

Information and Equity

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Background and Definitions

Inequities in information creation, production, distribution, and use are nothing new. Throughout human history some people have been more educated, better connected, more widely traveled, or more well-informed than others. Until recently, relatively few have enjoyed the benefits of literacy, and even fewer could afford to own books. In the age of mass media, societies and social groups have varied dramatically in terms of their access to and uses of print, radio, television, film, telephone, and telegraph.

What is new, however, is the growing attention being given to informational inequities in an increasingly information-driven global economy. Across disciplinary, national, and cultural boundaries, the widespread agreement is that the use of newer information and communication technologies (ICTs), particularly the Internet, has accelerated the production, circulation, and consumption of information in every form. But also a growing sense has arisen that ICTs have helped to exacerbate existing differences in information access and use, and may even have fostered new types of barriers. As Hess and Ostrom (2001, p. 45) point out, “Distributed digital technologies have the dual capacity to increase as well as restrict access to information.” Similarly, Stevenson

(2000, p. 10) notes that, "Like other communication technologies, the Internet has the potential to both centralize and decentralize power." Economists, sociologists, politicians, and information professionals are keenly aware of these shifts, and in recent years have produced a raft of studies examining the social, political, cultural, and economic implications of the so-called "digital divide."

Of course, the relationship between information and social equity is not just a matter of technology. Questions of informational equity must be reassessed periodically in light of changing social, political, cultural, and economic conditions. As the social and material conditions of society evolve, old arrangements and understandings may break down or be supplanted by new ones. Notions of equity and inequity are dynamic, and depend on both stated and unstated principles and assumptions. They can be fully understood only within specific contexts, or, to paraphrase Amartya Sen, by addressing the question "equity of what?" (Sen, 1992).

Therefore, in this chapter we review a selection of recent studies from various disciplines on information and social equity, and on the digital divide. Our primary purpose is to use this overview as an opportunity to outline a basic conceptual framework for thinking about information equity. The following discussion has three main parts.

First, we review a long tradition of research, ranging from early studies of the information "rich and poor" through today's explorations of the digital divide, in which information access and use are generally assumed to be functions of individual and/or group demographics (e.g., income, gender, age, language, ethnicity, education level, geographic location) or other traits. We characterize this as the *vertical* or *hierarchical* perspective because it associates better information access and use with greater social and economic advantages. Historically this has been the prevalent (and often the sole) approach to the study of inequities and the formulation of relevant policy.

From this perspective information tends to be viewed as a kind of private good or commodity; people use their social and economic advantages to acquire more of it, or to obtain scarce or high-quality information. People who are (for example) wealthier, more educated, younger, or who live in affluent neighborhoods are assumed to have greater access to all kinds of information, and are better able to use it, than those who are poorer, less educated, older, live in poor or rural

areas, and so on. Therefore, in most studies of information equity, social groups and individuals are compared or classified in terms of their demographics and other socioeconomic characteristics because those characteristics are taken as proxies for information access and use (McCreadie & Rice, 1999).

By the same token, analysts who make these vertical assumptions tend to conceptualize information access and use problems as a straightforward matter of the distribution of goods, including technological systems, financial support, social services, and information sources. From this perspective, greater equality of information access and use can be achieved by a more even redistribution of these goods among various groups, and indeed, most policy proposals to date have focused almost exclusively on this goods-distribution approach.

But another body of work takes a different view—namely, that people and groups with *similar* social and economic traits may nonetheless vary widely in terms of their information needs, access, and use. We characterize this as the *horizontal* or *heterarchical* perspective¹ because it focuses on the differences in people's interests, concerns, expertise, experiences, and social contexts that affect their requirements for and uses of information, even within the same community, economic, or ethnic group.

From this perspective, information is seen more as an intangible public good that is highly subjective and context dependent. The quantity of resources available to an individual or group may be less important than the quality or salience of what is available from the point of view of the people involved. A growing number of observers, influenced by thinkers like Amartya Sen and John Rawls, argue that the fairness or *equity* of access and use, rather than the more or less equal distribution of information goods, may be a more useful foundation for studying inequities and formulating appropriate social policies. From the horizontal viewpoint, policy should consider values and content issues (Lievrouw, 2000; Schement, 1995) and how well people are able to make use of the resources they have in a particular context (Garnham, 1999; Besser, 1995).

Although this perspective may seem intuitively obvious (for example, no two engineers, day care workers, or historians will seek and use information in precisely the same way), it has generally been neglected in

research and policy discussions on the grounds that such differences are a matter of personal choice or idiosyncrasy, and thus not suitable (or easy) objects for study or policy intervention. Still, they can have important social consequences, particularly as ICTs increasingly allow some people to tailor or customize available information to their interests and situations.

We conclude our discussion by proposing that information equity can be achieved only by integrating both perspectives in the formulation of information policy. We suggest five primary elements (access, skills, content, values, context) that should be incorporated into any analysis of equitable information access and use.

Equity vs. Equality

The concepts of equity and equality have long histories in social theory and research, yet they are seldom consistently defined. To complicate matters, notions of equity are often confounded with definitions of equality, as when Sen says that “The concepts of *equity* and justice have changed remarkably over history, and as the intolerance of stratification and differentiation has grown, the very concept of *inequality* has gone through radical transformation” (Sen, 1973, pp. 1–2; emphasis added).

For example, constitutional scholar Laurence Tribe (1988, citing Dworkin) uses the term *equality* to denote two distinct legal principles. On one hand is *equality of treatment*, the ideal embodied in the U.S. Constitution as “equal justice under the law.” It is reserved for limited situations, such as voting, in which every person must be granted identical privileges or rights. On the other hand, he describes the *right to treatment as an equal*, a principle of American legal tradition that is not tied to any particular Constitutional language. It says that the state must treat each individual with equal regard as a person, no matter what his or her particular interests may be, and acknowledges that the conditions or outcomes of treatment may vary from case to case.

