulating television as well, authorizing commercial television broadcasting and granting ten television broadcast licenses (Slotten, 2000). The infrastructure necessary for both radio and television broadcasting consists of a power source, a transmitter, and a receiver. Using the electricity grid already in place, a transmitting station can reach any number of reception sets within a certain radius. Also, once broadcast, any number of receivers may enjoy the broadcast without any reduction of quality of the transmission, as long as the receiving technology is within a certain radius of the broadcast signal.

Rural and mountainous areas can have difficulty receiving radio and television airwaves. Broadband or cable television wiring came about in the 1940s and 50s as a cooperative method
of obtaining improved television reception. In areas where television signals were difficult to access because of mountainous terrain or long distance from transmitting stations, large antennae were used as over-the-air signal receivers and then broadband cables delivered the improved cabled signal to homes in the area. This method proved useful for receiving long-distance broadcasts as well, increasing the number of channels a television with cable service could receive. This increase in numbers of cable channels received became a selling point and soon cable services were being sold as enhancements for any television reception (National Cable and Telecommunications Association, 2005). A 1984 amendment to the Communication Act (i.e., the Cable Act of 1984, P.L. 98-549) outlined specific cable regulations and added cable services to the FCC’s jurisdiction.

Satellite and cellular infrastructures followed cable, allowing wireless telecommunication service to and from almost anyplace around the world. In 1996, the federal government extended FCC oversight to include all “broadcasting, telecommunications, cable, computer, data transmission, software, programming, advanced messaging, and electronic businesses” (Communications Act, § 714.k.3). The amendment, entitled the Telecommunications Act of 1996, also expands the concept of universal service, establishing guidelines “to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies” (Introduction). The 1996 Act commits specifically to ensuring affordable information and communication services to rural, high-cost, and low-income areas, to the disabled, and to public health, library, and educational facilities.

Access to Technology

The US emphasis on infrastructure has been successful in creating an infrastructure that affords the vast majority of Americans with access to information and communication services. As of 2000, almost 95 percent of American homes had wired telephone service. In large part access to the information infrastructure depends completely on one’s access to information technologies. Federal data collection related to information access, in fact, has come to focus on home ownership of ICTs. The US Census and NTIA data from 2000 indicated that 99 percent of Americans had radios, 98.2 percent had television sets, and more than half had computers, 41.5 of which had Internet connection (see Table 2).

For households without these technologies, pay phones allow public access to telephony; televisions are found in airports and other public areas such as classrooms, doctors’ offices, automobile repair facilities, and many restaurants; and radio sets are found in cars, boats, tractors, offices, schools, and other institutions and mobile units. By the close of the millennium, in fact, there were so many technologies useful for accessing information that individuals could access the information infrastructure in non-traditional ways. For example, digital (i.e., Voice over Internet Protocol or VOIP) and cellular telephony allow individuals to connect to the telephony infrastructure without wired telephone service themselves. These telephone alternatives, as well as other gadgets that send and receive digital wireless communication anyplace, anytime, make it difficult to say that a household without traditional telephone service is not connected to the national information infrastructure in some other fashion. Since simple physical access seems to be so ubiquitous, it is clear that a full definition of information poverty cannot rely simply on analysis of the infrastructure. This point will be discussed in greater detail later in this work.

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent of households with telephone service</th>
<th>Percent of households with radio sets</th>
<th>Percent of households with television sets</th>
<th>Percent of households with personal computers</th>
<th>Percent of households with Internet service</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>35.0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>1930</td>
<td>40.9</td>
<td>39</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>1940</td>
<td>36.9</td>
<td>73</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>1950</td>
<td>61.8</td>
<td>91</td>
<td>9.0</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>1960</td>
<td>78.3</td>
<td>94</td>
<td>87.1</td>
<td>NA</td>
<td>NA</td>
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<td>90.5</td>
<td>95</td>
<td>95.3</td>
<td>NA</td>
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<tr>
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<td>93.0</td>
<td>99</td>
<td>97.9</td>
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<td>99</td>
<td>98.2</td>
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<td>99</td>
<td>98.2</td>
<td>51.0</td>
<td>41.5</td>
</tr>
</tbody>
</table>

Perhaps the most important recent change to the American information infrastructure has been the advent and popularization of Internet. Since the 1960s, Internet technology had been evolving in military and academic sectors; however, it was not until the introduction of the World Wide Web, graphical user interfaces, and user-friendly browsers such as Mosaic in the early 1990s that the Internet became a mass media technology (Leiner, Cerf, Clark, Kahn, Kleinrock, Lynch, Postel, Roberts, & Wolff, 2000). The first few years of popular Internet use relied on home or office computer networks that connected to the nation. Prices for online connections were expensive, with early rates ranging from $20 to $30 per connection (Cooper, 2002). Computer costs were also high, and the software and hardware needed to maintain a well-equipped computer were luxury costs that many, the lower-middle classes in particular, could not afford. There was national concern that those described as information poor were becoming even more disadvantaged in comparison to their fellow citizens who could afford the latest information technologies (e.g., Gannett Center for Media Studies, 1987; Menou, 1983; Siefert, Gerbner, & Fisher, 1989). This gap between those with computer and Internet access and those without it was labeled the digital divide. This divide was thought to be binary: one was either an ICT have or a have not, and not having digital access was thought to limit an individual’s ability to fully participate in a democratic society (Barber, 1997; De Cindio, Gentile, Grew, & Redolfi, 2003; Nicholas, 2003; Norris, 2001; O’Neil & Baker, 2003; Sawhney, 2003; Servon, 2002; Stanley, 2003; Strover, 2003; van Dijk & Hacker, 2003; Warschauer, 2003; Wresch, 1996). The digital divide will be discussed in further detail later in this chapter. Suffice it to say at this point that in the 1990s, access to the information infrastructure was largely measured by assessing household access to ICT.

Information Access Skills Training

By the time social thinkers began discussing the advent of the information society (c. 1960), it was obvious that new ICTs would change information and information access but it was not clear if this would be to the overall benefit or detriment of societies, political systems, and
economies. The utopian view was that the new information society was to be “cleaner, greener, more pleasant, more intellectual, perhaps even less manic because we shall value ideas rather than things” (Dordick & Wang, 1993, p. 2). On the other hand, changes in the infrastructure required new technologies, which in turn required that users have updated training and educational opportunities (Coleman, 1972; Parker & Dunn, 1972).

Radio and television required no special skills for use except perhaps some amount of understanding of the language in which a program is broadcast. The simplicity of these two media and the widespread and rapid diffusion of both made them seem like logical tools to enhance American education (e.g., Behnke, 1953; MacLatchy, 1931; Phillips, 1937). All one would need for educational opportunity was access to the appropriate infrastructure and technologies. Funding for educational television and radio facilities and programming was added to the Communications Act with two amendments, the Educational Television Facilities Act of 1962 (P.L. 87-447) and the Public Broadcasting Act of 1967 (P.L. 90-129).

Sociologist James S. Coleman (1972) discusses the need for educational changes in his article “Have the Children Outgrown the Classroom?” Coleman takes an historical look at the US and determines the American 1970 information infrastructure is “information-rich” in comparison with the “information-poor” infrastructure of 100 years prior (p. 72). Writing of 1870, Coleman describes a largely rural and agricultural-based system wherein information was difficult to obtain. Books were scarce, mass media was limited to newspapers, about 20 percent of the nation was illiterate, and authority figures (e.g., teachers, parents) had much control over the dissemination of information, particularly to children. He describes the information-rich mid-twentieth century, with new information technologies working within an infrastructure that delivers information quickly and directly to individuals in all parts of the US.

Table 3. Percent of Persons in the US 14 Years Old and Older of Any Race or Nationality Who Could Read or Write in Any Language, 1870-1970 (Snyder, 1993)

<table>
<thead>
<tr>
<th>Year</th>
<th>Literacy rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870</td>
<td>80.0</td>
</tr>
<tr>
<td>1880</td>
<td>83.0</td>
</tr>
<tr>
<td>1890</td>
<td>86.7</td>
</tr>
<tr>
<td>1900</td>
<td>89.3</td>
</tr>
<tr>
<td>1910</td>
<td>92.3</td>
</tr>
<tr>
<td>1920</td>
<td>94.0</td>
</tr>
<tr>
<td>1930</td>
<td>95.7</td>
</tr>
<tr>
<td>1940</td>
<td>97.1</td>
</tr>
<tr>
<td>1950</td>
<td>96.8</td>
</tr>
<tr>
<td>1960</td>
<td>97.8*</td>
</tr>
<tr>
<td>1970</td>
<td>99.0*</td>
</tr>
</tbody>
</table>


Looking at census figures, by the 1970s the US had created an infrastructure that provided electricity across the nation and at least 90 percent of homes with telephony. Around 95
percent of homes also had radio and/or television sets. In addition, 99 percent of persons over the age of 14 in America had at least the fundamental literacy skills of basic reading, writing, and arithmetic (see Table 3 above). According to Coleman (1972), “instead of information poverty [the American public] now confront[ed] information richness” (p. 72).

Around this same time, however, education philosopher Paolo Freire (1970) argued that basic literacy was not enough for successful democratic participation. Freire presented the idea that education must promote critical thinking, which leads to liberation, creativity, and a commitment to self. In other words, basic literacy is but one step in the larger education process. Coleman emphasizes this new idea of education in his article on education within an information-rich society:

When the child lived in a poverty of information, the family and school shaped the child’s cognitive world by the selectivity of information they imposed. As the environment has become rich in information, the child’s cognitive world has begun to be shaped by neither family nor school, but by comic books, television, paperbacks, and the broad spectrum of newspapers and magazines that abound. (Coleman, 1972, p. 72-73)

Coleman (1972) cautioned that the education system needed to change to fit the information-rich environment. How would modern youth learn moral values? And wouldn’t this ease-of-information-access within an information-rich society create a generation of “action poor” youth? (p. 75) Coleman suggests that the leisure of information wealth was slowing down the education process. He uses the example of the adult responsibilities a 12-year-old assumed in the information-poor 1800s as opposed to the way 20-year-olds in the modern information-rich society are still considered to be “kids” in responsibility, (Coleman, 1972, p. 74). He writes with some degree of lamentation that the youth of 1970 were waiting to be taught, “having no responsibility other than to learn” (Coleman, 1972, p. 75).

This concern that an abundance of information creates a problematic passive learning cycle was not exclusive to Coleman’s musings. Stanford University professors Edwin B. Parker and Donald A. Dunn (1972) also explored theoretically the threat that broadcast television would create a nation of passive information consumers rather than active information seekers. Parker and Dunn’s plea was for the advancement of cable television, a medium with the potential to change American information flows. They predicted a futuristic two-way information flow via cable in which a subscriber would be able to “communicate data back to a computer at the head-end of the cable system” (Parker & Dunn, 1972, p. 1393) and engage in “computer aided instruction, information retrieval, and time-shared computer services” (Parker & Dunn, 1972, p. 1394). This active, participatory information retrieval would help engage the nation in active learning. Predating the use of the cable infrastructure for Internet communication by more than two decades, Parker and Dunn saw the cable infrastructure and cable-using technologies as potentially activating the information and communication exchange processes.

However, with the technological advances that Parker and Dunn saw as imminent and unavoidable, there would necessarily be a need for Americans to purchase the new technology and tap into the required infrastructure in order to take advantage of the new information flow. They note with concern the financial costs tied to this change. They posit that “if access to these information services is not universally available throughout society, then those already ‘information-rich’ may reap the benefits while the ‘information-poor’ get relatively poorer” (Parker & Dunn, 1972, p. 1396). Parker and Dunn called upon the federal government to provide “equal social opportunity for all citizens; this includes the provision of equal access to education.
and information, as well as the maintenance of an economy that provides equal opportunity of employment” (Parker & Dunn, 1972, p. 1392).

Libraries began integrating ICTs into the collection and reference services, and library programs began to center on training patrons on how to use the new technologies. As of 2004, 99.6 percent of public libraries were connected to the Internet and 98.9 percent of public libraries offered public Internet access to patrons (Bertot, McClure, & Jaeger, 2005). By this time Internet-based services had become so popular among patrons that 85 percent of public libraries report not being able to meet patron demand for Internet access at certain times of the day or on a consistent basis throughout the day (Bertot, McClure, & Jaeger, 2005; Jaeger, McClure, Bertot, & Langa, in press).

**Information Poverty within a Digital Democracy**

The plea for federal intervention to even out the information technology playing field between wealthy and poor Americans has echoed throughout the information poverty research emphasizing infrastructural development. Researchers have expressed concern over the possibility of information poverty caused by unequal education (Kenway, 1996; Martin, 1973; Mason, 1986), technology (Fahey, 2001; Haywood, 1995; Holderness, 1995; Kenway, 1996; Mason, 1986; Parker, 1973/1974; President, 2005), and infrastructure-related opportunities (Branscomb, 1979; Buckley, 1987; Buschman, 1998; Companie, 1986; Gannett Center for Media Studies, 1987; Kenway, 1996; Martin, 1974; McClure, 1974; Murdock & Golding, 1989; Parker & Dunn, 1972; Shimmon, 1995; Suppes, 1974; United Nations International Telecommunication Union, 2002; Zukin & Snyder, 1984).

The information poverty speculation is mostly based on a theoretical “information gap” hypothesis (Katzman, 1974, p. 129). The gist of the information gap argument is best summarized in communication researcher Natan Katzman’s (1974) six premises as follows:

Premise 1: The adoption of new communication techniques and technologies tends to increase the amount of information transmitted and received by individuals.

Premise 2: All individuals receive more information after the adoption of a new communication technology.

Premise 3: With the adoption of new communication technology, people who already have high levels of information and ability will gain more than is gained by people with lower initial levels.

Premise 4: Humans have a limited capacity to process information and a limited capacity to store information.

Premise 5: Compared to humans, machines now have unlimited capacity to process and store information.

Premise 6: New communication techniques and technologies create new information gaps before old gaps close. (p. 125-129)

In other words, examination of the link between information infrastructure and information poverty is predicated on the assumption that as new technologies are adopted, and as the infrastructure is developed to support these new technologies, the distribution of information available through a society changes. Those who are able to keep up with the changes benefit from the advances while those who cannot keep pace fall behind, thus widening “the gap between the ‘information-rich’ and the ‘information-poor’ in society” (Katzman, 1974, p. 126). While Katzman’s premises are not widely cited, they do outline the basic structural/economic information poverty hypothesis that is found over and over again in the information poverty
literature. According to this hypothesis, the opportunity gap becomes more and more pronounced as new technologies are rapidly introduced to society.

The rapid introduction of new information technologies was precisely what America faced. The 1980s was a decade of compression and miniaturization (Coates, 1992). As early as 1965, electronic engineer Gordon Moore had predicted that every year the number of transistors per square inch on integrated circuits would double (Moore, 1965). Moore added that the speed of the computer would likewise double every two years and the cost of computer chip manufacturing would decrease as the technology advanced. This phenomenon of technologies growing smaller and less expensive each year is known as Moore’s Law. Computers that previously filled entire rooms were available in personal-sized desktop versions by the end of the decade. In 1983 the Apple Macintosh personal computer was introduced with the ad: “Hello, I am Macintosh. Never trust a computer you cannot lift” (Bellis, 2006, n.p.).

In 1988, then-Senator Al Gore chaired a Senate science committee that helped fund the research that lead to the commercialization of the Internet (Wiggins, 2000). The development of infrastructure for the Internet in the US was explicitly and clearly conceptualized as a move that would enhance the exchange and availability of information. The potential of the Internet as a national information network, or “superhighway,” was clear to Gore (Wiggins, 2000, n.p.). In 1992 Gore was elected US Vice President, with William J. Clinton as President. The Clinton/Gore administration soon released an “Agenda for Action” establishing the federal government’s role in “accelerat[ing] deployment” of the national information infrastructure (NII) in order to develop an NII “that enables all Americans to access information and communicate with each other using voice, data, image or video at anytime, anywhere” (NII Agenda for Action, 1993, n.p.). While the private sector would “build and run virtually all” of the NII, an Information Infrastructure Task Force (IITF) would be created to provide leadership in the NII’s development (n.p.). The IITF would consist of high-level representatives of various federal agencies, thus enabling agencies “to make and implement policy more quickly and effectively” (n.p.).

The idea was to create “a seamless web of communications networks, computers, databases, and consumer electronics that will put vast amounts of information at users’ fingertips … [and] unleash an information revolution that will change forever the way people live, work, and interact with each other” (NII Agenda For Action, 1993, Executive Summary). The great information revolution Clinton and Gore envisioned hinged on national adoption of Internet technologies.

Taking the executive administration’s lead, researchers began writing about the integral role technology plays in creating an informed American society. Policy researcher Jorge Schement (1994, 1995, 1998; Schement, Belinfante, & Povich, 1997), for example, introduced ideas of how universal access had evolved through the decades to include more than simple telephone service. Schement outlined the political, economic, and social value of equality of information technology access in that it provides equality of information opportunity. Schement pointed to the necessity for citizens in a democracy to have access to varied opinions and a variety of information sources in order to make good democratic decisions. Information access via ICTs is the key to ensuring that variety of information reaches the populace, according to Schement.

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5 In 1975 Moore updated his prediction to every two years “to account for the growing complexity of chips” (Hiremane, 2005, p. 4).
In 1994, at Vice President Gore’s request, the NTIA surveyed Americans regarding computer ownership and Internet use. The report, published in 1995, specifically focuses on the concept of universal service, extending this definition to include not only equitable access to telephone services but also equitable online technology opportunities:

Individuals’ economic and social well-being increasingly depends on their ability to access, accumulate, and assimilate information. While a standard telephone line can be an individual's pathway to the riches of the Information Age, a personal computer and modem are rapidly becoming the keys to the vault. The robust growth recently experienced in Internet usage illustrates this promise as new and individual subscribers gravitate to on-line services. This suggests a need to go beyond the traditional focus on telephone penetration as the barometer of this nation's progress toward universal service (NTIA, 1995, Background).

The report indicated that both telephony and Internet access appeared to be resistant to adoption in rural and central city areas of the nation, particularly among the economically poor who lived in those areas. According to the study, only one quarter of US homes already had personal computers, and modem ownership varied greatly depending on such factors as income and geographic location.

After the 1996 Act was passed, the NTIA (1998, 1999, 2000) continued to survey the US with regard to telephone, computer, and Internet adoption, charting the success of national efforts to ensure universal service (see Table 4). The reported purpose of the NTIA digital divide studies was to promote “public policies and private initiatives to expand affordable access to [information] resources … until every home [could] afford access” (NTIA, 1999, Executive Summary). Why universal home-based access was the goal is never clearly stated in the NTIA reports, although the implication is clear that access to the technology and the infrastructure was considered to be equivalent to access to—and appropriate use of—information itself. In other words, within an infrastructural paradigm, simple access to the information infrastructure itself is typically deemed to be sufficient to eliminate information poverty. The FCC’s E-rate program (included in the Telecommunications Act of 1996) had already created discounts for hardware, infrastructure, and Internet connections in schools, libraries, and rural health centers. The Library Services and Technology Act of 1996 and the Bill and Melinda Gates Foundation’s Library Program also committed billions of dollars to adding computers and Internet access in libraries, schools, and community technology centers (Bertot, McClure, & Ryan, 2002; Jaeger, McClure, & Bertot, 2005).