In discussions of information access and use, it may in fact be crucial to distinguish between equity and equality. The *Oxford English Dictionary* defines *equality* as “the quality or condition of being equal” and *equal* as “identical in magnitude, number, value, intensity, etc.; possessing a like degree of a (specified or implied) quality or attribute; on the

same level in rank, dignity, power, ability, achievement, or excellence; having the same rights or privileges.” This definition has the advantage of specifying the criteria by which equality might be measured or evaluated. For example, sociologist Charles Tilly (1998, p. 25) defines “human inequality” as the “uneven distribution of attributes among a set of social units such as individuals, categories, groups, or regions.”

The *OED* definition of *equity*, on the other hand, is more nuanced: “the quality of being equal or fair; fairness, impartiality.” Its etymology derives from the Greek *epiky*, meaning “principles of reasonableness and moderation in the exercise of one’s rights.” Unlike equality, it is more difficult to specify universal criteria for “reasonableness and moderation” that would make it possible to assess absolutely whether a social situation is equitable or not, or to make comparisons across situations with regard to their relative degrees of equity.

However, as Michael Gorman (2000) notes, when it comes to discussions of information access and use, the concept of equity does have one important edge over equality: equity, or fairness, of access to information across individuals or groups is attainable, whereas strict equality of access is not. In our view, this characteristic of attainability or possibility is precisely what makes equity a more useful term for both scholarly research and pragmatic policy making. It has the advantage of other “terms of art” in legal and policy discussions, such as the “public interest” or “reasonable doubt,” which can be adapted flexibly as times and circumstances require.

We also agree with our *ARIST* predecessor, Ron Doctor (1992, p. 52), that equity is the more appropriate term because “equity embodies the idea of justice according to natural law or right as opposed to equality which means identical in value.” Clearly, where information is concerned very few social situations exist in which information resources can be characterized as identical in value.

By the term “information equity,” then, we mean the fair or reasonable distribution of information among individuals, groups, regions, categories, or other social units, such that those people have the opportunity to achieve whatever is important or meaningful to them in their lives. To the extent that information is unfairly distributed, people are denied such opportunities and information inequity exists. In such

circumstances, policies should be formulated to promote more equitable information access and use.

Why Equity?

Why do we care about information and social equity? The main answer is that equitable access to information is, in principle, a fundamental and necessary (though not sufficient) condition for effective personal achievement and social participation, in whatever contexts and to whatever degree people consider important. As economist and philosopher Amartya Sen points out, “every plausibly defensible ethical theory of social arrangements tends to demand equality in *some* ‘space,’ requiring equal treatment of individuals in some significant aspect—in terms of some variable that is important in that particular theory” (Sen, 1992, p. 130; emphasis in the original). In information studies and a few other fields, information access is that important variable, that significant “space.” Indeed, it is difficult even to conceive of other “spaces” for equality that would not require access to information as a prerequisite, including economic opportunity, creativity, self-sufficiency, freedom, security, or psychological well being.

So information equity, in our view, has value in and of itself. But another key reason why we are concerned with equity is that inequities of access and use have important social consequences. As Deborah Young (2001, p. 8) points out, “It is the causes and consequences of some pattern of inequality, rather than the pattern itself, that raises issues of justice.” And chief among these “causes and consequences” of information inequity is the role that information plays in political participation and power, as Doctor (1992) argued so forcefully in the previous *ARIST* chapter on information and social equity. Indeed, this has historically been the primary justification of equity studies in library and information science research and library policies intended to promote equity (De la Peña McCook, 2001; Shera, 1974).

Democratic political systems, in particular, make claims to legitimacy partly on the basis of their citizens’ ability to seek and obtain reliable, credible information about issues that affect them, information that allows them to interact with other citizens and with their governing institutions. The relationship between information and democracy has

been set out in theories of the public sphere (Habermas, 1989), deliberative democracy (Dervin, 1994; Sunstein, 2001), and discourse democracy (Hagen, 1992; Lievrouw, 1994).

Indeed, the relationship between access to information and democratic political participation is so ingrained in the U.S. tradition that Americans have come to have “democratic expectations” about their sources of information (Gurevitch & Blumler, 1990). This premise is embodied in the “marketplace of ideas” concept and in key public institutions that have been established to ensure broad-based access to information (e.g., compulsory public education, land-grant universities, the U.S. Government Printing Office, public libraries, the speech and press freedoms of the First Amendment to the Constitution, and the U.S. Postal Service).

Certainly many other reasons also explain why the link between information and social equity is a perennial issue for study and debate, including interest in cultivating knowledge, art, culture, science, and technology. Space is too limited here to discuss them all. But for present purposes, we can say that no social arrangements, indeed, no culture or society, can exist without information; and we believe that a primary requirement for a “good society” is equitable information access and use.

Two Perspectives on Information and Equity

The Vertical Perspective

Most information equity research has taken the social, economic, and demographic characteristics of different groups as a point of departure. Such studies suggest that these characteristics influence, or can even determine, the group’s information needs, access, and use; that is, groups with more socially or economically advantageous characteristics enjoy better information access and use than less advantaged groups. We do not attempt an exhaustive review of this literature here. But in this first part of the discussion we highlight a series of landmark studies that we think best illustrate the key problems, and the typical research strategies, of what we call “vertical” studies of information equity.

Information Rich and Poor

Concerns about information access and use have become more visible with the recent spread of new information technologies and services. However, these concerns are just the latest manifestation of a much older debate about the nature and prevalence of "information haves and have-nots" (Arunachalam, 1998) or the "information rich and poor" in society (Haywood, 1995).² In information studies, this line of research extends back at least to Bernard Berelson's (1949) study of library use in the U.S., where he found that library use was positively related to income, education, and other socioeconomic status (SES) variables.

As the language of "rich" and "poor" suggests, most of these studies assume (sometimes implicitly) that people with more wealth or other social advantages are better able to obtain and use information, just as they can other private goods and services. The studies also assume (if tacitly) that information has the characteristics of a private good or commodity that can be exchanged for other social or economic advantages. Technology has made information "costly to produce, but very cheap to reproduce, especially in digital form" (Shapiro & Varian, 1997, p. 5). Therefore, the reasoning goes, virtually any type of information can be treated as having material properties, and thus can be exchanged in market-type relationships.

The commodity view is commonly (although not universally) held in information studies (Meadow & Yuan, 1997), perhaps because it equates information with its recorded forms (i.e., documents or other material artifacts that are produced, managed, circulated, stored, and maintained).³ Advocates claim that information must be treated as a good or commodity to ensure effective information management and retrieval (Buckland, 1991), or to formulate effective economic and policy decisions (Branscomb, 1994), given current technological systems and institutional structures.

In the mid-1970s, Childers and Post (1975) wrote their classic assessment of the "information poor in America." They framed their study using a model of information delivery resembling the linear sender-receiver model of communication, which casts individuals as receivers with needs for particular types of information: "Need is a construct, an abstraction that has been developed from a number of indirect observations such as what a person says he needs, or how he acts" (Childers &

Post, 1975, p. 15). Similar to Berelson's earlier findings, their survey data indicated that information poverty was associated with economic and social disadvantages.

Their findings also paralleled studies in communication research that examined differences in the consumption of mass media content by different social groups (Dervin & Greenberg, 1972; Siefert, Gerbner, & Fisher, 1989). Most notably among these studies, Tichenor, Donohue, and Olien (1970) developed the "knowledge gap" hypothesis. This hypothesis states that flows of information into a community are likely to produce "an increase of the gap in information acquisition between members of lower and upper socioeconomic status (SES), thereby exacerbating the existing inequities" (Viswanath, Kosicki, Fredin, & Park, 2000, p. 28; see also Viswanath & Finnegan, 1996). According to the knowledge gap theory, the education level of different groups in the community is among the most important factors affecting their exposure to information. Subsequent knowledge gap studies have suggested that people's interest in, or motivations about, a particular topic, and the extent of their interpersonal ties within the community, are just as influential as education in determining which groups know about a topic.

By 1977 sufficient studies of the characteristics of library users had been published that Zweizig and Dervin (1977) could conduct the first meta-analysis of this research. They found that, although results varied somewhat according to the research design and how survey questions were asked, all of the studies had obtained data about library users' demographics (e.g., age, sex, race, marital status, SES, and education). Across the entire set of studies they analyzed, education level was the strongest predictor of library use. However, education was so closely correlated with SES variables such as income or occupation that it was difficult to distinguish the effects of SES from education.

Zweizig and Dervin also found that library use correlated positively with heavy reading habits, extensive social networks (i.e., community involvement), certain information use variables (the number of information needs and potential information sources named by the respondents), and selected personality measures (achievement motivation and open-mindedness). However, library use was only moderately correlated with the user's distance from the library and length of residence in the community. Zweizig and Dervin (1977) concluded that

studies of library users' characteristics were unlikely to provide data that would help libraries reach new audiences or be more accountable to their communities.

Despite Zweizig and Dervin's skepticism about SES and other demographic factors, however, the association between material wealth or social status and access to information has remained a key assumption in subsequent studies of information access and equity. International policy organizations, including the Organisation for Economic Co-operation and Development (OECD), UNESCO (United Nations Educational, Scientific, and Cultural Organization), and others, routinely associate access to information resources and services (e.g., telephone service or education) with demographic variables or SES data. In a recent report on intra- and cross-national "gaps" in information access and use issued by the Social Responsibilities Discussion Group of the International Federation of Library Associations and Institutions (IFLA), Kagan (1999, p. 1) underlines the relationship between wealth and information access:

To a greater or larger extent all countries have information gaps. The United States and South Africa are examples of two countries that have extremely skewed distribution of wealth, resulting in excellent information services for some and poor or non-existent services for others.

He then goes on to define the "information poor" as

(1) The economically disadvantaged populations of the developing countries (The South); (2) Rural people who are often geographically isolated by lack of communication and transportation systems; (3) Those disadvantaged by cultural and social poverty, especially the illiterate, the elderly, women, and children; (4) Minorities who are discriminated against by race, creed and religion; and (5) The physically disabled.

The IFLA report is consistent with the historical concern among public librarians that poorer communities must be well served to help those groups participate in democratic processes. De la Peña McCook (2001) has called this the "democratizing function" of libraries. She traces the

evolution of American public library policies and practices, and finds evidence to support four factors that Jesse Shera (1974, pp. 221–222) identified previously as links between the American universal schooling movement and the movement for tax-supported public libraries:

(1) The growing awareness of the ordinary man and his importance to the group; (2) the conviction that universal literacy is essential to an enlightened people; (3) a belief in the practical value of technical studies; and (4) an enthusiasm for education for its own sake.

De la Peña McCook suggests that librarians must understand the socioeconomic context of poverty in order to design and deliver effective information and outreach services.

The American Library Association's (ALA) recent equity policies have also concentrated on the needs of social groups with economic, gender, race, physical, or geographic disadvantages (for examples, see the Web site for the ALA Office of Information and Technology Policy, <http://www.ala.org/oitp/>). In 1990 the ALA adopted a policy that specifically addressed library services for the poor, again with the aim of improving their political enfranchisement and participation: "It is crucial that libraries recognize their role in enabling poor people to participate fully in a democratic society, by utilizing a wide variety of available resources and strategies" (American Library Association, 1999, online).

In recent years, some equity researchers have moved away from broad-based social surveys and analyses to study communities and groups in depth using ethnographic techniques such as interviewing or participant observation. Like the larger-scale studies, however, these projects are generally motivated by the premise that social disadvantages produce informational disadvantages.

For example, following the lead of the earlier "knowledge gap" studies, Elfrieda Chatman investigated what she called the "information worlds" of the working poor, older women, prisoners, and low-skilled workers (Chatman, 1985, 1987, 1992, 2000; Chatman & Pendleton, 1995). She found that these groups' social and cultural norms influence their behavior in ways that can adversely affect their access to information, and so contribute to "information poverty" (Chatman, 1996).

Similarly, Lipinski (1999b) found that people who need legal assistance but cannot afford computer-assisted legal research, including prisoners and other "lower order litigants," are less able to find and cite unpublished precedents online to prepare their cases than are "upper order litigants."