The 1999 NTIA report indicates that while only 26.2 percent of Americans had home Internet access in 1998, 32.7 percent of the populace used the Internet. That means 6.5 percent of Americans were logging on exclusively outside the home. Most of this outside-of-the-home access was at work (56.3 percent of non-home use), and laborers with higher levels of education were approximately 10 times as likely to have Internet access at work (87.2 percent) than individuals with low education levels (8.7 percent). The 1999 NTIA report was the first in this series to connect the notions of information poverty and the digital divide. This publication specifically refers to “Whites, Asians/Pacific Islanders, those with higher incomes, those more educated, and dual-parent households” as “information rich,” and describes the “information poor” as “those who are younger, those with lower incomes and education levels, certain minorities, and those in rural areas or central cities,” drawing a direct line between Internet access and information poverty or wealth (NTIA, 1999, Executive Summary).

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6 Telephone service data were included only in the 1995, 1998, and 1999 reports.
Table 4. US Home Telephone Service, Computer Ownership, and Internet Access 1994 to 2003 (NTIA, 2004)\(^7\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of Households with Telephone Service</th>
<th>Percentage of Households with Personal Computers</th>
<th>Percentage of Households with Internet Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>93.8</td>
<td>24.1</td>
<td>NA</td>
</tr>
<tr>
<td>1997</td>
<td>93.8</td>
<td>36.6</td>
<td>18.6</td>
</tr>
<tr>
<td>1998</td>
<td>94.0</td>
<td>42.1</td>
<td>26.2</td>
</tr>
<tr>
<td>2000</td>
<td>94.6*</td>
<td>51.0</td>
<td>41.5</td>
</tr>
<tr>
<td>2001</td>
<td>95.1**</td>
<td>56.2</td>
<td>50.3</td>
</tr>
<tr>
<td>2003</td>
<td>NA</td>
<td>61.8</td>
<td>54.6</td>
</tr>
</tbody>
</table>

*Data from US Census Bureau (2003).
**Data from US Department of Commerce (2002).

As the 21\(^{st}\) century approached, the Pew Charitable Trust began studying the impact of the Internet on American life, releasing frequent reports on how the Internet was affecting the way Americans communicated, shopped, banked, found and used information, and were educated and entertained. Pew studies show that Americans were increasingly using the Internet for everyday information purposes. Pew research indicates that each year the Internet was increasing in use in the workplace, that email was becoming a major communication device for friends and family, and that more and more banking and other transactions (i.e., online auctions, making travel arrangements) were occurring online. Their data also show that experienced Internet users accomplish online tasks in a much shorter amount of time than less-experienced users or those who do not use the Internet for these transactions and activities (Horrigan & Rainie, 2002a). By December 2002, Pew studies reported the Internet to be “a mainstream information tool” that 84 percent of Americans looked to it for information on “health care …, services from government agencies, news, and commerce” (Horrigan & Rainie, 2002b, p. 7). As seen in Table 4 above, before the close of the 20\(^{th}\) century, about one in five homes had Internet service, bringing it to mass medium status.

A mass medium has been defined as any medium that delivers messages to a wide, anonymous audience (Leach & Wellman, 1998). In order to qualify as a mass medium, a device must deliver messages to a wide, anonymous audience (Leach, 1998) of ten to twenty percent of the population (Valente, 1995). This makes the medium “economically viable to advertisers” (Morris & Ogan, 1996, p. 43). According to diffusion scientist Everett Rogers’ (1962) theory of the diffusion of innovations, once this threshold is reached, an innovation is easily spread to the rest of the social system.

In light of the information poverty issue, the above research indicates that an information infrastructure eventually pervades the system. In other words, the capability for information to be spread is there, and technology only presents a temporary barrier. Perhaps the question is not

\(^7\) After the 2004 publication, NTIA surveys began to focus on broadband Internet service rather than general computer ownership and Internet access.
whether information can reach marginalized populations, because it seems that it eventually
does, but rather what is an acceptable delay before the margins of society have access to the
same information the center of society accesses? It seems clear that factors beyond infrastructure
affect one’s information poverty or richness.

**Limitations of the Infrastructural Approach**

The reason to look at the world through a paradigmatic lens is to help us see more clearly.
Models and theories create mental structures for better understanding and visualization of
patterns. As reviewed in this chapter, views of information poverty through a structural and
economic lens allow us to examine information opportunity in an absolute sense. The traditional
have/have not bifurcation by which universal service is measured has allowed the US to build an
information infrastructure that is quantifiably information-rich. According to the studies
reviewed above, Americans from all walks of life technically have a variety of both private and
public technologies available by which information can be obtained. In fact, many ICT options
currently exist, such as cellular and wired telephones, wired and wireless Internet technologies,
television, radio, Blackberries, VCRs, DVDs, CDs, computer disks, etc. These tools can be used
in so many ways for communication or information retrieval (e.g., audio, video, text messaging;
one-to-one, one-to-many, many-to-many; person-to-person, human-computer interaction) for so
many reasons (personal contact, business communication, government information-seeking,
entertainment, news, commerce). Perhaps it is because of this great variety of the great advances
in information delivery tools that the structural/economic lens has begun to focus more on
whether individuals have access to the latest gadget rather than focus on the information that is
delivered by these gadgets.

With the change to the Bush/Cheney administration in 2000, this problem was pointed
out in a statement by the new FCC Chair Michael Powell as he speculated in a public speech that
the digital divide was no more important than a “Mercedes divide” (as cited by Stephen Labaton
in the *New York Times*, February 7, 2001, n.p.). Powell’s point of view suggests that since we
have nearly 100 percent access to vast amounts of information in many different formats, the
digital divide rhetoric is faulty. Powell’s logic relies upon the notion that lack of access to the
latest ICT, like lack of ownership of luxury vehicles, is in no way an issue that requires
resolution with federal dollars.

Powell’s emphasis on dismissing the digital divide as a gadgetry issue, however,
overlooks American reliance on information technology for information access, both in a
physical and in a cultural sense. While the cultural aspect of information access will be discussed
in the following chapter, a simple look at federal information policy related to information
delivery may help illustrate the grave flaw in Powell’s logic. Several years before Powell’s
statement, the *Paperwork Reduction Act of 1995* (44 USC 3501 et seq.), for example, established
that federal agencies were to “ensure that information technology is acquired, used, and managed
to improve performance of agency missions, including the reduction of information collection
burdens on the public” (§ 3501 ¶ 10). Only a year after Powell’s comment, in fact, the *E-
government Act of 2002* was signed into law.

The 2002 NTIA report *A Nation Online* also reflects this new perspective, shifting focus
from lamenting problems of lack of Internet access, applauding instead the fact that more than
half (50.3 percent) of Americans had access. The report lauds public libraries and community
technology centers for providing public Internet access and notes that federal subsidies such as
the E-rate have assured equal Internet availability to all. The term “digital divide” is not used
once in the report text. The next NTIA report, released in 2004, focuses decidedly on the
growing numbers of Americans with broadband Internet services, providing historical charts of
computer and Internet ownership only to illustrate that these numbers are still on the increase and
are no longer of federal concern. Rather than focus on universal service as ownership of
technology, this report focuses on the types of information retrieved via Internet, ignoring the
fact that those without access to the technology are still without access to the information.

Another study from the early 2000s performed by information scientists Peter Lyman and
Hal Varian estimated the amount of information produced in 1999 and 2002 respectively. They
translated written characters, images, and sounds into bytes, or digital information units.\textsuperscript{8} Using
this formula, Lyman and Varian estimated that perhaps two to three exabytes (one exabyte
equaling 1,000,000,000,000,000,000 bytes) of information was produced in 1999 and five to six
exabytes in 2002. Even by their low end estimate, in 2002 alone the world technically produced
enough new information to fill 800 large books per person. Their figures provide at least a
glimpse of the vast amount of information that is available in formats that are only accessible
with the use of ICTs such as computers, telephones, radios, and television sets. By Lyman and
Varian’s estimation, in 2002 only 0.01 percent of the world’s new information was available in
print. Ninety-two percent of new information was provided or stored in magnetic format (e.g.,
smart card, hard drive, computer diskette, zip disk, flash drive, video/audiocassette, digital tape),
seven percent in film (e.g., photograph, cinema, television, x-ray), and 0.002 percent in optical
media (e.g., DVD, CD, CD-ROM).

In light of these calculations of the vast amount of information produced in digital and
other non-print media formats, it is easy to understand the concern of researchers and
policymakers regarding the plight of Americans who do not have access to the technologies
necessary for information access. As more and more information is “born digital” (Lyman &
Varian, 2000, n.p.) and technologies continue to proliferate, it is easy to understand the fear that
“people without computers and access to communication lines will be the information poor in the
future unless other avenues for access are provided” (Buckley, 1987, p. 47). But Lyman and
Varian themselves admit that their “methodology measures only the volume of information, not
the quality of information in a given format or its utility for different purposes” (Lyman &
Varian, 2003, n.p.).

While equality of opportunity is the first step to information access, it would be unwise to
suppose that simple physical access to information technologies and the information
infrastructure and even the physical ability to process information retrieved necessarily means
that individuals who use these technologies, skills, and infrastructure are not still information-
poor. While the infrastructural approach is an essential component in understanding information
poverty, it is limited and limiting. For this reason, we need to look through a different lens for
new insights into information poverty. The following chapter looks at information poverty
approaches that take into consideration the sociocultural contexts within which information
resides as well as behavioral aspects that affect information access and use.

\textsuperscript{8} For example, one book of plain text is equivalent to approximately one megabyte (1,000,000 bytes) of information.
Thus, for the approximately one million books produced in one year, one terabyte (1,000,000,000,000 bytes) of
information was added to Lyman and Varian’s figures for print information for that year. The same conversion and
calculation was performed for information produced and/or stored in other paper formats (i.e., newspaper, magazine,
postal mail, newsletter, etc.) and other media formats (i.e., film, magnetic, optical, broadcast, telephony, Internet).
CHAPTER 3. INFORMATION POVERTY BEYOND THE INFRASTRUCTURE

Introduction: Information-Poor Lifestyles

The previous chapter explored research related to information poverty as a lack of opportunity. Another approach that has been taken in studying information poverty centers on perceived cultural and behavioral issues linked to a “poverty lifestyle” within the social context. This social lens focuses on how the information-poor have difficulty assessing their own information needs or knowing when those needs are fully met. Even when information needs are identified, some seem to have difficulty identifying the best information channel to meet those needs. This chapter reviews the literature, theories and models related to this social approach to information poverty.

As mentioned in the previous chapter, infrastructural approaches focus heavily on the distribution of information technology, but the information delivered by means of the technology is not well defined and uses of the information provided is not taken into account. In the 1970s, two studies funded by the US Office of Education suggested a cultural/behavioral model for understanding information behavior and information poverty. Both studies emphasized the types of information needed for an individual to be successful in American society. One tried to determine what information America’s disadvantaged population lacked (Childers & Post, 1975). The other created a list of typical everyday information needs and then named sources whereby people could fill these needs (Gotsick, Moore, Cotner, & Flanery, 1976).

The first of the two projects, directed by LIS researcher Thomas Childers with the help of Joyce A. Post (1975) and a group of research assistants, was published in book form with the title *The Information-Poor in America*. The study team reviewed all available social science research on America’s disadvantaged populations (i.e., the poor) and determined their collective unmet information needs. The team reviewed more than 720 documents and drew up a list of eleven areas of information need:

1. Health [e.g., general health, disease, nutrition, family planning, drug abuse and alcoholism, mental health]
2. Home and family [e.g., housekeeping, child rearing, sustaining relationships]
3. Consumer affairs [e.g., fraud, comparison shopping, budgeting]
4. Housing [e.g., landlord problems, home financing, availability of housing]
5. Employment [e.g., job seeking, unions, training]
6. Welfare programs [e.g., public assistance, veteran’s benefits, subsidized housing]
7. Law [e.g., general legal services, bill collecting, job security, probation]
8. The political process [e.g., local, state, and federal government, law enforcement]
9. Transportation [e.g., maps, timetables, signage, services for the disabled]
10. Education [e.g., educational opportunities, child education, rewards of education]
11. Recreation [while this is a known need, Childers and Post note that no literature of that time addressed it] (p. v)

As noted, the book includes brief descriptions of the particular problem areas within each of these eleven categories (e.g., under health, the areas of greatest concern are general health, disease, pre-natal care, nutrition, alcoholism, and so forth).

Although funded by the same federal agency, the second report seems not to have any connection to the Childers and Post report, as the earlier report is not cited in the latter. Both reports, however, share the intent to establish the basic information needs of Americans. This second report, published by the American Library Association is entitled Information for Everyday Survival: What You Need and Where to Get It (Gotsick, Moore, Cotner, & Flanery, 1976). This publication’s explicit purpose was to “help the frustrated information-seeker cope with the problems of everyday survival” (p. iv). Unfortunately, the authors do not in any way discuss the methods they used to arrive at this list of everyday information needs. Their thirteen categories are:

1. Aging [e.g., death, emotional health, finances, funerals, retirement, wills]
2. Children [e.g., adoption, child care and development]
3. Community [e.g., busing, crime, disaster services, libraries, news media, zoning]
4. Education [e.g., adult education, financial aid, test taking skills]
5. Family [e.g., divorce, grandparents, marriage, problems, single parenting]
6. Free time [e.g., hobbies, sports, entertaining, television, vacations]
7. Health [e.g., alcoholism, disease, health costs, doctors, first aid, nutrition]
8. Home [e.g., buying, renting, and selling, cooking, moving, sanitation]
9. Jobs [e.g., advancement, applying, interviews, safety, training, unemployment]
10. Law and government [e.g., civil rights, constitution, jury duty, voting]
11. Money management [e.g., appliances, bank accounts, budgeting, credit, taxes]
12. Self and others [e.g., race, identity, manners, sex, language]
13. Transportation [e.g., air, bicycles, driver’s licenses, driving safety] (pp. i-iii)

As with Childers and Post’s list, this second inventory of information needs subcategorizes lists of specific information topics within each broad category. While the terminology used for and within these categories varies a bit from that of Childers and Post, by and large the content is identical.

Neither study attempts to provide any sort of instrument to measure information poverty, instead leaving this task to future researchers. Still, Childers and Post (1975) do introduce a tripartite approach to understanding an information-poor lifestyle. Their first observation is that the information-poor have low information processing skills. This disadvantage may include low literacy or language ability, physical disability, or poor social communication skills. Mainstream information behaviors are “not conventional knowledge for them” (p. 32). The second aspect of information poverty Childers and Post identify is a subcultural limitation: the information-poor, they say, do not feel a part of the larger society, but rather occupy a closed subsystem “harboring an inordinate amount of unawareness and misinformation (myth, rumor, folklore). While they do have information contacts with the rest of society, these contacts are very often one-way information flows, via the mass media, from the greater society” (p. 32). And third, they note that “report after report portrays the various disadvantaged populations as despairing, fatalistic people with a pervasive sense of helplessness” (p. 34). Thus, according to Childers and Post,
information processing skills, subcultural behavior, and personal attitude are the three factors that affect one’s information wealth or poverty.

These suggestions for a basic cultural/behavioral model provide a structure through which information poverty might be studied; however, a review of the information poverty literature shows that while each of these aspects of information poverty have been alluded to by various researchers, they have not been developed.

**Information Processing Skill**

As noted in Chapter 2, a primary consideration for determining information wealth or poverty is the simple ability to access information. After the necessary infrastructures and information technologies are in place, the question is “What are the abilities needed for normal information access and use?” Studies have identified physical and cognitive ability, technical competency, literacy, and language skill as factors that aid or impede information use. This section will examine each of these in turn.

**Ability and Disability**

As noted, the modern American information infrastructure heavily relies on the use of ICTs to communicate information. As previously mentioned, Lyman and Varian’s (2000, 2003) studies of information production worldwide indicates that the amount of information produced and stored in digital format is growing exponentially. With rapid increases in information production worldwide and particularly in the US, it is inconceivable that all or even most of the information currently produced be reproduced in enough alternate formats to meet the information access needs of all. Individuals with visual or cognitive disabilities are not completely unable to take advantage of Internet information, but neither are they able to use it to full advantage.

Information access and use can be impeded by limitations to information processing skills such as short term memory, verbal and numerical reasoning or comprehension, or spatial visualization. Physical and cognitive disabilities are both included in the legal definition of disability found in Section 3 of the *Americans with Disabilities Act of 1990*. A legal disability is “(a) a physical or mental impairment that substantially limits one or more of the major life activities of [an] individual; (b) a record of such an impairment [that is, a prolonged state of the disability]; or (c) being regarded as having such an impairment” (*Americans with Disabilities Act of 1990*, § 3).

The inability to obtain information because of visual disability has been explored as a type of information poverty. In 1974, Patrick Suppes, now emeritus Lucie Stern Professor of Philosophy at Stanford University, writing about cognition in disabled children, wrote that “many cognitive deficits of blind children are almost certainly due to [the] relatively simple fact of not having an alternative input channel that can match the rate of visual processing, and thus they are ‘information poor,’ deprived in the quantitative sense of the amount of information transmitted to them” (Suppes, 1974, p. 149). This aspect of information poverty has not been further explored in the literature. Some studies have noted, however, the need to better understand ways in which individuals with disabilities can take full advantage of the information infrastructure and the overall information society.

A 2000 decennial US Census brief reports that approximately 49.7 million, or one in five, non-institutionalized Americans over age five live with a disability. Of these disabled Americans, about 9.3 million (3.6 percent of the US population) live with a sensory disability involving sight or hearing, 21.2 million (8.2 percent) live with motor disability, and 12.4 million
(4.8 percent) live with mental disability. Census reports note that individuals with disabilities have higher unemployment and higher poverty rates than the general public. In 2000 only about 56 percent of disabled Americans were employed, as compared to 74 percent of non-disabled men and women between the ages of 16 and 65. And while approximately one of every ten Americans aged five and above is considered poor by US standards, about one of every five disabled Americans lives below the poverty line (Waldrop & Stern, 2003). The increased unemployment and poverty rates among the disabled are due to many factors. Inability to leave the house, inability to process information obtained, inability to see or hear, and other similar barriers affect their ability to obtain gainful employment.

However, in terms of Internet use, a 2003 Pew Internet and American Life study reports that the disabled make up one of the most disconnected populations. The report notes that 58 percent of Americans use the Internet, but only 38 percent of disabled Americans do so. While alternative information channels have become more and more readily available through adaptive and assistive technologies such as screen readers, Braille embossers, telecommunications devices for the deaf and teletypewriters, voice recognition and touch screen technologies, and head/eye controlled inputs, these specialized technologies add considerably more cost, effort, planning, and organization to the information retrieval process. A quarter of individuals with disabilities who were surveyed by Pew responded that they found Internet use to be prohibitively expensive:

> A head-mounted mouse can cost 10 times what a normal mouse costs, and a large button keyboard can run 5 times the cost of a normal keyboard. Braille interface machines cost over $3,000, and magnified screens are selling for nearly $2,000. Considering that people with disabilities have, on average, significantly smaller disposable incomes, the cost of adaptive technology in addition to the normal costs of computers and Internet access can be a significant barrier to getting online. (Lenhart, Horrigan, Rainie, Allen, Boyce, Madden, & O’Grady, 2003, p. 32)

The format in which information is transmitted also has great bearing on the accessibility of the information therein contained. As noted previously, Lyman and Varian’s (2000, 2003) “How Much Information?” project indicates that information is increasingly produced and stored in four main physical media, namely “print, film, magnetic and optical [media],” and is delivered via four main channels, namely “telephone, radio, … TV, and the Internet” (2003, p. 1). Any individual may need to access one or several of these electronic media in order to access needed information. Although some information may be delivered via multiple media, such as a print transcript of what was broadcast verbally on the radio, many times accessing information in alternative formats requires a delay in receiving the information and/or added expense for the special service. Persons with disabilities and others who rely on multiple formats to support their information needs are at a disadvantage when their access to information is hindered because information is primarily delivered in only one format.

These added costs and efforts for full access to information have not gone unnoticed by the federal government. US federal laws try to ensure that individuals with disabilities have equal access to all segments of society to allow for their full participation. The Rehabilitation Act of 1973 (29 U.S.C.), for example, attempts to provide equal access to federal information delivered electronically to both those with and without disabilities. Section 508 of the Rehabilitation Act specifically adds that government information delivered electronically must
be delivered in a manner accessible to “individuals with disabilities, who are members of the public seeking information or services from a Federal agency” (29 U.S.C. 794d § 1194.1).9

Other laws such as the Architectural Barriers Act of 1968, the Individuals with Disabilities Education Act of 1975, the Voting Accessibility for the Elderly and Handicapped Act of 1984, the Americans with Disabilities Act of 1990, the National Voter Registration Act of 1993, and the Telecommunications Act of 1996 address some of the issues of living with a physical or cognitive disability in an information society (see Table 5). Under the Americans with Disabilities Act, for example, businesses and state and federal agencies, and other public accommodations and services should provide reasonable accommodation for disabled employees and patrons. Reasonable accommodation could include modifying existing facilities such as making buses and buildings wheelchair accessible, adjusting schedules, and/or providing readers, interpreters, or adaptive ICTs as needed to provide an equal-access environment. These reasonable modifications improve physical access to libraries, public offices, and other public information centers for the disabled and non-disabled alike.

Table 5. Federal Laws Addressing Information Access for Individuals with Disabilities

<table>
<thead>
<tr>
<th>Law</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Barriers Act of 1968</td>
<td>Requires that buildings designed, constructed, or altered with federal funds or leased by a federal agency comply with federal standards for physical accessibility.</td>
</tr>
<tr>
<td>Rehabilitation Act of 1973</td>
<td>Prohibits discrimination on the basis of disability in federal employment or contract work, or in programs conducted by federal agencies or funded with federal dollars.</td>
</tr>
<tr>
<td>Individuals with Disabilities Education Act of 1975</td>
<td>Requires public schools to develop appropriate Individualized Education Programs (IEPs) to all eligible children with disabilities.</td>
</tr>
<tr>
<td>Voting Accessibility for the Elderly and Handicapped Act of 1984</td>
<td>Requires polling places for federal elections to be physically accessible to people with disabilities.</td>
</tr>
<tr>
<td>Americans with Disabilities Act of 1990</td>
<td>Prohibits discrimination on the basis of disability in employment, state and local government activities, public transportation and accommodations, and telecommunication relay services.</td>
</tr>
<tr>
<td>National Voter Registration Act of 1993</td>
<td>Requires all state-funded programs that provide services to persons with disabilities to provide voter registration forms and to assist program applicants in completing and submitting the forms.</td>
</tr>
<tr>
<td>Telecommunications Act of 1996</td>
<td>Requires telecommunication equipment manufacturers and providers of telecommunication services to ensure availability to and usability by persons with disabilities, as long as such accommodation does not create an undue burden on the provider.</td>
</tr>
<tr>
<td>Rehabilitation Act, Section 508</td>
<td>Requires federal electronic and information technology to be accessible to people with disabilities.</td>
</tr>
</tbody>
</table>

9 Unfortunately the clause “unless an undue burden would be imposed on the agency” (29 U.S.C. 794d § 1194.1) has allowed many government agencies to claim “undue burden” and thus not comply with this law.
Technical Competency

With physical abilities and accessibility in place, an individual must have skills related to ICT use in order to gain full advantage of the technology-rich information society. As more and more health, government, educational, and other needed information is made available online, technical skills cannot be overlooked in the discussion of information abilities. In 2003, Kent State University political scientists Karen Mossberger and Caroline Tolbert and LIS professor Mary Stansbury used a telephone survey to investigate the technical competencies of high poverty census tracts in an attempt to assess whether low-income Americans have the necessary skills for the information society workplace. They noted that “little research addresses the extent of technical competence among Americans” (Mossberger, Tolbert, & Stansbury, 2003, p. 40). They recommend that literatures documenting the use of technology be used to extrapolate technical competencies, or basic skills needed to successfully use the available information technologies.

Their own review of these documents defines technical competencies as “the skills needed to operate hardware and software, such as typing, using a mouse, and giving instructions to the computer to sort records a certain way” (Mossberger, Tolbert, & Stansbury, 2003, p. 38). As the scope of their project was limited to computer and Internet-related competencies that might be used in the workplace, such skills as those needed for word processing, desktop publishing, using the Internet and e-mail, and working with spreadsheets and databases were of primary concern for their study. They found that “nearly 22 percent [of respondents] said that they needed assistance using the mouse and keyboard—the most simple and yet fundamental skills involved in operating a computer” (p. 44). And the skill level only decreased as task complexity increased. Thirty-one percent of respondents said they would need assistance using email, and more than half (52 percent) said they would need help working with word processing or spreadsheet programs.

Of course, not all employment is white-collar, and skills other than the technical competencies listed here are needed to provide society with the range of services in place. Still, technical competencies are not only needed in the workplace, but also in daily life. The National Academy of Science (2002) has identified what they call technical capabilities, or “a range of hands-on skills such as using a computer for word processing and surfing the Internet and operating a variety of home and office appliances,” that fit within the larger scope of technical literacy, a concept developed by the National Academy of Science (2002) that takes into account not only technical skills, but also general technical knowledge and “ways of thinking and acting” (n.p.). Again, other than these general statements, researchers have not identified specific

10 Mossberger, Tolbert, and Stansbury (2003) specifically suggest using national studies such as Pew Internet and American Life and National Information and Telecommunication Administration (NTIA) reports. As the Internet became more and more widely integrated into American society, the Pew Charitable Trusts began funding studies of American use of the Internet as part of a new Pew Internet & American Life Project. Pew studies showed that Americans were increasingly using the Internet for everyday information purposes. Pew reports provided demographic data on who was not going online (indicating that the elderly were the population most resistant to Internet use, Lenhart, 2000), and provided data on the use of the Internet in the workplace and in the education sector (Pew Internet Life Report, 2000).

NTIA studies, directed by the FCC, used US census instruments to assess the distribution of personal computers, Internet modems, and levels of Internet use in the US. NTIA reports focus largely on differences in Internet use and ownership based on demographic factors such as race, age, and urban, rural, or suburban geographic locale.
technical competencies or capabilities that can be used to distinguish between the information-rich and the information-poor.

**Literacy**

The ability needed to manipulate the hardware and software, use a mouse or keyboard, and formulate appropriate search queries for information retrieval systems are all necessary for information access in 2006. However, technical competency is not of much use to an illiterate user (Mossberger, Tolbert, & Stansbury, 2003). At the end of World War II, the United Nations Education, Science, and Culture Organization (UNESCO) created literacy programs around the world using myriad methods to promote the “three Rs” (reading, writing, and arithmetic). In the 1960s and 70s, however, Brazilian education philosopher Paolo Freire (1970) argued that basic literacy was not enough, arguing that education must promote critical thinking, which leads to liberation, creativity, and a commitment to self. In other words, rather than promoting literacy as an end, literacy should be regarded as one vital step in human progress.

Many years later, the *National Literacy Act of 1991* (P.L. 102-73) defined literacy as more than simply competency in the three Rs. The Act defines literacy as “an individual’s ability to read, write, and speak in English and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one's goals, and to develop one's knowledge and potential” (P.L. 102-73, Synopsis). Similarly, the US Department of Education national adult literacy surveys of 1992 and 2003 define literacy as “using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential” (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993, p. 2; Kutner, Greenberg, & Baer, 2005, p. 2). In both of these contemporary definitions, literacy is achieved when one can function in society based on one’s own information processing skill.

The literacy surveys of 1992 and 2003 assess three types of literacy: prose literacy (ability to read and understand printed information such as written instructions or newspaper stories and answer questions based on the readings), document literacy (ability to read and respond to questions based on understanding of schedules, tables, and charts), and quantitative literacy (ability to perform simple addition and subtraction, understand fractions, and perform and understand other simple calculations). When counting only the number of people over age 15 who can read and write, the US literacy rate is estimated to be as high as 97 percent (CIA World Factbook, 1999), but the new literacy instrument shows wide variations in levels of literacy. According to the 1992 survey almost 50 percent of the participants scored in the lowest two of five literacy levels, and 2003 results were nearly the same. It is difficult to compare the 1992 and 2003 data since only broad summaries of the 2003 results have been released and what has been released uses different literacy categories. For example, 1992 reports had five levels of literacy (1=lowest, 5=highest) but 2003 reports have only four: Below Basic, Basic, Intermediate, and Proficient. Still, both years’ results suggest that about half of the US populace has some amount of difficulty synthesizing written information.

The 2003 data indicate that five percent of the adults surveyed were non-literate (meaning they could not even recognize English numbers or letters) and 14 percent of those surveyed had Below Basic literacy proficiency. Thus, almost one in five adults surveyed had very low or no English literacy skill. Demographic data collected at the time of the survey shows that 55 percent of those at these lowest prose literacy skill levels did not have a high school diploma or its equivalent (i.e., General Equivalency Diploma or GED), and almost half (46 percent) had some level of physical and/or cognitive disability.
Still, it is difficult to ascertain precisely what information is or is not available to illiterate individuals. While only preliminary reports from the 2003 data have been released at this time, the 1993 literacy report, using 1992 data, states that regardless of low results on the national survey, somewhere between two-thirds to three-fourths of the lowest literates and over 90 percent of those at Level 2 literacy (still below average), rated themselves as feeling that they read English “well or very well” (Kirsch, Jungeblut, Jenkins, & Kolstad, 1993, p. xvii). That is to say, they manifest a feeling of overconfidence in their literacy ability. Approximately 13 percent of these low-level literacy respondents reported that they get considerable help from family and friends on prose and quantitative tasks. The implication is that many of these individuals rely heavily on their social skills rather than literacy skills to help them meet most information needs. Does it necessarily follow that these individuals should be labeled as information-poor? And would an individual with remarkable literacy but poor social skills automatically fall under the category information-rich? Such questions certainly fall within the scope of the social paradigm and are ripe for further research.

Language Skill

US census data from 2000 shows that 18 percent (47 million) of Americans speak a language other than English at home (Shin & Bruno, 2003). Over 28 million of these speak Spanish. Because of the North American Free-Trade Agreement (NAFTA) between the US, Canada, and Mexico, in effect since 1994, much of the commerce currently available in these three nations is labeled in two or even three languages: English, Spanish, and/or French. Other products shipped directly from other nations may also be labeled in the script of the country of export. With cable and satellite technologies in place, radio and television programming can also be delivered from almost anywhere around the world to almost any home receiver. The multilingual labeling and international information flow allows individuals to live in the US without having to integrate with American society at all. In fact, the 2005 national adult literacy report indicates that two percent of adults included in the 2003 survey sample could not even respond to the basic background questionnaire let alone the English literacy survey because of lack of language skill11 (Kutner, Greenberg, & Baer, 2005).

While more commercial information is certainly available in English, Spanish, and French than in any other of the many languages used in the US, and public signage and web information is sometimes duplicated in Spanish12 or French, “the ability to communicate with government and private service providers, schools, businesses, emergency personnel, and many other people in the United States depends greatly on the ability to speak English” (Shin & Bruno, 2003). Even Internet use is greatly affected by English language competency. According to a 2003 review of Internet content, more than one-third of the total information available via the Internet is produced in English (see Figure 3). This is in spite of the fact that only six percent of the world’s population uses English as a first language (Wallraff, 2000).

The State of the Internet 2000 report prepared by the United States Internet Council and International Technology and Trade Associates, Inc. (2000) estimated that there were as many as two billion “unique, indexable webpages” available online at that time (p. 2). With so much

11Both the 1992 and 2003 NAAL background questionnaires were administered in either English or Spanish, with many of the surveyors Spanish/English bilingual. The literacy instrument itself, however, was only testing for English literacy and so was only available in English.

12See, for example, the US Citizenship and Immigration Services website (http://www.uscis.gov/graphics/index.htm), and many public library websites (http://www.reforma.org/spanishwebsites.htm).s
information available, the chance that even a small percentage of this total amount on the Internet is in one’s language of choice is substantial. However, of the general body of information found online in Korean, for example, there may be little or no information that meets a particular need one might have to establish a productive and integrated life here in the US. Government documents are published almost exclusively in English, and federal, state, and local services are, for the most part, provided in English.

![Online Language Populations in 2003](image)

**Figure 3. Online Language Populations in 2003 (Global Internet Statistics, 2004)**

Spanish is by far the most common alternate language used after English in the US, with 28.1 million native Spanish speakers. After English and Spanish, the most common languages used in US homes are Chinese (2 million speakers), French (1.6 million), German (1.4 million), Tagalog (1.2 million), Vietnamese (1 million), Italian (1 million), Korean (900,000 speakers), Russian (700,000), Polish (700,000), and Arabic (600,000) (Shin & Bruno, 2003). Many who use another language at home also feel quite comfortable with English. Still others are enrolled in English as a Second Language (ESL) courses, which are the fastest growing component of state-administered adult education programs (US Department of Education, 1999).

Second language acquisition (SLA) researchers have created instruments for assessing language skill, such as the Test of English as a Foreign Language (TOEFL) for evaluating academic English skill levels in reading, writing, and listening comprehension, and the American Council on the Teaching of Foreign Languages (ACTFL) Oral Proficiency Test to determine whether an individual’s language skills are adequate for professional purposes. Such instruments are useful in light of the information poverty discussion, in that they assess cognitive skills that are difficult to measure objectively. These instruments measure language proficiency based on what individuals can do with language at different levels (professional, academic, basic
interpersonal communication skills, etc.). These types of instruments, in fact, could provide a useful model for developing similar scales for measuring information poverty based on what individuals do with information rather than simply assessing their levels of information access or lists of general information needs.

Some choose not to study English at all, relying instead on social networks to deliver important information to them in their own language. LIS researcher Cheryl Metoyer-Duran (1991, 1993), of the University of California Los Angeles, has examined how the language barriers are bridged with the aid of what she terms gatekeepers. Metoyer-Duran describes gatekeepers as individuals who wield control over the flow of information to people within a community simply because of their own language abilities and the lack of language ability throughout the community. She identifies family members, health care providers, librarians, teachers, and other professionals and personal acquaintances as common gatekeepers who act as a link to the larger information society. Again, as is the case with non-literate individuals, those who do not use English can reasonably use social networks to get information they need, but trust must be high. Inability to understand a tax bill or welfare check leaves the individual at mercy of others, and can lead to situations in which the individual is not informed enough to make his or her own decisions.

**Subcultural Behavior**

A group is not information poor simply because of cultural differences. When individuals within a subculture reject mainstream-culture information, the members of the subculture can suffer the loss of social power tied to that information. Childers and Post’s (1975) second focus is on subcultural behaviors that prevent the poor from profiting from available information. Summarizing what they saw reported in the breadth of the literature reviewed, Childers and Post write,

The prototypical disadvantaged American, more than his average counterpart:
- Does not know which formal channels to tap in order to solve his problems, or what specific programs exist to respond to his needs.
- Watches many hours of television daily, seldom reads newspapers and magazines and never reads books.
- Does not see his problems as information needs.
- Is not a very active information seeker, even when he does undertake a search.
- May lean heavily on formal channels of information if it becomes apparent that the informal channels are inadequate and if his need is strongly felt. And
- Is locked into an informal information network that is deficient in the information that is ordinarily available to the rest of society (pp. 42-43).

These statements each relate in some way to how information travels within the social context. The sources Childers and Post cite for these six attributes of information poverty are primarily the works of communications researchers Brenda Dervin and Bradley S. Greenberg, and LIS researcher Edward S. Warner, each of whom focuses on information channels, or choice of information sources, and the barriers that might prevent information access when the wrong information channels are used.

While choice of information channel has not been developed much in light of information poverty, there are various theories from communications and sociology that contribute to a better understanding of subcultural behaviors with regard to information.
Information Channels

During the tide of poverty research in the later 1960s Greenberg and Dervin began examining low-income populations’ use of mass media in comparison with that of the general US public. As mentioned earlier, radio and then television had become part of everyday life in the US in the decades following WWII. As these two technologies became mass media, they shifted from primarily disseminating news to broadcasting increasing amounts of commercial information and entertainment (Slotten, 2000). By 1960, 47 percent of Americans reported that they were using television as a primary source of news (Kimmelman, 1989). The 1960 US Census indicated that 87.1 percent of American homes had at least one television set and 94 percent had radios. As noted earlier, radios and televisions are one-time purchases that do not require usage costs beyond electricity and general upkeep of the device. Once purchased, a radio or television can provide entertainment and news for many, many years. With this in mind, it is not difficult to understand why all of the low-income households Greenberg and Dervin (1970a) surveyed had at least one radio and most (between 95 to 97 percent) had at least one television, with nearly half of those households having two or more sets. Greenberg and Dervin’s interest was in how these media were being used as information channels.

They collected data on media use among low-income adults in Michigan, teenagers from poor families in Pennsylvania, and disadvantaged children in Ohio (Greenberg & Dervin, 1970a, b). They looked at both poverty and race (Black/white only) as variables for comparison. They asked questions about media use and content preferences and attitudes. Greenberg and Dervin report that the low-income population studied (regardless of race) watched television far more than the general population. They write:

The most striking difference between the low-income and the general population samples is the very large difference in viewing time. Forty-one percent of the general population sample reported that they had not watched TV the previous day, compared with 24 per cent of the low-income sample. Only 17 per cent of the general population reported viewing 4 or more hours the previous day, compared with 53 per cent of the low-income sample. (1970a, pp. 229-230)

Their data show that the poor relied heavily on television for world news and either television or radio for local news, as opposed to the heavier newspaper consumption of the general population (see Table 6).