In recent case studies, gender has been proposed as a factor in both the provision of and access to information services (Harris, 1995/1996; Shade, 1998). Ethnic and language groups have been compared in terms of their information access and use (Liu, 1995). Chu (1999) argues that linguistic minorities' literacy practices differ from those of majorities, and therefore influence minorities' access to information. Other analysts have suggested that certain members of minority language or inner-city communities may act as information "gatekeepers" for other members, and have a profound influence on the availability and flow of information within a community (Agada, 1999; Metoyer-Duran, 1991, 1993a, 1993b).

The 1990s and the Digital Divide

In the last decade, studies of information access and use by different social groups have been overshadowed to some extent by the growing importance of new information technologies, particularly networked computing and multimedia available via the Internet and the World Wide Web. In the 1990s these systems and services diffused well beyond their original bases in research, higher education, and a few major industries into diverse workplaces, homes, and leisure activities, especially with the advent of wireless services.

Figures from the OECD illustrate the scope of the changes, both in the U.S. and abroad. In 1988, American information technology (IT) industries were already growing at more than double the rate of the overall U.S. economy. At that time they represented 8.2 percent of U.S. gross domestic product; but by the mid-1990s, on average, they accounted for over one-quarter of total real economic growth each year. In 2000, the Organisation for Economic Co-operation and Development (2000, p. 2) noted that the U.S. "is the lead country in terms of IT expenditures and IT share as a share of GDP. Owing to the size of the U.S. market, its IT market structure and growth are similar to those of the OECD as a whole."

Again, the primary concern, even in this context of spectacular technological growth, has been that poor and disadvantaged groups are relatively less able to access and use IT. As early as 1991, Doctor (1991, p. 216) warned:

As a society we are giving inadequate attention to ensuring that as new computer and telecommunications technologies become more pervasive, their benefits are distributed in ways that don't exacerbate existing disparities between the rich and the poor.

Today, more than a decade later, it is difficult to inventory the variety of information resources supported by new technologies. Content and services that were once clearly demarcated (and regulated) according to the technological systems and institutions that produced and distributed them (e.g., print, broadcasting; still and motion film and video, audio recordings, artworks, telephony) have converged. Hybrid systems can now generate and deliver digital content in almost any form. The conventional boundaries of the institutions and industries associated with these technologies have also softened as the result of cross-ownership, innovative alliances among firms, and the development of new forms of organizing that take advantage of ICTs. All of these changes have affected the availability of information sources and technologies among different social groups.

The information "gaps" of an earlier era have been recast as the "digital divide." The U.S. National Telecommunications and Information Administration (NTIA) employed the term "digital divide" as early as 1995 in its original *Falling Through the Net* report, and in subsequent updates, to describe differences in access to telecommunications and Internet resources in different American households (U.S. Department of Commerce. National Telecommunications and Information Administration, 1995, 1998, 1999). The NTIA has taken an explicitly vertical approach to the problem, defining the digital divide as "the disparities in access to telephones, personal computers (PCs), and the Internet across certain demographic groups" (U.S. Department of Commerce. National Telecommunications and Information Administration, 1999, online). More simply, it is "the divide between those with

access to new technologies and those without" (U.S. Department of Commerce, 1998, online).

Likewise, the Organisation for Economic Co-operation and Development (2001, p. 5) defines the digital divide as "the gap between individuals, households, businesses and geographic areas at different socioeconomic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities." Critics charge that "society should not be separated into information haves and have-nots" along economic lines (U.S. Congress. Office of Management and Budget, 2001, online). More bluntly, the digital divide has been called "cyberapartheid" (Putnam, 2000, p. 175). Others believe that IT creates both digital divides and digital opportunities, but that bridging the divides is a necessary precondition for the blossoming of creativity worldwide: "To begin with, universal access must be defined, ideally, as a basic necessity, if not a right" (Ishaq, 2001, p. 2).

In the late 1990s, several major survey studies began to correlate Internet and telecommunications access with income, education level, race/ethnicity, age, employment, Internet experience, and computer ownership, among other variables (e.g., Cooper & Kimmelmann, 1999; Hoffman, Kalsbeek, & Novak, 1996; Hoffman & Novak, 1998; Katz & Aspden, 1997a, 1997b, 1998; Kraut, Scherlis, Mukhopadhyay, Manning, & Kiesler, 1996; National Public Radio, 1999). Recently, foundations and research universities have undertaken national-scale survey research in the U.S. that tracks respondents' attitudes and beliefs about the Internet as well as their activities online (e.g., Howard, Rainie, & Jones, 2001; Nie & Erbring, 2000; University of California Los Angeles. Center for Communication Policy, 2002). Generally speaking, and in line with previous research, these studies have found that Internet access and use are positively related to favorable demographic traits or higher socioeconomic status (although some recent studies have shown that the large racial, gender, and income gaps observed in the mid-1990s are narrowing, e.g., Birdsell, Muzzio, Krane, & Cottréau, 1998; Hoffman & Novak, 1998).

Within information studies, it is argued that important roles exist for public libraries in any community-wide effort to bridge the digital divide (Bishop, Tidline, Shoemaker, & Salela, 2000). Gladioux and Watson (1999, p. 5) conclude that "the result of new technologies may be to

deepen the divide between educational haves and have nots," and that the market will not solve the problem. They call for public policy that will narrow the digital divide between whites and minorities, and between the wealthy and the poor. Barraket and Scott (2001) argue that to ensure equity of information technology access in academic libraries, more resources must be directed toward infrastructure, training users in the appropriate use of ICTs, and effective support.

Limitations of the Vertical Perspective

We have reviewed just a sample of "vertical" equity studies, including studies of the digital divide, that have been conducted to date. But what seems clear, even from this selected survey, is that most of them either assume or present evidence to support the hypothesis that social and economic characteristics are related to, or influence, information access and use. More affluent, better-educated, or higher-status individuals and groups are found to have access to more information sources, a wider range of media and content consumption choices, and more online access than other groups. (They are even more frequent library visitors.) The publicity surrounding the digital divide has simply served to bring these perennial problems of informational inequity center stage.