<table>
<thead>
<tr>
<th>Media Attitude</th>
<th>Low income (percent)</th>
<th>General population (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium preferred for world news:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Television</td>
<td>69</td>
<td>38</td>
</tr>
<tr>
<td>Radio</td>
<td>16</td>
<td>28</td>
</tr>
<tr>
<td>Newspapers</td>
<td>15</td>
<td>34</td>
</tr>
<tr>
<td>Medium preferred for local news:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Television</td>
<td>30</td>
<td>21</td>
</tr>
<tr>
<td>Radio</td>
<td>34</td>
<td>31</td>
</tr>
<tr>
<td>Newspapers</td>
<td>22</td>
<td>41</td>
</tr>
<tr>
<td>People</td>
<td>14</td>
<td>7</td>
</tr>
</tbody>
</table>
In a later publication discussing the credibility of mass media among the poor, Dervin and Greenberg (1972) write,

In one of the classic media research traditions, a number of studies have asked “which medium” is the most credible? And, from the preferences of the poor they get a resounding and almost unanimous “TV” as the answer, no matter how or by whom the question is phrased. TV comes out on top as the most reliable medium, the most important, the most preferred for world news, and the most believable. (p. 17)

It is not clear why television is the preferred medium among the poor, and this is certainly a question that begs further exploration. Still, Greenberg and Dervin connect the reliance on television for information with the reduced social role the poor play in society. This connection between low information access and choice of information channel may be a more complicated and somewhat dated assumption, however, than Greenberg and Dervin knew, particularly in light of the way in which modern information delivery via radio and television is now often identical to what is delivered via newspaper and other print information channels.

Warner et al’s (1973) report for the Bureau of Libraries and Learning Resources Agency cited in Childers and Post’s book presents a conceptual framework for understanding some of the barriers the urban poor face when attempting to meet their information needs. One barrier Warner et al discuss is the problem of too heavy reliance on interpersonal contacts (such as friends and family) as information sources. They discuss the fact that most personal networks are made up of rather homogeneous associates; “people meet, talk, and ask advice from people essentially like themselves” (p. 29). This can lead to difficulty in solving problems that extend beyond the experience of the immediate network. And unfortunately, institutions that offer information aid do not seem to assuage this problem, as Warner et al’s research indicates that individual institutions have varying abilities to help information seekers. While no one information agency surveyed can handle all problems or questions asked, the researchers note that referrals and communication between the various agencies have the potential to raise the total level of problem-solving information obtained therein. However, their study found that there was no referral pattern demonstrated among the institutions tested.14

While information institutions such as libraries and media centers have tried to improve services in the decades since the Warner report, even if the institutions change, there is still little understanding of how to alter social behavior in order to ensure that individuals take better advantage of the breadth of resources available.

**Passive Learning**

Subcultural behaviors might also be manifest in passive behavior with regard to information. A theory related to passive learning is social psychologist Angus Campbell’s (1960) surge and decline theory. Campbell’s theory tries to explain voter turnout in a democracy by examining the information richness or poorness of the environment during the voting campaign. This theory essentially states that when there is a surge of information (i.e., during a

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14 To test the framework, the researchers surveyed households (intellectual, psychological, physical, and societal barriers) and information agencies (institutional barriers) in Baltimore’s urban area.
Presidential election year), the public is more likely to participate (or vote). Likewise, a decline in information likewise results in a decline in participation. Thus a largely publicized campaign ensures that the voter need expend little or no effort to become at least somewhat informed about the parties in question so even those who typically do not make efforts to inform themselves are informed enough to motivate them to vote.

Along these same lines, information of an inflammatory nature, such as smear campaigns that point out character flaws and examples where the opponent has made poor decisions, is more readily remembered and recalled when voting than information detailing the steady positive plodding of a consistently sage candidate. The saucier the information, the more it will influence voting behavior (Nicholson & Miller, 1997).

In the 1970s and early 1980s community development researcher Jogindar S. Dhillon (1980) and later political scientists Cliff Zukin and Robin Snyder (1984) examined this notion of surge and decline passive learning within an information-rich environment. Dhillon’s (1980) study was performed in the late 1970s in the Florida Panhandle. Dhillon distributed a barrage of information pamphlets specifically within low-income census tracts. The pamphlets were related to child care, employment, social services, food stamps, and the like. Dhillon then sent interviewers to question the individuals blitzed about the information they had received and retained. Dhillon noted that “increasing the informational content of the environment and making it available … in a comprehensible and relational form” did positively impact the “knowledge, attitudes and skills” of the participants (p. v).

Zukin and Snyder (1984) tested whether individuals in a media-rich area are more informed than individuals in a media-poor area. Zukin and Snyder used data collected with two iterations (in 1977 and again in 1981) of a survey of 1000 New Jerseyans, half of whom were from the north area, near New York City and half of whom lived in the south. Those in the north were likely to be surrounded with New York City media, while those in the south might receive Philadelphia media, but were unlikely to have as much passive exposure to New York City election broadcasts or publications. The researchers asked a series of questions related to the New Jersey gubernatorial race (local information) and the New York mayoral elections (more cosmopolitan information but still localized to the New York media-rich area of New Jersey). According to the hypothesis, the people living in the New York media-rich market area of New Jersey would know about the New York mayoral race (i.e., could name a candidate running in the New York race) regardless of personal interest in the New York race, simply because of the information-richness related to that race.

Their data provide evidence that, regardless of their level of interest in the New York mayoral race, the New Jerseyans who lived in the “media-rich New York market” were 40 percent more likely to “be aware of [New York] candidates” than the New Jerseyans who lived “where election news and advertising were sparse” (p. 637). In other words, the findings support the researchers’ hypothesis that “the mere absence of resistance, rather than the presence of motivation and purposive involvement, is all that is necessary for learning to occur” (p. 629). This finding supports the use of passive mass media such as radio and television for informing and educating the masses, challenging the idea that an individual’s information status cannot be changed simply by increasing the amount of information in the environment. This finding is quite relevant to the information poverty question, as it would seem that the environment in which an individual resides has much effect on the information wealth or poverty of that individual. A person may find it much easier to keep up with his or her information needs in a large, media-rich city than in more rural environs. This finding is related to the earlier reviewed
Coleman (1972) description of the US as information-rich when compared with the mostly rural, information-poor US of 1870. Much more could be done to further understanding of how environment determines or affects information wealth or poverty.

**Insider/Outsider Theory**

A discussion of the social context of information delivery requires a look at some of the research on how information travels through social networks. Sociologists Robert K. Merton (1949, 1968, 1972) and Erving Goffman (1959) have each written about an insider/outsider phenomenon that describes how social grouping affects information access. A group is defined in sociology as “a social system involving regular interaction among members and a common group identity …. [A group maintains] a sense of ‘we-ness’ that enables members to identify themselves as belonging to a distinct entity” (Johnson, 2000, p.138). As individuals create and join groups, order is maintained by keeping the group to a controllable size. Some individuals are necessarily excluded from joining in order to ensure that the group remain manageable. This creates a division between insiders, or those who are inside the group, and outsiders, or those not included in the group. Merton (1949, p. 188) describes “the ugly fence which encloses the in-group” as one that simultaneously “exclude[s] the people who make up the out-group from being treated with the decency ordinarily accorded human beings.” Outsiders are “[nonmembers] of specified groups and collectivities or specified social statuses” (Merton, 1972, p. 21), and, as nonmembers, are not privy to the gamut of information available to those fully inside the social collective.

Goffman (1959) adds that it is the insiders who decide whether or not to include a new participant in a particular social interaction. Thus, inclusion cannot be forced by the larger society, but must be agreed upon by those who are already members of the group. An individual who is deeply entrenched within a group can easily have no contact with anyone outside of his or her social network. Likewise, an individual may take a position on the edges of dozens of different social networks, have strong positioning in two or three groups, or there may be any number of other social configurations.

In related social research, sociologist Mark Granovetter (1973, 1983) specifically explores the communication processes related to social subcultural relationships with his strong tie/weak tie studies. Strong ties refer to the relationships people maintain with family members, close friends, and others with similar backgrounds, tastes, lifestyles, and so forth. The trust that binds a strong tie network allows the individuals therein included to feel comfortable with the information they obtain from and pass on to one another. Within these networks of strong ties, usually there is mutual understanding when a message is relayed. This mutual understanding is sometime referred to as *bounded rationality*.

Nobel Prize-winning decision scientist Herbert A. Simon (1957) described bounded rationality in relation to how information is used to solve difficult problems. He wrote:

> The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world …It is only because individual human beings are limited in knowledge, foresight, skill, and time that organizations [or societies] are useful instruments for the achievement of human purpose. (p. 198-199)

Thus, individuals cooperate and communicate with others in order to best solve problems. However, the comfort of this bounded rationality can prevent strong tie-reliant individuals from obtaining information from outside of a closed information network.
Weak ties are the relationships formed with individuals who reside outside of one’s subculture or social network. Granovetter found that information communicated via weak ties is vital for a robust information lifestyle. “Individuals with few weak ties” he notes, “will be deprived of information from distant parts of the social system and will be confined to the provincial news and views of their close friends” (Granovetter, 1983, p. 202). The practice of relying mainly on strong ties for information inevitably leads to disconnection from the rest of the information society. Granovetter’s empirical evidence supporting the notion that reliance on strong or weak social ties for information contributes greatly not only to understanding information barriers related to subcultural information behavior, but also suggests a solution. If exclusive grouping leads to problems, programs that encourage integration and cooperation between disparate groups seems to be a starting point for addressing information poverty at this basic social level (Jaeger & Burnett, 2005).

When discussing poverty of any sort it is important to remember that some aspects of poverty—for example, its meaning within a given culture, the kinds of lifestyle attributes it has within a given culture, etc.—are constructed socially or are influenced by social norms. Humans are social beings. We create languages, alphabets, signage, and both simple and elaborate communication systems in order to commune and cooperate one with another, “and by cooperation raise [our] efforts against nature to a higher power” (Sumner, 1906, p. 31). It is the social interactions and relationships between individuals as we help each other in our “struggle to maintain existence” within the context of society at large that are the focus of social science research (Sumner, 1906, p. 18). While subcultures give a vibrancy to society that should not be overlooked, they might also contribute to information poverty in the ways mentioned above. The impact subcultures have on information poverty is ripe for further exploration. This subcultural view of information poverty supports the notion that perhaps researchers should look beyond a focus on socio-economic poor groups, as subcultures at different socioeconomic levels may suffer from information poverty.

**Personal Attitude**

Finally, the third aspect of information poverty of Childers and Post’s model centers on the role of personal attitude in relation to information. When discussing social behaviors and social inequity, it is difficult to determine what is cause and what is effect. Do the anomalous behaviors of the poor keep them from accessing available information or is common information simply unavailable to the poor, leading to behaviors that reflect a general lack of self-confidence and patterns of self-deprecation, hopelessness, and social estrangement (Dervin & Greenberg, 1972)? Whether the behaviors are part of the cause or merely the effect, several studies have indicated that attitudes toward certain types or channels of information do influence the types and amounts of information available to the individual or group.

For example, the results of Greenberg and Dervin’s (1970b) own research and their review of studies similar to theirs led them to characterize the poor in general as having

1. A strong sense of alienation from the whole of society,
2. A lack of belief in their own ability to achieve, leading to low expectations,
3. A sense of inferiority,
4. A sense of failure in comparison with the rest of society,
5. A focus on the present rather than planning for the future, and
6. Limited education, leading to a simplified view of the world around them.

(Greenberg & Dervin, 1970b)
Each of these characteristics centers on attitudes that impact information access. Greenberg and Dervin conclude that these core characterizations lead to a tight-knit social group that is easily exploited by outsiders, making it difficult for them to integrate with the larger society in a manner that might help them escape the poverty lifestyle.

Warner et al’s (1973) framework describing information barriers the poor face includes intellectual, psychological, physical, societal, and institutional barriers that prevent access to information sources that might help the poor find solutions to their needs and problems. Intellectual barriers might include lack of awareness of or exposure to information resources and then misinterpretation of information once acquired. Further, a lack of trust in information sources may lead to lack of use of available information until after a simple problem becomes a crisis. The physical barriers center on the “law of least effort,” since “use of services is generally negatively related to distance” (p. 29). Thus the urban poor do not go beyond one-stop shopping for information needs, often settling for less than adequate information.

Perhaps Greenberg and Dervin and Warner et al’s characteristics of attitudes the poor espouse vis a vis their relationship with the rest of society can best be summarized as lacks in trust, self-confidence, foresight, and motivation. A look at the research related to these four characteristics may provide some insight into the effect attitude has on information acceptance.

**Lack of Trust**

Modern case studies illustrate some of what Greenberg and Dervin describe as lack of trust as a barrier to information. One example is related to Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) among the general US population. Since the first diagnosis of AIDS in 1981, nearly one million cases of the disease have been diagnosed in the US. When the disease was first identified, it seemed to be confined to gay white male populations (Washington Blade, 1982); however, the heterosexual spread of AIDS has increased every year since 1981. More than 80 percent of HIV/AIDS cases diagnosed in 2004 were people who had been exposed to the virus through heterosexual contact (Center for Disease Control & Prevention, 2005). Also, the number of AIDS cases among minority groups in the US has increased yearly. In 2004, although only about 13 percent of the US population was Black (US Census, 2005), 48 percent of persons living with HIV/AIDS in the US were Black men, women, or children (Center for Disease Control & Prevention, 2004).

Also, while preventative measures and AIDS effect-reducing medications have helped reduce the overall number of AIDS-related deaths, the number of AIDS related deaths among minorities has still increased. In seeking reasons for the increases of AIDS among minority groups, researchers and journalists have begun to investigate attitudes and beliefs about AIDS in minority populations. The problem seems to rely at least in part on social and cultural mistrust of the bearers of AIDS information. A 2004 telephone survey of 500 black adults living in San Bernardino, California found that 27 percent of the respondents believed that HIV/AIDS “is a man-made virus that the federal government made to kill and wipe out black people” (Bogart & Thorburn, 2005, p. 213). Accordingly, most of the men and women who had strong conspiracy beliefs had “more negative attitudes about condoms and were less likely to use condoms consistently” (p. 216), condoms being one of the most common deterrents to contracting HIV/AIDS.

Almost 60 percent of the respondents contacted reported belief that “a lot of information about AIDS is being held back from the public,” and 53.4 percent responded that they believed that, while there is a cure for AIDS, it is being withheld from the poor (p. 215). Mistrust of the federal government (and thus information disseminated by federal agencies) by Blacks seems to
be creating a situation in which medical information is ignored and a largely preventable medical problem is mushrooming primarily within one American subculture. These and other studies make the role of trust in information poverty clear, but researchers have yet to link such findings to the larger information poverty puzzle.

Lack of Confidence

Whereas lack of trust focuses on feelings one might have regarding the validity of the outside sources delivering information, lack of confidence refers to one’s feelings of doubt in one’s own ability to acquire needed information. Individuals find or create a niche for themselves within society that increases their potential to do more than they could do alone. As individuals establish a place in society, they use social networks and subcultures to obtain needed information. As noted in the above discussion of subcultural behavior, one’s immediate subculture influences what information one receives, shares, avoids, etc., and also affects how one processes information (Kochen, 1989; Schutz & Luckmann, 1974; Wilson, 1999a, b). A subcultural social network provides a certain amount of predictability that individuals need in order to feel secure and in control of their lives. A subculture exists within the larger social world and an individual may interact with multiple subcultures, but the effect one’s primary subculture has on individual behavior cannot be underestimated. As an individual seeks information for decision making, the higher the individual’s certainty that his or her interpretation is valid or true compared to his or her subculture, the greater the individual’s confidence in his or her decision (Losée, 1990).

Deciding what information is necessary for making daily decisions, however, is not always obvious. Information has been described as having lower value if it does not help an individual obtain greater certainty for decision-making (Case, 2002). “The question is not whether [people] need information, for they do. Rather, the issue is whether the information available to them is of the right kind and quantity, of acceptable accuracy, and of appropriate timeliness” for making social and personal decisions (Nehnevajsa, 1966, as cited in Faibisoff & Ely, 1976). One might say the ideal information world is a place with “the right information at the right time, in the right place, in the right form, and of sufficient completeness and quality to perform the current activity” (Jones, 2004, p. 2). However, the right information is not always available at the right time, in the right form, or even completely available. Deciding when to store information or delete information, deciding how to organize and file non-immediate information in order to be able to access it quickly should the need arise, knowing how to glean the most important parts of incoming information so as not to feel overwhelmed or overloaded with information, for example, can be a complex quandary. Because of this complexity of information behavior, some information can be left untouched, even when the information is clearly needed and is physically available.

In other words, confidence is in at least some part influenced by adherence to the norms of one’s primary subculture. Lack of confidence can result when one’s subculture does not mesh well with the larger culture. Feelings of self-doubt can inhibit appropriate information behaviors, leading to information poverty.

Lack of Foresight

Returning to the basic underlying concept of information need introduced at the start of this chapter, an information need is based upon the concept of need itself. Childers and Post (1975) identify two types of need related to information: kinetic need and potential need. Kinetic information needs are those which are immediate and “dictated by a given situation or condition” (Childers & Post, 1975, p. 36). These kinetic needs can be divided into crisis and non-crisis
subcategories (see Figure 4). Kinetic needs are immediate and the individual seeks short-term, short-use information. Potential information needs are determined by more far-sighted anticipation of how events might turn. With potential information needs, an individual engages in “just in case” planning. Potential information might never be used but instead sit in mental or physical storage for its entire information lifespan.

<table>
<thead>
<tr>
<th>Kinetic Information Need</th>
<th>Potential Information Need</th>
</tr>
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<tbody>
<tr>
<td>Crisis</td>
<td>Non-Crisis</td>
</tr>
<tr>
<td>“I think I am pregnant, what do I do?”</td>
<td>“What do I fax a resume to a potential employer?”</td>
</tr>
<tr>
<td></td>
<td>“What are available birth control options so I don’t become pregnant?”</td>
</tr>
<tr>
<td></td>
<td>“What resources and information do I need on-hand in case I do get the job at my next interview?”</td>
</tr>
</tbody>
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Figure 4. Kinetic and Potential Information Needs (Childers & Post, 1975)

When an individual relies too heavily on kinetic information needs to direct his or her information seeking, it is likely that at the time of crisis, the individual will often have to make do with inadequate information for decision-making.