The vertical approach has a great deal of intuitive and pragmatic appeal, especially if information is treated as an objective good, like other material goods. And of course there is a long tradition in social research of using demographics or other group characteristics as indicators or predictors of social participation, behavior, and attitudes. But disadvantages also occur in using terms like "gaps," "haves and have-nots," "rich and poor," or "divides" to discuss information resources and technologies.

As McCreadie and Rice (1999) point out, to varying degrees most current studies of information access assume or argue for a sort of reinforcing "Matthew effect" (Merton, 1968, 1988), or power law of cumulative advantage, in which greater social and economic advantages are assumed to entail more or better information access and use. ("More" and "better" are often operationalized simply as the frequency of library visits or hours spent engaged in media use, such as reading, watching television, or searching Web sites online.) In turn, so the argument goes,

better access and use enhance users' social and economic resources, and thus reinforce their material advantages and circumstances.

Yet owning information or having access to particular sources or technologies may not confer any particular benefit *per se*. Information resources are valuable only insofar as they are meaningful or useful to the people who have access to them. The ability to derive a benefit from a resource depends to a great extent on people's skills, experience, and other contextual factors.

Moreover, the wealth/poverty, rich/poor metaphor may encourage the perception that information "wealth," like other types of wealth, is finite and cumulative. It suggests the possibility to measure with some precision just how much more or less information one person or group has or uses than another.⁴ Carried to its logical conclusion, the wealth/poverty metaphor implies that information access and use among very low status or severely disadvantaged groups may approach zero, whereas elites may have far more information, which they may hoard or redistribute. At best, this seems to be a somewhat incomplete account of the complex role that information sources and technologies play in people's lives.

The Horizontal Perspective

If most studies of information equity to date have tied information access and use to social and economic status, a rival school of thought has also developed over the last decade. We call this alternative approach the horizontal perspective because its adherents see significant differences in information access and use among members of social groups as well as up and down the socioeconomic ladder, because of both the nature of information and the varying capacity of individuals to benefit from it.

From the horizontal perspective, information is not just a good or commodity like any other; it also has characteristics of a public good that anyone may use without depleting what is available for others. "Information can be both a private or public good, and many of the debates on access to it hinge on which of these factors should condition its use" (Haywood, 1995, p. 83). Therefore, information equity cannot be achieved by the redistribution of material resources—information services and systems—alone. Rather, equity is achieved only when people are able to participate effectively in whatever aspects of society, and to

whatever extent, they desire. Consequently, the task for researchers is to assess the quality as well as the distribution of available resources, and whether and how well people use them. The goal of policy is to ensure that individuals are able to accomplish their particular ends and purposes, and participate effectively in society, given the information resources available to them.

In this part of the discussion we review the main philosophical and theoretical influences on the horizontal perspective, as well as recent research and scholarship that takes the horizontal approach.

Theoretical and Philosophical Influences

Within information studies, the origins of the horizontal perspective can be traced to what Dervin and Nilan (1986) describe as a paradigm shift in studies of information seeking and use that occurred in the 1970s. Dissatisfied with certain core assumptions of library and information science research, and with a growing sense of epistemological uncertainty about whether "information is discovered or constructed" (Drick, 1999, p. 309), some researchers began to move away from the traditional expert-driven, top-down design of information organization, storage and retrieval systems (Swanson, 1997). Instead of trying to adapt information seekers to existing systems, the new "user studies" seek a better understanding of the seekers themselves, how they subjectively understand the world and construct meaning, as well as the intricate variability of human social contexts and information-seeking behavior (Bates, 2001; Fidel, 2001). The new paradigm redefined "information [as] a subjective phenomenon, constructed at least to some extent by the user, and not an objective phenomenon" (Cole, 1994, p. 465).

Therefore, the shift also involved a rejection of the view of information as an objective good. Such a view, critics said, does not account for certain intangible forms of information in society that are socially constructed, context dependent, and contingent, and that help people solve problems in their everyday lives (e.g., institutional arrangements, social relationships, cultural norms, facts, ideas [Dervin, 1976]). Furthermore, they argued, information separated from its context is distorted at best and meaningless at worst (Agre, 1995; Dervin, 1980, 1983). Therefore, it is counterintuitive and even socially questionable to treat all types of information as goods to be owned and exchanged.

The horizontal perspective, thus, is grounded in a phenomenological and constructivist view of information. But it has also been influenced by the political economy of information, especially the critique of information as a commodity developed in social theories of information sociology and the economics of information (e.g., Antonelli, 1992; Arrow, 1984; Bell, 1973; Lamberton, 1971, 2002; Slack & Fejes, 1987). For example, critical communications scholar Herb Schiller (1983, p. 538) has insisted that “information is a social good, a vital resource that benefits the total community when made freely available for general public use.” Similarly, Oscar Gandy (1988, p. 108) has proposed that

To understand and be understood is the most basic human right, one which must be secured for all as we emerge into this postindustrial, information society. It is the right upon which all other human rights ultimately come to depend, and it may be shown to have always been central, at least in theory, to the functioning of democratic society.

A related concern in horizontal studies of equity is the justice or fairness of information access and use. In recent years the work of political philosopher John Rawls, and of the economic philosopher and Nobelist Amartya Sen, has been widely influential in this area. The two scholars have been engaged in a friendly dialogue for decades, as they have refined their respective positions regarding equality and justice (e.g., Rawls, 2001; Sen, 1992). Their thinking informs a growing body of work regarding information and equity, and so their main points are summarized here.

According to Sen (1973, p. 3), any definition of inequality entails both objective and normative aspects: “it becomes very difficult to speak of inequality in a purely objective way, and the measurement of the inequality level could be intractable without bringing in some ethical concepts.” The central ethical concept in contemporary discussions of equality/equity is justice, and John Rawls’s (1999, 2001) formulations of *distributive justice* and *justice as fairness* are cited by many observers.

Put simply, Rawls defines equality as “a particular principle of distributive justice—that which starts from the *prima facie* assumption that all people may legitimately make the same claims on social

resources” (Hochschild, 1981, p. 46). He calls for the fair distribution of certain “primary goods,” including “the basic rights and liberties ... freedom of movement and prerogatives of offices and positions of authority and responsibility[.] income and wealth ... [and] the social bases of self-respect” (Rawls, 2001, pp. 58–59).

Rawls’s criterion of fairness is based on what he calls the “original position”; that is, terms of social cooperation are fair when they are the product of “an agreement reached by free and equal citizens engaged in cooperation, and made in view of what they regard as their reciprocal advantage, or good” (Rawls, 2001, p. 15). To ensure parity in such discussions, Rawls suggests a hypothetical test, the “veil of ignorance,” in which participants do not know their own interests, ranks, or resources and so must take the point of view of others in the group or society in order to arrive at a fair agreement.

Sen (1999, p. 112) paraphrases this process: “Fairness for a group of people involves arriving at rules and guiding principles of social organization that pay similar attention to everyone’s interests, concerns, and liberties.” He accepts Rawls’s concept of fairness as a point of departure, but disagrees that equality is best achieved by the fair distribution of primary goods. Famously, he asks: “Equality of what?” (Sen, 1973, 1992), and argues that such goods do not confer any advantages or state of being in and of themselves. Rather, they are a means to an end.

Sen points out that the ability of individuals to use primary goods to achieve their particular ends varies drastically from person to person, group to group, and situation to situation. There is a difference between an individual’s state of well being and her or his *achievement* of well being, or agency (Garnham, 1999). Sen’s principal concern is creating and maintaining individual agency; and he believes that it is more important to preserve and enhance each actor’s choices than to distribute some ostensibly “essential” bundle of goods that actors may or may not consider meaningful or useful in a given situation.

Therefore, Sen says, the proper focus of any theory of social justice should be what he calls people’s “functionings” and “capabilities.” “Functionings are what a person does or is. Capabilities are the set of alternative functionings a person has (his or her real opportunities)” (Garnham, 1999, p. 117). Capabilities, and whether they can be exercised, are necessarily defined from the actor’s point of view. Equity, then,

would entail the fair distribution of opportunities to achieve whatever people may value doing or being, i.e., the fair distribution of *capabilities*, rather than of primary goods as Rawls suggests, because even the most scrupulously equal distribution of material resources will not result in equity of opportunities.

A growing number of policy researchers have adopted Sen's capabilities framework, or similar concepts, in their analyses. For example, the OECD views the cultivation of "human capital" as the key to enduring economic development (Healy, 1998), where human capital is defined as the cultivation of individual ability (Coleman, 1990). Many experts who study universal service in telecommunications and public service obligations in broadcasting now recognize that:

Information is not like food or energy of which everybody needs a bare minimum (an information ration of sorts) in order to survive. Information only has value when a recipient has some need for it *and the capacity to process it*. Otherwise information is a resource that is of no use. (Sawhney, 2000, p. 162; emphasis added)

Nicholas Garnham advocates the capabilities approach as a new direction for social policy in communications that departs from its traditional focus on the allocation and distribution of resources like telephone dial tone or high-speed bandwidth. These resources, he argues, have already been left mainly to market forces. Communications policy, he says, must "get beyond the superficial indexes of access and usage that we so often use ... these are crude indicators and do not get to the heart of the matter" (Garnham, 1999, pp. 120–121). Although it is possible and desirable, within the capabilities approach, to specify some set of "subsistence" resources to which each member of a society in a given place and time must have access (including communication resources), "access is not enough" (Garnham, 1999, p. 121). More important, he says, is

the ability of people actually to make use of these options, to achieve, the relevant functionings ... We need to think of newspapers and broadcasting as enablers of a range of

functionings rather than as providers of a stream of content to be consumed. (Garnham, 1999, p. 121)

A similar stance has been adopted in some library and information policy circles. A decade ago, Doctor (1991, p. 217) noted that access to technology by itself is not enough to ensure equity:

Access will be of little benefit to large portions of the population, unless it is accompanied by equipment and training that allow effective use of that access. What we need then is a "right to access" in the broader sense of a "right to benefit from access (emphasis in the original)."

In a recent report to the National Library of Canada on access, equity, and the Internet, Vincent Mosco argues that Canadian social and information policy should pay as much attention to cultivating individuals' abilities and interests as to the provisions of telecommunications and Internet services:

It is important to broaden our definition of access from the traditional idea that access means the availability of a particular set of hardware and software technologies. In a deeper sense, *access requires a set of capabilities*, intellectual, social, and cultural, from basic literacy to higher education, that are necessary to make effective use of the Information Highway. (Mosco, 2000, p. 1, emphasis added)

Social Capital and Public Goods

These combined influences—a phenomenological, subjective view of information; the critique of information commodification from political economy; a view of social justice as fairness rather than strict equality; and the capabilities approach—have led some information equity researchers to look beyond the simple distribution of resources as a solution for inequity problems. One focus is the role that people's social networks play in their information access and use, and the related concepts of social capital and public goods.

Broadly speaking, social capital is one type of capacity, in Sen's sense. It is the benefit people derive from having relationships with others in society. It "is not a single entity, but a variety of different entities ... [that] all consist of some aspect of social structure, and facilitate certain actions of individuals who are within the structure" (Coleman, 1990, p. 302). Political scientist Robert Putnam (2000, p. 21) suggests that "social capital—that is, social networks and the associated norms of reciprocity—comes in many different shapes and sizes with many different uses." And a crucial form of social capital is "the potential for information that inheres in social relations" (Coleman, 1990, p. 310), that is, what members of a social network know, and may express and share in their interactions with one another.

Several sociologically oriented writers have begun to make the case for the role of social networks in information equity (e.g., DiMaggio, Hargittai, Neuman, & Robinson, 2001; Putnam, 2000; Wellman, Salaff, Dimitrova, Garton, Gulia, & Haythornthwaite, 1996). Obviously, for most people the first and most credible information sources are family members, friends, neighbors, co-workers, fellow church or club members, and so on. Even when people do consult documentary sources, such as news media, Web sites, advertising, or library collections, they typically "check out" the information they find with other people they trust. Therefore, social networks are information sources, and they also perform an important "filtering" or contextualizing function for their members.