It can be difficult, however, to determine how much or what type of information is adequate for decision-making. Recent studies have shown that “information poor decisions are not necessarily suboptimal” (Orman, 1987). Decision scientist Levent Orman (1987) notes that the cost of information in general includes not only the costs associated with the collection, storage, retrieval and transportation, but also with both the human and machine processing to make it available in the right form and at the right time. Not surprisingly, considering all these costs associated with information, it is rarely optimal to allocate the necessary resources to the acquisition of complete information for any specific decision. (p. 73)

Even if the final decision is not optimal, “a mediocre decision may be the best that can be done, given the cost of information” (p. 74) In fact, Orman cites empirical evidence that suggests that when large amounts of information are acquired for a decision, a large portion of that information tends to be discarded completely unused.

This same type of decision-making/information relationship is discussed in a recent best seller entitled Blink (2005), written by author and journalist Malcolm Gladwell. According to Gladwell (2005), when making decisions we tend to believe that more information will help us make a better decision. In one section of his book he discusses how observation is used as we make decisions. For example, we observe others’ behaviors, styles, nuances, expressions, manners, and so forth and then we make decisions as to their level of responsibility, trustworthiness, kindness, and other characteristics. He describes two types of observation, thick slice and thin slice. Thick slice observation is when one spends much time, attention, and energy studying a particular matter before making a decision. The intent of this type of observation is to obtain large quantity of information on a particular matter. Gladwell writes that this type of observation is often overwhelming. Trying to see every nuance to ensure that the best decision is
made leads to information overload. Thin slice observation, Gladwell (2005) notes, which could be described as a sort of gut reaction to minimal observation, usually leads to equally good if not better decisions than does thick slice observation.

Orman and Gladwell are but two who address aspects of the question of whether lack of foresight with regard to information seeking is a cause of information poverty. Clearly their research shows that in some instances, less information can be better in the decision-making process than too much information. This is not to say that obtaining information for potential information needs is harmful in decision-making, or that living from crisis to crisis without forethought a good thing. Instead, the research reviewed above seems to illustrate that there are many facets of decision-making, information need, and information poverty that require further exploration if they are to be understood in relation to one another.

**Lack of Motivation**

In 1960, information retrieval researcher Calvin N. Mooers described what he called “Mooers’ Law” (not to be confused with Moore’s Law reviewed in the previous chapter), which states that “an information retrieval system will tend not to be used whenever it is more painful and troublesome for a customer to have information than for him not to have it” (Mooers, 1960, p. ii). The emphasis here is on the individual’s perception of the potential effort required to retrieve or use information rather than what effort might actually be expended. An individual’s information behavior is colored by his or her experience (Larcker & Lessig, 1980; Wilson, 1977), thus building attitudes that prevent information access.

Use of a new information medium requires effort: a change of daily routine, a little or a lot of training, or perhaps the need to socialize with individuals who may or may not be friendly and accommodating. For one it could be a matter of acquiring a computer and connection. For another, it could be fear of political surveillance, whether grounded on good reason or not. The fact that more and more information is migrating to electronic formats accessible only with modern ICTs—from digital newspapers and electronic books to electronic governance at the local, state, and federal levels— makes something as simple as an aversion to change in information behavior or a bias towards a particular information medium a cause for due concern.

Motivation has been explored by a multitude of researchers from the fields of education, business, psychology, and sociology, to name but the most prolific areas of motivation research. A review of the breadth of motivation research is beyond the scope of this study. One of the most popular motivation theories, however, stems from humanistic psychologist Abraham Maslow’s (1943) hierarchy of needs.

According to Maslow, our needs motivate our actions, and there are basic needs that all humans have, regardless of culture. Lower needs (including such needs as food, shelter, and safety) are basic to physical human/animal existence and higher needs are what differentiate human from beast. The higher needs, such as recognition, understanding, and self-fulfillment, move an individual toward self-actualization (see Figure 5). Self-actualization “refers to the desire for self-fulfillment, namely, to the tendency for him to become actualized in what he is potentially. This tendency might be phrased as the desire to become more and more what one is, to become everything that one is capable of becoming” (Maslow, 1943, p. 383).
Lower (deficiency) needs

1) Physiological (hunger, thirst, sleep, bodily comforts)
2) Safety/security (out of danger)
3) Belongingness and Love (affiliate with others, be accepted)
4) Esteem (gain competence, approval, recognition)
5) Cognitive (know, understand, explore)
6) Aesthetic (symmetry, order, beauty)
7) Self-actualization (self-fulfillment, realize one’s potential)

Higher (growth) needs

Social needs are delineated as feelings of inclusion and the esteem of others and of oneself. These first four needs are known as deficiency needs. If these needs are not met, people feel motivated to seek ways to satisfy them. If a person is tired, she will look for a comfortable place to rest. If she feels unsafe, she will look for a lit area. When lonely, she might seek the company of friends, a pet, or a good movie. According to humanistic psychology, until these lower needs are met people are not likely to move to a higher need. This suggests that a person who does not feel a sense of belonging, for example, will not be concerned with self-esteem or anything higher on the hierarchy.

The next three levels of the hierarchy are known as growth needs, and, according to the tenets of humanistic psychology, people respond to them differently than they do to deficiency needs (Eggen & Kauchak, 1994). Growth needs are never met in the same sense as the deficiency needs. Instead, they expand and grow as people have experiences. For instance, as one better understands Greek architecture, one’s hunger for more understanding tends to increase rather than decrease. In this sense, satisfaction, then, becomes more and more distant. Progression in these three stages is marked with an insatiable desire to learn and reach one’s potential.

When any individual focuses too heavily on meeting the lowest of the needs (physical satisfaction) because of poverty of some sort, according to Maslow’s hierarchy, it seems it is quite difficult for him or her to enjoy or contribute to the social or intellectual environment in which he or she lives. Based on Maslow’s hierarchy, then, it is not surprising that Greenberg and Dervin found low-income individuals to be aloof from the larger society, as a focus on meeting deficiency needs possibly deterred motivation to pursue growth needs.

There have been some who have argued that Maslow’s hierarchy overlooks the fact that creativity often stems from hunger (e.g., Castells, 1998). The idea that one must be sufficiently clothed, dressed, and fed in order to engage in intellectual pursuits seems to ignore evidence that creativity stems from want. And while motivation has been studied to some extent in relation to information need (e.g., Atkin, 1972, 1973; Dervin & Dewdney, 1986; Taylor, 1968), application of the spectrum of motivation theories and models have yet to be fleshed out in relation to information poverty.
Conclusion

Thus, reflecting on social issues of information poverty, it seems there is a ready supply of social research that could be used to help build the information poverty argument. But there are still many questions left unanswered. For example, what is the “information” of information poverty? How do we expect to address subcultural issues related to information poverty when cultures tend to resist changes imposed from the outside? And perhaps most importantly, is information poverty best addressed as a social issue or as an information issue?

This social look at information poverty resonates with the 1998 American Library Association definition of information literacy, which reads, “To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (n.p.). This definition clearly depicts information literacy as less of a literacy (reading, writing, arithmetic) and more a proficiency based within the social context, which suggests the possibility of creating a measurement scale in the same way language proficiency ratings have been created.

Thus far information literacy discussions have not referred to the information poverty literature, and information poverty studies have not cited information literacy as a standard by which information poverty can be determined. While media centers and some libraries have created lists of information competencies for their own limited populations, there is no national or international standard for information literacy as there is for language proficiency. Perhaps a standardized instrument is what is needed to refocus the information poverty research. It is currently difficult to establish that a person, group, or subculture is information-poor when there is no such instrument to back up that assessment.

Beyond the need for some sort of criteria by which information poverty might be assessed, there is also a need for greater focus on theory with regard to information poverty. As noted in Chapter 1, LIS researchers have indicated that the field relies almost exclusively on borrowed theory (Hall, 2003; Pettigrew & McKechnie, 2001). As noted in this chapter, several social theories seem to contribute greatly to better understanding of the information poverty concept. One LIS researcher in particular, Elfreda A. Chatman, provided an example of how borrowing theory can lead to original theory from within the LIS discipline. In 1996 she published what she termed a theory of information poverty, recommending a new lens which builds upon the social approaches we have examined in this chapter, but with a slight refocus to include how the individual, residing within a small world social context, interacts with the larger information society. Chatman’s work will be discussed further in the following chapter.
CHAPTER 4. DISCOVERING THE SMALL WORLD

Introduction: A Small World Approach

This chapter follows the building of information poverty theory through a review of Elfreda A. Chatman’s lifetime of research. Chatman clearly demonstrates the process of LIS theory construction as she used extant theory to examine social information behaviors, paying special attention to the customs and trends that create information barriers. Chatman frequently ended her articles with exhortations to libraries to be more aware of the social barriers that impede the access to information underserved patrons might be facing (Chatman, 1985a, 1987a, 1987b, 1991a, 1991b, 1992; Chatman & Pendleton, 1995; Pendleton & Chatman, 1998).

Chatman’s work began with the common assumption that information poverty is linked with economic poverty. As her work progressed, however, she found that this was not necessarily true, and asked “What factors are present that would account for an information-poverty lived-experience?” (Chatman, 1996, p. 194) Chatman posited that information poverty was not so much due to economic poverty but was more closely linked to a set of socially determined attitudes and norms. Her foray into the social environment of information behavior began with a focus on dysfunctional social information behaviors related to economic poverty, but soon changed to focus on the information-poor lifestyle, taking the information poverty discussion beyond simply exploring the information behaviors of poor individuals.

Chatman used ethnography to observe the small world lives of her chosen populations. She studied information diffusion, opinion leadership, and the use of leisure time with regard to the pursuit of information among low-income heads of household women in Berkeley, California (Chatman, 1983, 1985a, 1985b, 1986, 1987a). She looked at attributes of alienation and gratification in university janitors in the Southeast (Chatman, 1987b, 1990, 1991a). She took social network theory to a southern retirement home (Chatman, 1991b, 1992), and then attempted to round off her ideas regarding small world lives by looking at the information behaviors of prison inmates (Chatman, 1999; Pendleton & Chatman, 1998). She applied concepts from established social theory to the field data she collected through observations of and structured interviews with the populations she studied, eventually setting aside established theory and constructing three seminal social theories of information behavior regarding information poverty and small world existence which she called her “small world” theories: the theory of information poverty, the theory of life in the round, and the theory of normative behavior (Chatman, 2000).
The Small World Lifestyle

Small world models from sociology describe the connections individuals have to the larger world through only a very few personal acquaintances. The models suggest that although one does not personally know, say, their state governor, they almost certainly know someone who knows someone (and so forth) who knows the governor. Small world models play with the idea that within as few as six or seven “degrees of separation,” an individual can trace social links to any other individual in the world (Milgram, 1967). Small world models have been used in study of such phenomena as decision-making (Killworth & Bernard, 1979), large-scale social structures (Travers & Milgram, 1969), and social networks (Watts, 1999). Others have focused on how the social small world provides a certain amount of predictability that individuals need in order to feel secure and in control of their lives (Kochen, 1989; Schutz & Luckmann, 1974; Wilson, 1999a, b).

Chatman used this concept of the small world to describe the social networks that influence how individuals interact with information; however, rather than study the length of the social reach, Chatman looked at the barriers the small world imposes. She chose groups of individuals she recognized as social insiders or outsiders. Chatman used these terms as she found them in the sociology literature. Social outsiders are “[nonmembers] of specified groups and collectivities or specified social statuses” (Merton, 1972, p. 21). Social outsiders are those who find themselves to be nonmembers of what might be considered the social inside. Insiders, on the other hand, are those who set the social norms, and it is the insiders who decide whether or not to include a new participant in a particular social interaction (Goffman, 1959). Chatman framed an argument that this insider/outside structure is created by the small world itself, and that this small world structure creates the most daunting social information barriers.

The populations Chatman studied were for the most part women who were not part of the mainstream social population of their larger world environments. Her populations consisted of the economically bereft (i.e. the unemployed in Berkeley), those who felt they were in an environment that did not welcome them but who did not feel that outside information would help them either (i.e. janitors at a southern university), those who feared that sharing information could be detrimental to their autonomy (i.e. aging women in a retirement community), and those who were clearly isolated from mainstream society (i.e. maximum-security prison inmates).

Chatman’s Use of Theory

Chatman chose to look at information from the point of view of the small world of those whom she identified as information poor. Chatman defined the information poor as people who “perceive themselves to be devoid of any sources that might help them” (1996a, p. 197). More than a simple lack of information access, Chatman’s definition of information poverty incorporates a sense of individual perception within a framework of shared social norms. It is not that there is not information available, but rather, that the individual does not perceive that whatever sources might be available are in fact helpful. Along these same lines, Chatman defined information poverty as a concept “partially associated with class distinction. That is, the condition of information poverty is influenced by outsiders who withhold privileged access to information,” but it is the reactive behavior of the insiders, responding with “self-protective behaviors which are used in response to social norms,” that leads to the recurring separation of the information poor from the information they need (Chatman, 1996a, p. 197).
While people might doubt that others can fully understand what they need or are trying to express, they invariably adopt social networks with other individuals who maintain a similar lifestyle, have common beliefs and perspectives on life and the world around them. The thrust of her argument was that “our membership within a particular social group contributes to information poverty” (Chatman, 1996a, p. 197). For her dissertation, Chatman adapted Rogers’ (1962) Diffusion of Innovation (a theory originally intended to describe the diffusion of technological innovations in farming communities), and applied it to employment-related information diffusion. She noted that in dispersing a new innovation, information must first be spread to inform potential adapters of the new technology. She noted that diffusion theory is, in fact, “relevant to the study of the diffusion of information in general, not just information about technological innovations,” and then proceeded to apply the theory to “ordinary information that is new to a person or group” (Chatman, 1983, p. 80).

**Diffusion Theory**

Chatman used diffusion theory to explore information diffusion among a population of unemployed women in Berkeley (1986). She looked at job information as the innovation under consideration. Although Chatman would not begin consciously framing her own theories for another decade, she was consistent in her awareness of the need to create theory that connected to the practicing world. She wrote:

> Should this [diffusion] theory fit the process of communication which exists among low-income potential users, we would have available a tool for understanding a neglected area of information service …. In the diffusion process a person becomes aware of an innovation and communicates this awareness to someone else. That person in turn communicates it, and so on as the innovation is spread or diffused. (Chatman, 1986, p. 377)

Her stance was that by tracing the diffusion of one particular, much-needed type of information, barriers could be identified and the informing process could be enhanced in order to reduce the information gaps of the poor. Likewise, once this diffusion process was clearly mapped, other practical information could be diffused in a similar manner.

Chatman reported her finding that information about employment “has limited utility when diffused”; that is, the value of the information decreases the more it is spread, particularly during the period of high unemployment in the Berkeley area at the time of Chatman’s research (Chatman, 1986, p. 384). In an environment where job information holds high value, spreading the word about a promising position to others can preempt one’s own chance at becoming employed. Chatman wrote that, with highly valued job information, time is a crucial element in the diffusion of information (as seen with the “freshness” of employment notices), and that the nature of the information itself influences its distribution through the social structure (Chatman, 1986, p. 384). When time is a powerful factor in the value of information, one’s social position has everything to do with how quickly information is received.

Chatman found other application of diffusion theory to be limited. For example, with regard to employment information, once job information is “used”—once the job has been filled—it is then of no value to others, as only a certain number of people can be hired; therefore, there is no need for others to “adopt” it (Chatman, 1986, p. 384). In later writings about other populations, Chatman described the lack of information available to or shared between low-skilled workers. The janitors she studied reported that their questions about health issues, employment benefits and university regulations, for example, were not satisfied. “For the most part,” Chatman wrote, “information was not widely shared” (1987b,
Chatman wrote that, though she had wondered if the environment in which the janitors worked, an institution of higher education with active faculty and students all around, might motivate them to seek out libraries, she found that public libraries were not widely used and that most of the workers she questioned had few opportunities to exchange information via interpersonal communication. Chatman wrote that this lack of information sharing came from the isolated “nature of their jobs,” “the university’s unwritten policy of discouraging informal conversations among them,” and “a lack of trust in one another’s confidentiality” (1987b, p. 273-274). When the janitors did talk with one another, their topics of conversation centered on “the perceived unreasonable amount of work expected of them by the university,” and “the need for more money,” and gossip about supervisors and co-workers (1987b, p. 274). In essence, the information diffused in the janitorial small world answered neither their socio-economic nor their health-related questions.

Chatman concluded that the diffusion of ideas is “similar in some respects to the diffusion of any other innovation,” but noted the marked differences (Chatman, 1983, p. 79). For example, in another article on the same topic, she wrote that, while four of the five attributes of the innovation model of diffusion theory, relative advantage (the degree of superiority a new innovation has over the one it replaces), compatibility (how well the innovation meets existing needs), complexity (how easy or difficult it is to adopt the innovation), and trialability (how easily the innovation can be tested before implementation), were easily applied to information diffusion, the fifth, observability (how visible the results of the innovation are to others), was not as readily applicable because of “the difficulty involved in observing the information respondents might have had about jobs” (Chatman, 1986, p. 384).

Finally, Chatman wrote of a need for a change in the model of the attributes of innovation to account for the element of risk within the concept of relative advantage (Chatman, 1986, p. 383). Risk takers and extroverts were more likely to obtain valued job information earlier than non-risk takers and introverts.

Opinion Leadership Theory

Opinion leadership theory was Chatman’s second chosen conceptual framework, as she “was curious about people who are perceived to be information providers” (1996b, ¶5). She defined opinion leaders as those pretty much “like everyone else” except that they had more of a taste for the world at large; an opinion leader is “the person most aware of new information and most influential in diffusion of that information to others within a given social environment” (1987a, p. 341). Chatman noted that the presence of such leaders indicated a phenomenon of individuals seeking out other individuals for advice and information (1987a, p. 341). She notes that opinion leaders shared the six characteristics of:

1. greater social participation;
2. gregariousness;
3. cosmopolitanism;
4. greater exposure to the mass media;
5. higher social status; and
6. greater adherence to system norms. (Chatman, 1987a, p. 341-342)

Chatman wrote that she thought opinion leaders would be useful as disseminators of useful and timely information. But, while she did identify opinion leaders among her studied groups, these leaders did not always act as information resources for their small world groups. Opinion leaders tended to withhold the information they perceived as more valuable. Chatman reported that, when presented with “new information, e.g., possible job leads or techniques to
secure permanent employment, [opinion leaders] would not want to lessen their chances of getting a job by telling someone else about it” (1987a, p. 350). This guarding of information by those more privy to timely and valued information than the general public comes in to play in Chatman’s postulates regarding information poverty, which will be discussed later in this chapter.

**Alienation Theory**

Chatman next looked at alienation theory to try and understand the information behavior of a population of university janitors who felt they did not have access to “a support network that could enhance a sharing process” (Chatman, 1990, p. 355). Chatman wanted to determine why these low-income laborers so integral to the university’s functioning were so clearly “on the periphery of institutional services” (1990, p. 355). She acknowledged a large body of theorists who had previously studied societal alienation, including Weber, Merton, and Durkheim. She explored Seeman’s (1959) five concepts of alienation, *powerlessness* (the feeling that one does not have control over one’s personal or work environment), *meaninglessness*, (the inability to solve problems rationally), *isolation* (not adhering to the same values as the rest of society), *self-estrangement* (the depreciation of anything one does oneself, adding value based only on others’ regard), and *normlessness* (inappropriate social behavior), as they applied to the janitors. She found that while the janitors did share attributes of powerlessness, meaninglessness, isolation and self-estrangement, she saw no evidence of normlessness. This concept of normlessness, she notes, “refers to the breakdown of appropriate standards of behavior held by members of the larger society” (Chatman, 1990, p. 361). She observed instead that the janitors engaged in socially acceptable behavior, and that deviant behavior was, in fact, “frowned upon by respondents” (Chatman 1990, p. 361). In other words, the janitors adhered to social norms, but did not feel the benefits of the society to which they were conforming were reaching them.

Chatman’s work brought alienation theory into the information poverty discussion. The theory did not fully explain what Chatman observed among the janitor population, but the observation that the janitors shared feelings of powerlessness, meaninglessness, isolation, and self-estrangement implied that the study of information poverty should include more than simply the observation of information diffusion and delivery. Information acceptance, or the conditions that lead to its acceptance, must include consideration of the individuals’ perception of the information efficacy.

**Gratification Theory**

Finding alienation theory to be incomplete for describing what she was observing, Chatman looked to gratification theory. She found six postulates in the literature dealing with social stratification. She cited such authors as Cooley, Bogart, Garfinkel, Teahan, and Dervin and Greenberg as researchers providing “a number of propositional statements that comprise gratification theory [that] have been used to guide research about poor people and their social world” (Chatman, 1991a, p. 438). In her use of gratification theory, Chatman listed six propositions from the literature she reviewed:

1. Life in a small world (that information originating outside the local environment holds little of interest for the lower class);
2. Lower expectations and the belief in luck (that poor people do not succeed because they do not look for unproven opportunities, but if they do succeed it is because of luck or fate);
3. First-level lifestyle (that people in the lower socioeconomic classes prefer to seek information mainly from others like themselves);
4. Limited-time horizon (that the lower socioeconomic class view of time is of “the immediate present and the very recent past”); 
5. An insider’s worldview (that the outside world is unpredictable and hostile); and 
6. Use of the mass media (“that mass media, particularly television, is viewed as a medium of escape, stimulation, and fantasy”). (Chatman, 1991a, p. 438-442)

Applying these postulates to the social information behaviors she observed in the janitor population, Chatman reported that gratification theory adequately explained the information behavior of the university janitors: “findings indicate that [gratification] theory can be used to explain immediate gratification behavior and to advance propositions as to why these behaviors appear more prevalent in the lower working classes” (Chatman, 1991a, p. 447). She pointed to the janitors’ “here-and-now existence” as the key to understanding why information seeking does not occur (Chatman, 1991a, p. 447). The janitors do not perceive that information will “lend … significant benefit to their situation” (Chatman, 1991a, p. 447).

As noted, alienation theory had led Chatman to the idea that self-perception and feelings of social acceptance or marginalization contribute to information poverty. Gratification theory supported the idea that individual perceptions, shaped within the context of the small world, in turn shape one’s information acceptance. Chatman found the small world framework to be useful in explaining aspects of information poverty that did not seem to be addressed with other theories. As we will see, her later work explores small world lifestyles in great detail.

**Social Network Theory**

In the early 1990s, Chatman began to look at information poverty from a slightly different angle than she had up to that point. In her earlier work she had selected populations that were economically poor and then sought to find how that poverty influenced their information access and use. Unfortunately, this method of population selection was flawed in that it seemed to assign information poverty to groups of individuals simply because of economic poverty. Chatman (1996) herself later noted, “Early in my research, I was influenced by scholars who made the argument that economic poverty was linked to information poverty. Over the course of my inquiries, however, I discovered that this linkage is not necessarily true” (p. 194). Her work to that point seemed to indicate that alienation and self-gratification were more direct causes of information poverty than was simple economic poverty.

To further investigate her hypothesis that economic poverty was not necessarily part of the information poverty equation, Chatman chose to study the information behaviors of an aging population of women in a well-to-do retirement community. In the resulting book, *The Information World of Retired Women* (1992), she notes that the selection of her population was, in part, based on findings that elderly women are a “more vulnerable population and are especially neglected by society” (Chatman, 1992, p. 23). Thus, it was their social isolation and resulting alienation that lead Chatman to choose this group as one that was potentially information poor.

Chatman observed and interviewed a sample of 55 women in this southern retirement community, fictitiously named Garden Towers. This “homogeneous population of southern white women” was quite different from Chatman’s previous populations of low-income black women, but the Garden Towers women, as with her previous populations, “had many life events in common” with one another (Chatman, 2000, p. 6). “For instance, they were widows, lived in what [Chatman] initially perceived was a voluntary age-segregated environment, had a middle-class income, and shared a similar religious faith, namely, Baptist” (Chatman, 2000, p. 6). Chatman clearly assumed the homogeneity of the population might be a factor in the free

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exchange of information, as she wrote of her sample that “all but one (Latino) were white” (p. 2). Writing of the overall Garden Tower population, she adds,

Although there were a few couples and approximately seven black residents [in Garden Towers], I did not interview them. I excluded the couples … [and] black men. I also excluded the institutionalized aged … [as] it was my belief that they might not have the freedom to form natural networks. Therefore, this might limit the opportunity for freely shared information exchanges. (Chatman, 1992, p. 2)

Focusing on restricted and closely networked populations, Chatman’s unit of observation was the network rather than the individual. Her study identifies important principles regarding information transfer at this network level. The question is still open, however, as to how these principles might apply to a generalized and less confined population.

Chatman used social network theory to help her understand the information worlds of her participants. Introduced in the 1950s by sociologist A. E. Barnes (1954), social network theory focuses on relationships between people, rather than on the individuals themselves, as a means to understanding motivations for various behaviors. But Chatman found that social network theory did not sufficiently describe the information behaviors she observed. The perceived social risk associated with requesting or seeking information deterred the retired women from soliciting needed information, even from within their own social network. Their fear of gossip, of being seen as weak, dependent, or a “poor dear,” led to distrust and secrecy within the retirement community (Chatman, 1992, p. 72). Most of Chatman’s respondents reported that they no longer had contact with people they knew before their retirement to the community. Chatman quoted one respondent as saying,

I’m not involved with my friends and it’s a shame, too. I used to work with them, played with them, even went to school with some of them. Plus, you have to remember that lots of my friends, people my age, are dead. I used to stay in touch with my church friends. But since I moved here, I don’t even stay in contact with them. But I think about them a lot. (1992, p. 51)

Their move to the retirement community, while putting them in close proximity to others much like them, separated them from their established, trusted social networks.

The women’s contacts within the retirement community were not enough for them to meet all of their information needs, and Chatman questioned whether the outside contacts the women maintained (children, friends, doctors, lawyers) were sufficient for meeting those needs. Although the women had physical access and social connections to outsiders and outside sources that could provide them with needed information, Chatman noted a surprising selectivity of information requested.

Common barriers Chatman wrote about were self-imposed social restrictions that created limitations to information access. In her conclusions and recommendations, Chatman expresses a belief that age-segregated communities increase the sense of isolation these populations feel from the rest of society (1992). She reports comments residents made that made it clear that integral players in the residents’ daily lives (i.e., family members and the staff at Garden Towers), perhaps unwittingly gave the women constant reaffirmation that they were no longer fully included in the larger social world. The sense of alienation led Chatman’s respondents to go to great lengths to be secretive in many of their information behaviors and to demonstrate very little trust.

15 Granovetter’s strong ties/weak ties model mentioned in Chapter 3 is one application of social network theory with regard to the communication of information.
By applying diffusion, alienation, gratification, and social network theories, Chatman borrowed from the sociological theory in an attempt to understand information poverty. As noted in Chapter 1, when extant theory does not explain what is observed, the next step is to create original theory. Her first task was to further explore the concepts that might help build a theory of information poverty. She began this exploration with a focus on the small world construct.

Building the Small World Construct

In 1995 Chatman and Victoria Pendleton, both at the University of North Carolina at Chapel Hill, published the article “Knowledge Gap, Information-Seeking and the Poor” in which they describe the “impoverished lifestyle” as one in which the “dysfunctional life-world” must be diagnosed as such by “members of [the] social milieu” (p. 136). In other words, the information poverty of a particular individual or group cannot be assessed by outside observers, but, rather, must be determined by the subculture to which the individual or individuals belong. This places great importance on the closed social network, or small world, a social network in which an individual is a member.

The boundaries of our small worlds make it far more difficult for us as individuals to access information. Lack of social connectivity associated with low-income and low-social status lives creates a greater barrier than lack of education or the actual lack of funds alone. According to Chatman and Pendleton, a great deal of needed information is too foreign to the economically poor for it to matter much to them. This article is the first to touch upon the social concepts connected with information that Chatman would later discuss in her theory of information poverty.

Pendleton and Chatman’s (1998) later work on small world lives underscores the interconnectedness of the individual to other individuals within small world social groupings. In these small world groups, individuals access information that is provided by the larger infrastructure and society at large through a small world buffer. The small world situation is neither a negative nor a positive concept. The small world simply lends a measure of predictability to social experience. Pendleton and Chatman (1998) discuss the predictability of small world lives and how this predictability influences the information behaviors of small world inhabitants. They describe how individuals minimize their contact with society at large by adopting small world groups and seeking information mostly from within that small world, avoiding the outside world, as “one looks at the world at large with some degree of interest. However, most of the information produced outside the small world has little lasting value” (Pendleton & Chatman, 1998, p. 733).

Based on Chatman’s previous research with the unemployed, janitors, and retired women, Pendleton and Chatman argue that this lack of interest in or disconnection from the world-at-large lends more weight to the roles of opinion leaders (Chatman, 1987a) and gatekeepers (Metoyer-Duran, 1991, 1993), and increases the importance of bridging information gaps (Chatman, 1990; Chatman & Pendleton, 1995). Chatman’s theory of information poverty addresses the way people ignore information because of this disconnection. Feelings of distrust and self-protective behavior keep individuals from seeking valuable and useful information because that information is seen as “too costly, or the information seeker is motivated by a sense that in the end, why bother?” (Chatman, 2000, p. 7)

In 1996, Chatman noted,

As library and information scientists, we do not have a tradition of focusing on normative problems in which we can approach a line of inquiry with some measure of certainty. We
cannot be sure that our areas are well defined and that our problems are important. We have no central theory or body of interrelated theories we can view as “middle range,” … [and] it would appear we are currently focused on the application of conceptual frameworks rather than on the generation of specific theories. (p. 195)

In this same article, Chatman presented her own middle-range theory which she called the Theory of Information Poverty.

Middle-range theory, as described by sociologist Robert K. Merton (1957), is “of far more limited scope” than general theory, which guides “diverse empirical inquiry” (p. 108). Merton (1957) goes on to write that middle-range theories are more practical, involving “abstractions, of course, but abstractions not so far removed from the data of sociological observation. Such theories … consist of sets of relatively simple ideas, which link together a limited number of facts about the structure and functions of social formations and suggest further observations” (p. 108). Thus, in calling her theory middle-range, Chatman acknowledges that she was creating theory based on principles she observed with very selective samples. Her observed populations all lived within American cultural boundaries, for one. She did not pretend that her theories were necessarily applicable in variant cultures outside of the US.

A Theory of Information Poverty

Chatman’s (1996) theory of information poverty is based on the premise that “membership within a particular social group contributes to information poverty. How? Because we can experience a need for information but are hindered from seeking it. Thus, we engage in self-protective behaviors to keep others from sensing our need” (p. 197). Chatman carefully points out that her theory represents “a collective rather than an individualistic” model of need, and that “as a theoretical framework, [the] purpose is to describe an impoverished information world” (Chatman, 1996, p. 197). Focusing on the concepts of secrecy, deception, risk-taking, and relevance, she created six propositional statements that link information poverty to self-assessed social dysfunction:

Proposition 1: People who are defined as information poor perceive themselves to be devoid of any sources that might help them.
Proposition 2: Information poverty is partially associated with class distinction. That is, the condition of information poverty is influenced by outsiders who withhold privileged access to information.
Proposition 3: Information poverty is determined by self-protective behaviors which are used in response to social norms.
Proposition 4: Both secrecy and deception are self-protecting mechanisms due to a sense of mistrust regarding the interest or ability of others to provide useful information.
Proposition 5: A decision to risk exposure about our true problems is often not taken due to a perception that negative consequences outweigh benefits.
Proposition 6: New knowledge will be selectively introduced into the information world of poor people. A condition that influences this process is the relevance of that information in response to everyday problems and concerns. (Chatman, 1996, pp. 197-198)

These statements link information poverty to a social behavior whereby insiders do not seek information outside their own milieu because of distrust and a desire to control (i.e., not share) what they already do have. They see outside information as irrelevant to daily life. While outsiders also play a role, sometimes actively withholding information that may be useful to the insiders, the behaviors of the information-poor themselves are the most prominent contributors to
their information poverty lifestyle. Chatman (2000) reports that this theory stems directly from her Garden Towers study. Although “seemingly homogeneous” and “insulated,” the women living there “revealed the strongest argument for deception’s influence on information-seeking” (Chatman, 2000, p. 6).

After publication of her theory of information poverty, Chatman “became aware of two central concepts that needed further exploration. These were social norms and self-protective behaviors” (2000, p. 7). She defined social norms as the “proper” social behaviors defined by the small world and self-protective behaviors as “one’s desire to appear normal or … [not] call undue attention to oneself” which results in “the careful shielding of one’s true state from others” (Chatman, 2000, p. 7). Looking for another homogeneous and oppressive environment that might round out her theory of information poverty, Chatman began observing the information behaviors of female maximum-security prison inmates. What she discovered instead added a new dimension to her conception of the small world: life in the round.

A Theory of Life in the Round

This theory describes the “normative” worlds (Chatman, 2000, p. 7) in which people live, regardless of the “enormous degree of imprecision” or uncertainty encountered (Chatman, 2000, p. 9). Chatman writes that prison life is a model small world in that “things are viewed on a small scale … activities are routine, and predictable,” and there is a high level of social control, with very little personal control (Chatman, 1999, p. 209). Chatman reports that the inmates were more satisfied with their prison small world when they did not have access to the larger world outside the penitentiary. Knowing what they were missing (e.g. growing children, deaths of parents and loved ones) made them unhappy. The inmates’ coping mechanism was to create an insider world that ignored what did not include them. “Lifers” and longer-term or repeat-inmates created “norms, secrets, and ways of judging what is important against that which is trivial or even useless” (1999, p. 212). Shorter-term inmates learned to act within the small world created by the established insiders.

The six propositions of this theory focus on the insiders of small world groupings and how they determine the boundaries of their behavior:

Proposition 1: A small world conceptualization is essential to life in the round because it establishes legitimized others (primarily “insiders”) within that world who set boundaries on behavior.

Proposition 2: Social norms force private behavior to undergo public scrutiny. It is this public arena that deems behavior—including information-seeking behavior— appropriate or not.

Proposition 3: The result of establishing appropriate behavior is the creation of a worldview. This worldview includes language, values, meaning, symbols, and a context that holds the worldview within temporal boundaries.

Proposition 4: For most of us, a worldview is played out as life in the round. Fundamentally, this is a life taken for granted. It works most of the time with enough predictability that, unless a critical problem arises, there is no point in seeking information.

Proposition 5: Members who live in the round will not cross the boundaries of their world to seek information.

Proposition 6: Individuals will cross information boundaries only to the extent that the following conditions are met: (1) the information is perceived as critical, (2) there is a
collective expectation that the information is relevant, and (3) a perception exists that the life lived in the round is no longer functioning. (Chatman, 1999, p. 214)

Chatman cites social norms as the “public arena that deems behavior—including information-seeking behavior—appropriate or not” (Chatman, 1999, p. 214). The term “social norms” comes from other literature on small world theory (Schutz & Luckmann, 1974) and Douglas’s Understanding Everyday Life (1970). Chatman (2000) defines these social norms as “the ‘rightness’ and ‘wrongness’ in social appearances,” or what are “considered ‘proper’ and appropriate social expressions” within a social group (p. 7, 11). Social norms impact one’s desire to pursue information by setting boundaries around what one finds relevant or irrelevant to one’s life. Living by these norms, the small world eventually creates a worldview. Chatman notes that she first came upon this concept of worldview in Cressey’s (1932) sociological study, The Taxi-Dance Hall. A worldview creates the limits and structure by which the social entity within which one resides creates a “round” life (Chatman, 2000, p. 8). According to Chatman (1999), changes in behavior can only occur if there is first a change in one’s worldview. “This worldview includes language, values, meaning, symbols, and a context that holds the worldview within temporal boundaries” (Chatman, 1999, p. 214).

Chatman proposes that, much like the inmates who opt to ignore information from the outside world, members of small worlds “who live in the round will not cross the boundaries of their world to seek information” unless “(1) the information is perceived as critical, (2) there is a collective expectation that the information is relevant, and (3) a perception exists that the life lived in the round is no longer functioning” (Chatman, 1999, p. 214). This theory describes a small world as restrictive, “a society in which mutual opinions and concerns are reflected by its members, a world in which language and customs bind its participant to a worldview” (Chatman, 1999, p. 213). Social types, taken from Weber (1978), are definitions the small world creates to define and categorize others (e.g., the labeling of others as disabled, elites, or rednecks). This social classification adds to the predictability of life. We teach each other and ourselves how to interact with a finite set of variant types rather than have to memorize those hundreds or thousands of acquaintances and contacts we have opportunity to interact with in a lifetime.

Theory of life in the round explains how, if one’s world is working without outside information, one does not have any reason to seek additional information. This implies that information is only sought if there is a problem of some sort in one’s small world.

Chatman’s theory of life in the round is an attempt to outline general principles of life lived within the small world context. This theory reinforces the idea that the individual, while making his or her own decisions, makes those decisions with the small world worldview in mind, even if only at a subconscious level, at all times. The individual resides within the social context, whether that context is one that is chosen or not. According to Chatman’s theory, only when the small world cannot meet certain individual needs or when the small world is collapsing does the individual look outside the small world for information. This theory examines what can dismantle a small world. Her next theory, the theory of normative behavior, focuses on what it is that keeps a small world together.

A Theory of Normative Behavior

Chatman’s final published theory is her theory of normative behavior. She formally presented this theory in a keynote address at the International Conference on Information Seeking in Context, held in Göteborg, Sweden in August 2000. In her conference address, Chatman outlines her theory of information poverty, life in the round, and then normative behavior. The five propositions of her theory of normative behavior are:
Proposition 1: Social norms are standards with which members of a social world comply in order to exhibit desirable expressions of public behavior.

Proposition 2: Members choose compliance because it allows for a way by which they affirm what is normative for this context at this time.

Proposition 3: World-view is shaped by the normative values that influence how members think about the ways of the world. It is a collective, taken-for-granted attitude that sensitizes members to be responsive to certain events and to ignore others.