Social networks are also powerful information resources because they are greater than the sum of social relations and reciprocal exchanges within the group. They help shape the character or sensibility of the wider communities in which they exist (Coleman, 1990). The larger or more extensive the network, the greater its value to each individual member as a source of information and social capital. That is, social networks and the social capital they confer on their members have important *externalities*, which give them the quality of *public goods* (Putnam, 2000, p. 20). Indeed, a number of writers today argue that many types of information, technological systems, knowledge, and cultural heritage should properly be considered public, rather than private, goods (Anton, Fisk, & Holmstrom, 2000; Introna & Nissenbaum, 2000; Lessig, 1999a, 2001; Serageldin, 1999; Spar, 1999; Stiglitz, 1999; Sy, 1999; van den Hoven, 1998).

Private and public goods differ in two important respects. Characteristically, private goods are *rival in consumption*—that is, a good consumed by one person becomes unavailable for anyone else. They are also *excludable*, that is, some people can be prevented from consuming them. Food, clothing, and most other types of material goods and property are treated as private goods.

Public goods, in contrast, are *nonrival in consumption*: one person's use of the good does not deplete what is available for others. And public goods are *nonexcludable*, meaning that no one can practicably or reasonably be prevented from using them. In *The Wealth of Nations*, Adam Smith (1993) offers the classic example of a lighthouse as a public good. Its beams cannot be restricted to being seen by just some ships and not others; and one ship's use of the lighthouse as a guide does not keep any other ship from using it as well. More contemporary examples include traffic signs, broadcast television and radio signals, and the Internet, as Lawrence Lessig (1999b, online) observes: "It's out there for the taking; and what you take leaves as much for me as there was before."

Certainly, then, to the extent that information and its related technologies fulfill these criteria, they are public goods. To understand the significance of information as a public good, we can compare it with another familiar good, water. Sax (1970) argues that water belongs to a distinct and special category of property that serves as a community resource and can never fully be privatized. He cites three reasons for this special treatment.

First, water has unique physical characteristics. Unlike other important resources (e.g., petroleum), it has no physical substitute. And bodies of water act as a public commons that provides access to waterways for navigation, fishing, and recreation. Second, water has historically been given special legal treatment. The public trust doctrine, in particular, has helped to ensure universal access to water resources for navigation and sustenance. Third, water is a "heritage resource," that is, communities see water as part of their legacy. They feel strong attachments to water resources just as they do to antiquities or other cultural property.

Does information fulfill these three criteria for being uniquely "public"? Certainly, it can be said that there is no substitute for information in human affairs and life experience. As Braman (1989, p. 239) notes, it is a constitutive force in society: "Information is that which is not just

embedded within a social structure, but creates the structure itself.” Information also has the characteristics of a public commons, a feature that was recognized by the framers of the U.S. Constitution as a justification for both the First Amendment and Article I Section 8, which provides for copyright and the public domain to “promote science and the useful arts.”

The legal and institutional history of information is also analogous to that for water. It has been treated as both a community resource to be used by everyone, and as private property and a commodity. In the U.S., important institutions (public education, public libraries, the postal service) and laws and regulations (the First Amendment to the Constitution, the public service and universal service obligations of broadcast and telecommunications carriers) safeguard the broad availability of all types of information. In 1813, Thomas Jefferson noted the “peculiar character” of information:

No one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature ... Inventions then cannot, in nature, be a subject of property. Society may give an exclusive right to the profits arising from them, as an encouragement to men to pursue ideas which may produce utility, but this may or may not be done, according to the will and conventions of the society, without claim or complaint from anybody ... The exclusive right to invention [is] given not of natural right, but for the benefit of society (T. Jefferson, letter to Isaac Macpherson, 1813).

Similarly, in a dissent in *International News Service vs. Associated Press*, Justice Louis Brandeis commented that “the general rule of law is, that the noblest of human productions—knowledge, truths ascertained,

conceptions, and ideas—become, after voluntary communication to others, free as the air to common use” (*International News*, 1918).

Finally, there is no question that information, like water, is a heritage resource. It is the basis and inspiration for artworks, science, culture, and politics. Indeed, it is virtually impossible to define the concepts of *cultural heritage* or *cultural property* without accounting for the role that information plays in their designation. For example, the Hague Convention Article I Section (a), the governing international regime for the disposition of cultural heritage properties, imputes intangible but expressible significance to such properties. It thus suggests that the protection and preservation of cultural heritage property in fact preserves an intangible, informational interest (Hague Convention, 1954).

The Horizontal Perspective:

The Digital Divide and Intellectual Property

Considering all the various streams of research that have informed the horizontal perspective, it is perhaps unsurprising that scholars in this camp take a different view of the extent and significance of the digital divide. As Haywood (1998, p. 25) has observed about global data networks: “The world has always been a place of haves and have-nots and [I] can see no way that internetworking is going to change this very much.”

Lentz (2000) identifies two competing accounts of the digital divide. One emphasizes computer and Internet consumption and argues that the divide is disappearing. The other focuses more on continuing barriers to access and use: “Policy should focus at least as much on the context and content of technology use as it has thus far on the increased distribution of computing resources” (Lentz, 2000, p. 355). Alexander Kouzmin (2000, p. 167) agrees that the complex reality of the digital divide requires a new approach: “There is a need for a new intellectual paradigm and policy platforms of a dynamic and contingent nature which address emerging structures created by socioeconomic and technological changes in highly volatile environments.”

Other observers note that despite the rapid dissemination of hardware and systems, the differences in access and use persist because training and human support are neglected. Poor and low-status groups

still have less access to computer networks and online services, but “this problem might disappear before we can create a presidential commission to study it . . . there is a divide in this country, but it’s not digital. It’s in basic academic skills and high-quality schools” (Finneran, 2000, p. 30).