Proposition 4: Everyday reality contains a belief that members of a social world do retain attention or interest sufficient enough to influence behavior. The process of placing persons in ideal categories of lesser or greater quality can be thought of as social typification.

Proposition 5: Human information behavior is a construct … which [describes how people] approach everyday reality and [the effect of reality on] actions to gain or avoid the possession of information. The choice to decide the appropriate course of action is driven by what members’ beliefs are necessary to support a normative way of life. (Chatman, 2000, pp. 13-14)

In this third theory, Chatman (2000) modifies her concept of worldview to include the collective sense of importance (or what is not important); “the learning of perception in concert with others that alerts members to be conscious of those things that they ought to know” [italics added] (p. 11). Human information behavior is defined here as either acting or not acting on available information, in which case accepted information should reinforce the “normative way of life” (Chatman, 2000, p. 14). Chatman (2000) writes that there are flaws in her concept of information behavior and suggests that further study will refine this concept.

Chatman’s (2000) thesis is that normative behavior is “behavior which is viewed by inhabitants of a social world as most appropriate for that particular context. Essentially driven by mores and norms, normative behavior provides a predictable routine and manageable approach to everyday reality. Aspects of interest are those things which serve to legitimize and justify values, which embody social existence” (p. 13). Normative behavior, then, is contextual and within social groups.

According to Chatman, norms can and do change over time and in reaction to extenuating circumstances. The individual guides his or her actions by mentally checking them against his or her notion of the norms of the small world life, but this is a method for coping with the vast amounts of sensory and social input. While normative behavior can prevent some information access, thus potentially leading to information poverty, it can also be an efficient way of processing the information that surrounds us.

Thus Chatman’s small world theories explore three aspects of the small world. First, her theory of information poverty proposes that information poverty is related to small world behavior; second, her theory of life in the round extends our understanding of what factors lead to one’s searching for information outside of the small world context; and, finally, her theory of normative behavior indicates that it is our normative behaviors within the small world context that allow us to process the vast amounts of information with which we are faced.

Chatman’s small world theories promote a new level of information poverty analysis. They help answer the question: “When an information infrastructure is rich and the larger society or subculture values information, what is it that keeps individuals from meeting their own information needs?” Life within the small world both works to provide information and prevent information access. The small world approach, however, does not take into account problems
that might arise when an information infrastructure is not rich. In fact, Chatman’s small world theories do not acknowledge either the infrastructural or more general social elements necessary for information access. An additional shortcoming of small world theory is that it does not take into account the ways in which individuals may sometimes make decisions or do other things that are at odds with their small world norms. So, while her theories add a new dimension to the understanding of information poverty, they overlook other basic factors that are necessary for understanding the information poverty phenomenon.

Application of Chatman’s Small World Theories

As noted previously, the aim of research is not always to create new theory. Rather, one applies established theory to collected data with hopes that the theory will lead to greater understanding of the phenomena observed. As Chatman noted in 1996, it was not her intention at the outset to create new theory, but rather “it was the presence of anomalies” that led her to develop new concepts and explore information poverty through a new lens (p. 194). Chatman herself suggested that her concepts and theories needed further study and that they were but the starting points for developing original theory related to information poverty.

And while several studies in the past few years have cited Chatman’s work, very few have actually applied or tested her theories. Her theory of normative behavior has been applied in three cases thus far. In 2001, LIS researchers Gary Burnett, Michele Besant, and Chatman, applied the theory of normative behavior concepts (social norms, worldview, social types, and information behavior) to virtual communities (e.g., listserves, discussion forums, newsgroups and chatrooms) and to feminist booksellers, women-centered newspapers, and periodical and book advocates. Their research concluded that the concepts defined with the theory can be applied to a range of communities, and that they are very useful for analyzing and describing the values a particular social world places on information and for discussing the role of information within that small world.

A second article, authored by Chatman and Maija-Leena Huotari of the Department of Information Studies at the University of Tampere, Finland, “Using Everyday Life Information Seeking to Explain Organizational Behavior” (2001), concludes that the theory of normative behavior in conjunction with social network theories adds “valuable analytical power” to the examination of strong and weak links in strategic information management theory (Huotari & Chatman, 2001, p. 363). In this work Huotari and Chatman expand upon the concept of information behavior, noting that “information behaviors can lead to a common sense of community, thereby forming a part of an organizational culture” (2001, p. 352). In other words, information behavior can be seen in all contexts. They also infuse information behavior with an attribute of trust that “involves some degree of social capital (e.g. favor exchanging),” which leads to “the networking that is fundamental to the quality of knowledge, which is the hallmark of an outstanding organizational environment” (Huotari & Chatman, 2001, p. 353).

And, finally, LIS researchers Paul T. Jaeger and Kim M. Thompson (2004) apply the concept of information poverty and Chatman’s theory of normative behavior as a means to understanding why some populations might be resistant to e-government, a relatively new method of delivering government information via the Internet as a method to increase democratic participation. Their article focuses on reasons individual groups might not use information that is readily available and is deemed by society at large to be quite valuable. They cite Chatman’s theory as a useful lens through which to view issues related to e-government non-use.
Each of the studies using Chatman’s theory of normative behavior has focused on the concepts Chatman borrowed from sociology and expanded to fit information studies. On the other hand, each test of her theory of information poverty focuses exclusively on her propositions rather than the concepts she developed. The researchers created interview questions based on the propositions. For example, two studies (Hersberger, 2002/2003 and James, 2000) used Chatman’s six propositions of information poverty to create interview instruments and code data collected through interviews and observations of homeless parents. Both studies report that the propositions by and large describe the information behaviors observed among these particular homeless samples. James (2000) interviewed and observed nine homeless parents in Seattle, Washington and noted that, while each participant reflected information poor behaviors in varying degrees, the propositions generally described what was observed.

Hersberger (2002/2003) also used interviews and observation, collecting data about the information behaviors of 25 homeless adults in Seattle; Indianapolis, Indiana; and Greensboro, North Carolina. Hersberger mentions, contrary to Chatman’s first postulate (which refers to the notion that an information poor individual cannot be labeled as such by outsiders but must perceive him or herself to be information poor or be deemed information poor by others within his or her own small world) when asked if they felt information poor, none of her participants answered in the affirmative. In fact, they all replied that felt they were overloaded with too much useless information.

This finding is interesting in that it seems at first to challenge Chatman’s first proposition. However, with additional consideration, this seems to only reemphasize the question of exactly what information poverty entails. As discussed in chapter 2, information poverty is considered by many to be a quantitative lack of information. When this is the case, attempts to lessen information poverty naturally consist of simply layering on greater quantities of information. While chapter 3 reviewed how this bombardment of information can lead to some amount of passive learning with regard to socially poignant topics such as electoral races (i.e., Campbell, 1960; Zukin & Snyder, 1984), an onslaught of information may also reduce one’s ability to make high-quality decisions (i.e., Orman, 1987). Thus, when Hersberger’s sample denies their information poverty because they feel overwhelmed with information, they are demonstrating their understanding of information poverty with information quantity rather than quality of information in relation to decision-making. Thus, Hersberger’s research supports each of Chatman’s propositions of information poverty in relation to the information behaviors of homeless parents.

One researcher, Frank Sligo, has attempted to apply Chatman’s propositions of information poverty interculturally, with two studies that focus on the information behaviors of low-income New Zealanders (Sligo & Jameson, 2000; Sligo & Williams, 2001). The first study, by Sligo and Anna M. Jameson, explores perceived barriers to information found among New Zealand women of Pacific Island rather than of European descent. The study cursorily refers to Chatman’s writings related to communication environments of the poor. Sligo and Jameson (2000) write,

Both [the Chatman (1996) and Chatman and Pendleton (1995)] studies place a heavy emphasis on the personal isolation of the urban poor … yet in the present study [of adult female Pacific Island immigrants to New Zealand], although the participants lived in an urban environment, and might be described as “lower-class” in socio-economic terms, including being at the lower end of the spectrum in terms of income, otherwise they showed very different results to the US studies. (p. 867)
According to Sligo and Jameson, the most noteworthy difference is the level of community awareness among the Pacific Islanders. While Chatman’s populations reported feelings of extreme isolation, the New Zealanders apparently reported feelings of camaraderie and support from within their ethnic community. And, according to Sligo and Jameson, they were willing to accept outside information as long as it was first sanctioned by their own cultural channels. Thus, Sligo and Jameson did not think their participants were unable “to accept outsiders’ information as described by Chatman” (p. 867). The cultural community provided a rich enough information environment to meet the basic information needs of the population observed.

Sligo’s second study, with Jocelyn Williams (2001), was more specific in its use of Chatman’s theory. The researchers interviewed 20 low-income urban New Zealanders, using Chatman’s six propositions of information poverty to frame both the creation of the interview questionnaire and the coding of the responses. As with the first Sligo study, the research indicated that the different cultural milieu created different social barriers than those identified among Chatman’s US information poor. Perhaps this finding, that information poverty may have different characteristics in different cultures and societies, and even perhaps within different socio-economic classes within the same culture or society, is one that requires further exploration.

As with the homeless studies, however, Sligo’s research tends to overlook what may be the most insightful of Chatman’s contributions to the study of information poverty—that information poverty is not necessarily linked with economic poverty. Sligo tests Chatman’s propositions with a population he deems information poor simply because of economic status—precisely what Chatman’s (1995, 1996, 2000) later work argues against. In fact, Sligo’s findings that these economically deprived groups do not manifest all aspects of information poverty seems to provide substantial evidence supporting Chatman’s premise that information poverty is based on social rather than economic marginalization. Sligo’s application of Chatman’s theory to non-US cultures is certainly an appropriate endeavor for testing her propositions and further work of this sort is precisely what needs to occur if these theories are to be expanded.

Conclusion

Chatman studied populations she diagnosed as socially alienated and information poor, observing social behavior that might help explain the unequal dispersion of information. As Chatman matured as a theorist, she became conscious of the fact that her seminal theories were composite parts of a grander social information behavior framework she referred to in conversation as her “small world theory.” Her publications describe situations where social barriers weigh heavily on the information transfer between individuals and groups.

Chatman’s evolution as a theorist reveals how theory can be developed in the field of LIS. Chatman began with small, middle-range theories, drawing upon elements of theories in other fields to explain what she was observing. Her work was focused on describing small, everyday information phenomena, and each middle-range theory she published built upon the previous theory, unifying these smaller theories by larger theoretical concepts. Her work demonstrates that small theories can be built into larger ones that can then be applied beyond the original context. LIS researchers can follow this pattern to build theory for the field out of smaller theories nested within the research that is already occurring, allowing LIS to develop into a field with a mature foundation of original theory.

Perhaps the most significant contribution of Chatman’s work is that she introduced a new approach to understanding information poverty. Trying to identify principles of information
poverty, she used established social theories, applying them first to socio-economically marginalized populations and later to other marginalized populations that were not classified as economically poor. Thus she discerned how the principles of information poverty are independent of economic poverty. She then developed new theory specifically related to information poverty that has suggested avenues of further research.

Hence, Chatman’s theory of information poverty introduces a new lens through which information poverty can be examined. However, this new lens by no means reduces the value of the infrastructural or social approaches to understanding information poverty. Each of these three lenses contributes to our understanding of the workings of this phenomenon. The following chapter will discuss how the infrastructural, social, and small world approaches can be used in conjunction with one another to create a single model that might help simplify our understanding of the information poverty phenomenon.
CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER STUDY

Introduction: Research as Butterfly Collecting

In the late 1970s, linguist Noam Chomsky noted that much of the research in his field was heavy on data collection and light on theoretical insight. He compared the observation-heavy research to butterfly collecting. “You can … collect butterflies,” he said, “and make many observations. If you like butterflies, that’s fine; but such work must not be confounded with research, which is concerned to discover explanatory principles of some depth and fails if it does not do so” (Chomsky, 1979, p. 57). Chomsky’s comment allows that the taxonomic effort is useful as a starting point for research. The data of course must be collected, but it is shortsighted if the different collections of data are not used to create advances in theory.

Chomsky’s quote seems to appropriately describe research in fields other than linguistics as well. As reviewed in this work, the body of information poverty literature produced in the past thirty years details the demographics of information poverty, the cultural contexts of and the behaviors associated with information poverty, and what constitutes an information-poor or information-rich infrastructure. Yet there is still no general understanding of information poverty as a whole among researchers.

To this point, information poverty has been an issue discussed by academics, journalists, government and non-governmental organizations, and academics from various social science disciplines. This dissertation has examined how three particular approaches to information poverty add insight to the phenomenon through the different approaches they take to the phenomenon. When viewed in conjunction, the three approaches create a richer understanding of information poverty and its characteristics and nuances. Still, however, there is no clear existing theory or model that takes all of these approaches into account. This chapter will suggest a model of information access that takes the three approaches discussed into consideration in order to encourage a holistic approach to the information poverty issue.

Limitations of the Three Information Poverty Approaches

As this dissertation has suggested, up to now, three broad approaches have been employed in the study of information poverty. One of these, based on a principle of universalism, has focused policymaker and research attention on ensuring that citizens have opportunities for equitable access to information and ready access to the information infrastructure. Research related to this infrastructural approach has resulted in the digital divide model, which posits that individuals without access to the information infrastructure because of lack of information
gadgets are information-poor. This research has exemplified Chomsky’s butterfly collecting metaphor in that it provides much data in an attempt to support the universalist notion, but there is no explanatory synthesis of the data in theoretical terms. Since the infrastructural approach is not theory driven, research in this area has quickly drifted towards too heavy a focus on the latest delivery instruments, making it easy for a change in administration to dismiss information poverty as nothing more than a fascination with gadgetry.

Within the parameters of the infrastructural approach, the most common argument is that, with the growing amount of digital information produced globally, a digital divide, or lack of access to digital information because of lack of access to digital information technologies, is equal to information poverty. When we use the narrow focus of the digital divide to measure information access through quantitative measurements, however, we overlook very fundamental questions such as: What are the desired outcomes tied to overcoming information poverty by means of lessening the digital divide (i.e., democratic participation? economic stability or prosperity? social inclusion?)? What types of information are necessary to achieve the desired outcomes? How does the speed of information delivery affect the value of the information delivered? How is the current information infrastructure helping the US to or hindering it from achieving these outcomes? What keeps people who have information access from becoming more informed?

A second approach to information poverty focuses on the influence of culture and society on information access. Using Childers and Post’s (1975) tripartite culture of poverty model, some of the above questions are addressed. Childers and Post’s (1975) and Gotsick, Moore, Cotner, and Flanery’s (1976) lists of general information needs help focus the question by delimiting specifically what types of information Americans need and what barriers might prevent information use or access. While more research is certainly needed in this area, it is still not clear what desired outcome these information types achieve. However, these lists provide at least a starting point for discussing information processing skills and the affects subculture and personal attitude have on information access and use.

However, research using the social lens overlooks other important aspects of the information poverty phenomenon and, like the universalist approach, leaves many questions unanswered. For example, what criteria might be used to be sure that information that falls in a specific information need category is, in fact, the right information to meet an individual or group’s information needs? Are there information literacy proficiencies that might help researchers suggest policy and develop education curricula that would provide appropriate training for all Americans? How much information does an individual have to have or at least be able to find for each of these categories in order to not be considered information-poor? Also, while Chapter 3 reviews several social theories and research results that contribute to a greater understanding of information poverty, why is it that researchers have not attempted to develop a comprehensive theory of information poverty?

Still, this social approach to information poverty does begin to address the question of why individuals who have access to information technologies and to the infrastructure might not become more informed in spite of such access. Even with the most up-to-date infrastructure and technologies at one’s fingertips, for example, information is of no benefit if one is not able to use the technology, navigate the infrastructure, or understand the information once it is obtained because of literacy and/or language barriers. And while an information blitz may result in some rise in awareness regarding one particularly poignant issue or another and may even influence the behavior of some individuals or groups, researchers still need to consider and explore why
there are also many who are not influenced by exposure to heavy doses of information. Finally, the relationship between information poverty and personal attitude has received little attention thus far. While poverty research describes subcultural traits of lack of trust, confidence, foresight, and/or motivation, researchers need to explore how information might affect these attitudes.

The third approach, or the small world approach to understanding information poverty, is guided by Chatman’s small world theories. Chatman, in applying social theory to information poverty research, reveals a new approach that examines how information is accessed by way of small world groups. While the concept of information poverty was originally coined in relation to economic poverty, research such as Chatman’s study of middle-class retired women indicates that information poverty relies much less on economic poverty than it does on group membership. Her use of social theory related to innovation diffusion, social alienation and networking, opinion leadership, and personal gratification as applied to “the information-poverty-lived-experience” (Chatman, 1996, p. 194) has lead to the phrasing of an original, explanatory middle-range theory that has the potential to lead to a greater understanding of information poverty in the context of information behavior and its social dynamics.

However, while Chatman’s theories introduce a new layer to the information poverty phenomenon, there is no evidence that she took other information poverty approaches into account. Chatman’s research has shortcomings in that it lacks any reference at all to infrastructural or ICT information barriers. And, while the first applications of her theoretical insights to other cultures have been disappointing, they indicate why researchers must understand which lens (e.g., a socio-behavioral or a socio-economic lens) they are using and must understand how these approaches are related to one another.

Other areas related to Chatman’s small world approach to information poverty that call for exploration might be related to interactions between the small world and the larger social context in which small worlds exist. Is membership in multiple small worlds possible, as is suggested by networking theory? And, if so, how might that affect information behavior and access? Chatman’s premise is that perception is key to identifying information poverty, but what about individuals who believe themselves to be as well informed as they need to be, but harm themselves in the process, not knowing that there is information that could solve the problems they are facing? Within a small world, if an individual does not consider him or herself information poor but others in the community do, who is right? Or is there an objective standard for information poverty that can be employed to determine information poverty or richness?

A first step in framing the larger theoretical model of information poverty might be to ask questions that none of the current three models seem to address alone. The following questions concerning information delivery, type, and need may be a good place to begin such analysis. 

**Information Delivery**

How does the information infrastructure contribute to or prevent information poverty? The universalist/digital divide approach focuses on infrastructure and ICTs at the expense of the social context of information, and the social and personal approaches do not focus at all on infrastructure. A related question is how information poverty differs in nations that deliver information in different ways (for example, primarily oral information delivery, non-electronic delivery, filtered through government agencies, etc.). In the late 1990s, LIS researchers Virginia Dike & Nancy O. Amucheazi (1997) asked whether “a developing country like Nigeria [could be] information rich” (p. 245). According to Dike and Amucheazi, Nigeria is a nation where indigenous knowledge is primarily delivered orally, but with some print information published as
well, usually in less formal print mediums such as pamphlets, flyers, and so forth. Still, “information from outside,” Dike and Amucheazi note, is often more highly valued than information “from inside,” regardless of the actual practical usefulness of the information acquired, creating a situation in which indigenous information is ignored, even when it is easier to access, more applicable, and of higher quality (p. 245).

This case suggests that infrastructure or information delivery does have an effect on how value is assigned to information. More than simply looking at infrastructure, however, the transmission of the information sometimes relies on social interaction (e.g., oral information transmission). Understanding information poverty, therefore, depends upon a multidimensional view of information access. While Nigeria might lack an infrastructure as sophisticated as that of the US, still, so attention to social and small world issues would be necessary for full analysis and understanding of information access.

Another question is whether some information channels contribute to overcoming information poverty more than others and in what kinds of situations. For example, who determines which information channel is better than another? Since Dervin and Greenberg and others studied mass media and information delivery in the 1970s, the structure of mass media in the United States has changed. The Cable News Network (CNN), Weather, History, Discovery, Health, and Travel channels, the Food Network and general home improvement channels seem to provide a great deal of information twenty four hours a day seven days a week. Perhaps it is time for a new analysis of mass media as informer?

Does information delivered via the mass media (such as infomercials, documentaries, sitcoms, old movies, MTV, etc.) contribute to information richness or information poverty? Academics have long disparaged popular broadcasts as mind-numbing and uninformative. However, is there important information delivered even through a seemingly information-poor medium? Sitcoms, movies, etc. often include popular and/or everyday use information regarding politics, health issues (e.g., a “Girlfriends” episode discussing the Down Low phenomenon; “Different Strokes” reruns discussing anorexia/bulimia; “The Tonight Show” with Jay Leno or John Stewart’s “Daily Show” reviewing political news and issues in comedic fashion). If mass media does provide key information, infrastructural universalism could actually be a large contributor to diminishing information poverty. Still, viewing choices would most likely be influenced by social factors, both at the larger and the small world levels.

Broadcast programming is scheduled with particular audiences in mind. It would be interesting to know what types of information from the Childers and Post and Gotsick, Moore, Cotner, and Flanery lists are accessible via mass media today. Also, since mass media clearly makes a major impact on numerous small worlds, determining what it is about specific mass media offerings that is so appealing to different small worlds could help indicate how other information media could be restructured in a way that is more appealing to those small worlds. Understanding how infrastructural, social, and small world contexts influence information acceptance could certainly be of use when using mass media to pass important information to the American population.

Finally with regard to information infrastructure and delivery, in multilingual societies individuals are expected to operate in different languages or dialects within different domains (i.e., different languages or dialects are used at home, at school, in business communication, for government information dissemination, etc.). What effect does such multi-lingualism have on how individuals react to or use information delivered in an unexpected language? As discussed in Chapter 3, language ability in relation to information access within the US primarily centers
on the one unofficial language, English, and still language ability is an issue. In nations where several languages are standard, the language issue would most likely need much more attention than it receives in US information poverty research.

Research indicates that language usage in the mass media often reflects social norms (e.g., Thompson, 2003). For example, in multilingual societies, dramatic or comedic characters in television programs or movies might switch between dialects or languages for dramatic effect. Characters using a local dialect might be portrayed as either foolish or clever, depending on the esteem the society places on the local language. National programming (reflecting the norms of the larger social sphere) and local programming (perhaps more heavily influenced by the small world perspective) might view the nobility of local and colonial or government-sanctioned languages differently. Considering mass media as one-size-fits-all would ignore small world and cultural levels of information access or poverty. Bringing the small world and social spheres into the equation creates a much richer understanding of the information impact on different social groupings.

**Information Type**

It is clear that the focus of the research (e.g., infrastructure v. behavior) determines what method is used and how the data is coded. However, the methods employed also affect what findings will emerge from the researcher. The infrastructural discussion of information poverty has primarily relied on either policy research or surveys of ICT ownership. Infrastructural research tends to focus on information poverty at the macro-level so much that the micro-level is often invisible. Social studies tend to look so closely at behavior that the relationship between information infrastructure and information poverty is often overlooked.

In addition, if information poverty studies are to continue identifying populations as information-poor, certainly more needs to be done to create measurable criteria for determining that groups are actually information-poor before said groups are labeled as such. Otherwise, we risk identifying and categorizing individuals and groups as unequal without grounds for doing so, thereby intensifying whatever inequities there might be (Dervin, 1989). The digital divide bifurcation of ICT haves and have nots seems to be the only measurement we currently have for determining information poverty. Studies of migrant workers and homeless individuals seem to be reasonable—why would someone be living on the street if s/he had enough information about shelters, public aid, etc?—however, research thus far indicates that information poverty is not necessarily the most pressing issue these marginalized populations face (e.g., Hersberger, 2002/2003; James, 2000). More research certainly needs to be done to determine what criteria should be used before a population is labeled as information poor. Perhaps lack of needed information should be disconnected from the poverty metaphor, as all levels of society may be information poor in some sense.

Likewise, who determines what level of access to the information infrastructure determines information richness or poverty? Should this be left to researchers, governments, or should there be international assessment of information poverty? To this point, discussions of information poverty on an international level seem to be comprised of comparative analyses primarily conducted by journalists and some researchers. One LIS researcher in particular, Johannes J. Britz, has begun exploration of international information poverty issues as related to national development (Britz, 1999, 2000, 2004a, b; Britz & Blignaut, 1999, 2001). In addition, the United Nations has explored information poverty to a slight extent via the International Telecommunication Union (ITU), and the World Bank also has shown some interest in information poverty. Britz’s, the United Nations International Telecommunication Union’s
(2002), and the World Bank’s (2003) discussions of information poverty, however, reflect a heavy digital divide focus.

Thus far, the information poverty literature takes only very general information types into account. While Chatman’s research and some of the other studies regarding ICT use have looked primarily at very specific types of information (for example job information or Internet use), the question of an information standard is still unresolved. As we develop standards, it is important to be conscious of what specific information domains fall within the scope of information poverty research. Professional and career-related information might include different types of information than science proficiencies might require. And must everyday information needs include information required for satisfactory political engagement?

The three approaches discussed in the current work leave to question whether it is even reasonable to assume any standard for information need, when information poverty depends on context and circumstance. Looking again at information types, if one is ignoring certain types of information (e.g., health or political information), does it follow that other key information is being ignored? Is this information poverty or something else? Attention to how small world behaviors and sociocultural norms affect information typing and thus information acceptance helps extend the information poverty discussion beyond a simple examination of information format.

Information Need

As noted in Chapter 4, there is much from social science research in general that might contribute to a more complete understanding of information poverty. Social-centered questions need not ignore the infrastructure, however. Some questions that combine both infrastructural and social lenses include how does infrastructure affect information need? For example, how does all the attention on the digital divide “advertise” which information needs we “should” be worried about? Also, Coleman described how the information-poor 1870s differed from the information-rich 1970s societies and infrastructures. Social changes affect the infrastructure and the infrastructure affects society. This being the case, how do differences in the larger society (industrial v. post-industrial, monolingual v. multilingual, literate v. non-literate) affect information needs? While information need is an area of study that has a significant body of literature, information poverty research to this point does not appear to rely much on the advances of information need research. The small world approach helps us to understand that information need is a subject to be considered at the small world as well as the social sphere levels. While some information needs may be universal, information need can also be context-specific.

LIS researcher Patrick Wilson’s (1977) concepts of public knowledge and private ignorance offers some important insight for this discussion. Public knowledge, according to Wilson, is social knowledge or understanding of the world—a common worldview. For example, in the US it is public knowledge that a democratic government is the most responsible type of governance known to man. Regardless of whether or not this statement is true, this is a public “true belief,” which Wilson equates with public knowledge (Wilson, 1977, p. 6). While an individual’s private view of democracy may not agree with this statement, in order to maneuver within the larger society the individual should still know that such is American public knowledge.

Wilson writes that it is not possible for any individual to learn all public knowledge: “no one’s internal image or model of the world incorporates more than an imperceptible fragment of the knowledge represented by the sum of encyclopedias and other works of reference in which
public knowledge is formulated” (1977, p. 35). One does not need to know everything, however. One only need know enough to navigate his or her own specialty, subculture, or social group within the context of the larger society.

The areas of public knowledge that the individual does not know, Wilson terms private ignorance. He divides private ignorance into two categories: harmless and harmful ignorance. Harmless ignorance refers to the things we do not know that we do not need to know. As Wilson (1977) puts it,

I cannot read Sanskrit or play shoe horses or repair space vehicles; I might prefer to know these things than not know them, but my not knowing them represents no problem calling for solution …. I can imagine no situation that is at all likely to arise in which such knowledge would help me in the least. Others need to know such things, but I do not. I am none the worse for my ignorance, so far as the conduct of my life is concerned. (p. 62)

Harmless ignorance is a lack of knowledge about areas of the larger society or world that do not relate to one’s own specialty, subculture or social group. This lack of knowledge does not affect one’s daily life. Wilson goes on to explain that the opposite of this harmless ignorance is costly or harmful ignorance. Harmful ignorance does affect one’s lifestyle in that it hinders decision-making.

Misinformation and bad advice fall into this category, as does “costly knowledge” (p. 63), or knowledge (true or not) that leads us to make poor decisions. The notion of harmful or costly ignorance is comparable to what has been termed information need in other literatures. People need “the right information at the right time, in the right place, in the right form, and of sufficient completeness and quality to perform [whatever] current activity” in which they are engaged (Jones, 2004, p. 2). However, the right information is not always available at the right time, in the right form, or even completely available. Deciding when to store or disregard information, deciding how to organize and file non-immediate information in order to be able to access it quickly should the need arise, knowing how to glean the most important parts of incoming information so as not to feel overwhelmed or overloaded with information, and myriad other information behaviors can be complicated. Because of this complexity of information behavior, some information needs can be left unmet, even when the information is otherwise clearly within reach.

How does information poverty differ from Wilson’s harmful ignorance? Or information need in general? What happens when a particular small world holds the belief that a certain type of ignorance is “harmless,” but an outside observer believes that the small world is damaged by its belief? If harmful ignorance and information poverty are one and the same, why hasn’t the connection between the two been discussed explicitly in relation to information poverty studies? Incorporating Wilson’s concepts into the information poverty discussion, with a focus on the larger social sphere as well as the small world group within the setting of the larger infrastructure, may help extend our understanding of information access and information need.

On another note, to this point the economically poor and marginalized have been subjects of information poverty study. Lack of empirical data related to the information poverty of elite small worlds does not necessarily signify that these groups are not as information-poor as other small worlds. Sociologist C. Wright Mills explored the Power Elite to better understand social behavior; perhaps a study of groups considered information powerful and elite might give insight into information behavior and into different forms of information poverty. Mills did not see money as the key factor in attaining power. He promoted the notion that class is related to the
source of income, as “a class is a set of people who share similar life choices because of their similar class situations” (Tilman, 1984, p. 19). This goes along with the Chatman’s small world theories. By stepping away from viewing information poverty purely as an economic issue, we might be able to construct new methods for reducing information poverty through attention to social relationships—both within small worlds and in the broader social sphere—in addition to acquisition of technology.

A final question that falls within the scope of information need is, what is the effect of multiple group membership? How do religion, ethnicity, political leanings, and so forth, affect small worlds and cross over between various small worlds? Since small world studies have only barely begun, there are still many facets of the small world that await examination. Small world groups always exist within the context of larger groups, increasing to the national and even global levels. Is information poverty a subject for study at only the small world level, or should the larger or even largest group levels also be explored for influential relationships?

**Developing a Theory of Information Access**

The three approaches to information poverty discussed in this work have contributed greatly to forming a body of literature that indicates that the information poverty phenomenon is an issue that is worth further study. The first two approaches, however, do not address larger theoretical development at all. Chatman’s approach attempts to set information poverty within a theoretical structure, but even this needs further development. The purpose of this section is to illustrate that these three lenses are most usefully considered as three aspects of a single theoretical model or paradigm.

Such a unified model also makes it clear that there is a need for common definitions and delimitations to guide researchers. The current work, while it does not develop a new theory fully, attempts to provide a starting point for establishing such definitions and delimitations. A combined approach to information poverty has the advantage of using all three lenses to view the information poverty issue holistically.

Rather than thinking in terms of which layer is more important to address before the others, perhaps they should be considered simultaneously. For example, a side-by-side analysis of national/community information infrastructures, social information networks, and small world information perceptions could be useful for teasing out the role of each of these contributors to information access. In addition, focusing on information access rather than information poverty might help reduce the confusion that information poverty is tied specifically to economic poverty.

The proposed model allows a look at the impact of information channels in different contexts, focusing on what information is delivered via those channels, and looking at the small world perceptions of those channels. The model also allows for exploration of how infrastructure and larger social structures and small worlds interact in determining information value. In other words, combining the three approaches could help us understand how information exists within a given context, and perhaps help us to begin to develop useful ways of addressing the problem of information poverty.

**An Information Access Model**

Figure 6 illustrates this holistic approach to information access. This diagram shows the relationship between the three different spheres of information access – the local (small world),
the broad (social) and the technology (infrastructure) spheres. The infrastructure is represented in grey, as a nebulous area that acts as background for the social and small worlds. This infrastructure includes electricity, wiring, and the technologies used for information delivery. It incorporates all physical aspects of information access. As the preceding research has been restricted to a discussion of the US, this model reflects the rich US information infrastructure, thus there are no significant infrastructural gaps or holes that prevent large populations from physically accessing information. The infrastructure is present and technically accessible in virtually every city or town, rural or urban, in the US, whether in the home or in places of public access. Even remote areas that may not currently be wired or have satellites do have the potential to acquire that connection, and most likely with subsidies such as are available through the FCC.

Figure 6. Holistic Information Access Model
The infrastructure is drawn with fuzzy edges that extend beyond the boundaries of the social sphere, indicating that the infrastructure is not contained within the society, but rather the infrastructure has been and continues to be built by society for society, and society does not control the infrastructure as much as it relies on the infrastructure. Policy is often used to control society’s use of the information infrastructure, create universal access opportunities, and build training programs.

Thus policy is set to create limits on human behavior more than limits on technology and infrastructure. As discussed in Chapter 3, culture, too, helps build social boundaries. The infrastructure can facilitate interaction between cultures, but at the same time, the culture contains itself through its influence on valued skills, behaviors, and attitudes. The larger society may be comprised of many subcultures, but likewise is there a larger culture that extends to the national level (Fanon, 1963). For simplicity, figure 6 represents only one cultural sphere.

Individuals exist within the social sphere, but not in solitude. Individuals adopt small world groups with which they share values. Small world groups are managed with what Chatman (2001) referred to as normative behavior and life in the round. An individual can be influenced by many reference or small world groups, but in times of crisis, one primary reference group will stand out as the most important to that individual (Shibutani, 1955). Thus, while there is contact and communication between small world groups, an individual is depicted as residing in only one group at a time. This is not to say that other groups are not used as points of reference for approval or guidance (Hyman, 1960) — hence the lines representing communication of information between small worlds.

Within the context of the small world, individuals communicate information with each other as well as with the larger social sphere which encapsulates many small worlds. Sometimes, however, the small world normative boundaries can act as a barrier that prevents information, whether from other small worlds or from the larger social sphere, from entering, even if the infrastructure allows physical delivery of the information. As depicted in the diagram, the information infrastructure supports information access both for and between the social sphere and the small worlds therein contained. As depicted in Figure 6, this information infrastructure also enables social spheres to communicate outside social boundaries with ease.

Again, the lines indicate the information communication between small world groups and also between the small world and the larger social sphere (e.g., government or public information). Lack of access or any kind of breakdown in access at any level (small world group, social sphere, or infrastructure) results in what has been referred to as information poverty. As depicted in the drawing, while the communication line may be active between two small worlds or between the small world and the larger social sphere, sometimes a small world group rejects the available information, depicted here as a broken line or “information poverty.”

One example of information poverty, for example, would be a lack of democratic information access because of lack of access to appropriate information technologies or overall information infrastructure, or a basic lack of information skills or training. Another type of information poverty would stem from a small world group that is surrounded by a plentiful information infrastructure not accessing information because of lack of trust in the technologies needed to access the information.

As reviewed in Chapter 3, at times personal disability or specific lack of specific abilities can also result in information poverty. Low literacy and lack of language skill, for example, can lead to situations in which information cannot be accessed regardless of the presence of an
abundance of valuable information. Thus, while there is a potential stream of needed information, the stream is broken by these particular lacks. Another example of information might result from small world information rejection, even after the information has been received and processed. This information rejection may be based on lack of trust of outside information or outsiders in general, lack of feelings of belonging, or lack of belief that information is actually useful to meet personal information needs. The model also might depict an alienated small world that seeks information, but is socially marginalized, separating them from needed information.

When considering how multiple social spheres interact, a second version of the model (see Figure 7) takes into account interactions between social spheres. A small world does not necessarily reside in only one larger social sphere. A Chinese family living in the US, for example, may refer to both the Chinese and the American social spheres for information as they seek to fulfill their information needs. The infrastructure facilitates this information access between social spheres.

![Figure 7. Information Access between Social Spheres](image)
Multiple social spheres, perhaps otherwise referred to as subcultures, sharing a common infrastructure have great potential for information sharing. The norms and preferences with which individuals approach information may still be influenced by the intersection of different social influences, however, and so information poverty is still an issue. However, as also seen in Figure 7, when there is no inclusive information infrastructure, it is difficult if not impossible for social spheres to overlap. This prevents the communication of information from one social sphere to another.

Considering the historical effect of policy on information access in the US, it seems that none of these various types of information poverty need be permanent. Programs, trainings, adaptive technologies, social inclusion, and other focused changes can enhance information access and reduce breakdowns in the communication of information, if not resolve them completely. Awareness of information access problems is the first step towards resolving them.

Conclusion

This work is an attempt to look for answers to information-poverty questions. It suggests, even, that a new name is in order. First, the use of the term “poverty” to describe chronic lack of information suggests a link to economic poverty, yet Chatman has indicated that economic poverty is not necessarily the guiding factor in the problem of lack of information access. Second, “poverty” is hardly a neutral term. When approaching any sort of poverty, a hidden agenda of trying to fix the poverty problem is implicit. While a new holistic model of information access may uncover an understanding of information access that might be useful for policy or other measures aimed at improving information access, the aim of theoretical research is to describe, explore, and explain rather than simply collect data and then piece together solutions to observed problems without greater understanding of the phenomena as a whole. Hopefully this review of the information poverty research and suggestion of a model that takes the three approaches to information poverty into account will help scholars understand their role is not simply collecting butterflies, but rather it is developing the paradigm that should guide information access research.


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After her return to the US she began studying linguistics and second language acquisition at the University of Hawaii at Manoa. She interrupted her studies to teach English as a Second Language at Santa Fe Community College in Gainesville, Florida for one year before transferring to Florida State University and changing her major to Information Studies. Once she completed her MS, she became the library director of the FSU-Panama Campus library in the former Canal Zone. After completing her contract in Panama, she returned to FSU to pursue her doctorate in Information Studies. While at FSU she worked with the Florida International Volunteer Corps (FAVA/CA) teaching web design to non-profit organizations in Nicaragua and library strategic planning and use of online resources to librarians in Belize.

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