In an analysis of two statewide surveys conducted in 1998, Erik Bucy found that Internet access was indeed lowest among single mothers, members of lower socioeconomic groups, and older respondents. Yet, he argued, “social access” to the Internet is just as important as physical access to systems: “Beyond the physical hardware needed to go online, social access to the Internet requires that citizens have the cognitive ability and technical skills necessary to profit from a complex media environment” (Bucy, 2000, p. 60).

The structure of information systems, and of the information available from online sources, is another concern for those who take the horizontal view. Van Alstyne and Brynjolfsson (1996) warn against the “cyberbalkanization” of social groups on the Internet; while Lievrouw (1998, p. 84) observes that networked computing and telecommunications allow people to

resort to “our own devices” both in the sense of our personal agendas, strategies, interests, and interpretations, and of the ICT tools that help us realize them . . . those of us with the right educational and technological resources [can] avoid exposure to disagreement, difference, or other information that does not serve our direct purposes or reflect our individual views of the world.

Robert Putnam (2000, p. 179) cautions that “the commercial incentives that currently govern Internet development seem destined to emphasize individualized entertainment and commerce rather than community engagement.” Social capital cannot be cultivated if we confine our interactions to exchanges with “people who share precisely our interests—not just other BMW owners, but owners of BMW 2002s and perhaps even owners of turbocharged 1973 2002s, regardless of where they live and what other interests they have and we have” (Putnam, 2000, p. 177). University of Chicago law professor Cass Sunstein (2001, p. 201) agrees:

There are serious problems if information is seen as an ordinary consumer product. The simple reason is that in a system in which individuals make choices among innumerable options based only on their private interest, they will fail to learn about topics and views from which they may not much benefit, but from which others would gain a great deal.

Given these myriad factors, the National Society of Black Engineers has developed what is perhaps one of the more comprehensive approaches to equity policy. The group supports a four-part program of access, skills, values, and content to help communities employ digital technology (Institute of Industrial Engineers, 2000). Another advocacy group, Bridges.org, recently released a report that outlines key factors essential for “real access,” including physical access, relevant content, sociocultural factors, trust, a supportive legal/regulatory framework, strong local and macroeconomic environments, and political will (Bridges.org, 2001).

As these studies indicate, content—and not just the forms or channels of information—is another critical element of access from the horizontal viewpoint (McCreadie & Rice, 1999). Some policy researchers have argued that information service providers (including libraries) cannot continue to be content-neutral and still provide adequate information access. This bias toward the “conduit metaphor” (Day, 2000) prevents libraries and other information services from serving the real needs of their communities; instead, to provide access, researchers and policy makers must find out what particular content is considered necessary for participation in various community contexts (Sawhney, 2000; Schement, 1995). According to Lievrouw (2000, pp. 155–156), “we should move beyond the current conduit-centered notion of access in universal service to a more participatory notion of discourse, which assumes that some content is essential for social participation.”

Content is also implicated in recent debates about the extension of intellectual property rights to more diverse types of information, and over longer terms of ownership. Critics warn that information technology has allowed more and more types of information to be privatized and thus removed from public access: “Public information is fast being commoditised and privately held in the commercialization of cyberspace”

(Stevenson, 2000, p. 3). Indeed, by 1988, Herb and Anita Schiller (1988, p. 146) had already noted that:

An economic struggle with major cultural implications, underway for 20 years, and now intensifying, goes relatively unnoticed in the national media. It pits the fundamental principle of American libraries—free access to information—against the interests of the private information suppliers and their advocates in government. The privateers seek profit from the sale of information to those who have the means to pay for it.

Only a few years later, Jessica Litman (1994, p. 429) decried what she saw as an “intellectual property epidemic”, and Pamela Samuelson (1991, p. 23) identified six features of digital media that were “likely to bring about significant changes in the [intellectual property] law,” including the ease of replication, ease of transmission and multiple use, plasticity, equivalence, compactness, and nonlinearity of works in digital form.

In fact, over the last decade the scope and duration of copyright and patent protections have expanded steadily, due in large part to the development of technological systems to control access and duplication of digital materials—so-called “anti-circumvention technologies” that effectively privatize forms of information that were previously difficult or impractical to own. The *Sonny Bono Term Extension Act*, the *No Electronic Theft Act*, and the *Digital Millennium Copyright Act* in the U.S., and the European Union’s database protection legislation (Lessig, 1999a; Lipinski, 1998; Litman, 1994, 2001; Samuelson, 1991, 1994) have led some to conclude that “attempts to extend legal protection to basic facts and other public domain information demonstrate that the public space is slowly [being] reduced” (Lipinski, 1999a, p. 63).

Today, the rapidly expanding horizon of intellectual property claims has been characterized as a zero-sum “information arms race with multiple sides battling for larger shares of the global knowledge pool. The records of scholarly communication, the foundation of an informed democratic society, are at risk” (Hess & Ostrom, 2001, p. 45). On the other hand, however, because facts and ideas exist as information whether they are rendered in material form or not, “members of the

general public commonly find copyright rules implausible, and simply disbelieve them” (Litman, 2001, p. 29). There is still a popular sense that “most innovations and inventions are based on ideas that form the common property of humanity” (Quéau, 2000, p. 1).

Discussion and Implications

To summarize, then, in the previous sections we surveyed what we believe are two general schools of thought regarding studies of information equity. On one hand, the “vertical” approach tends to view information as a bundle of tangible, material goods that are exchanged privately as commodities (i.e., private goods); information technology has made it possible to privatize and control more types of information than ever before. A person’s information access and use are, to a large extent, determined by her or his demographic traits, economic resources, and social status. Therefore, information equity can be best achieved by an even distribution of resources and technologies across different social groups.

The horizontal school of thought, on the other hand, is more likely to see information as subjective and context dependent, a community resource that is nonsubstitutable and necessary for human life, culture, and heritage (i.e., a public good). The use of technology to extend property rights to ever more types of information, therefore, threatens access to and uses of information that are essential for effective social and political participation. A person’s access and use depend mainly on her or his capacity to understand and benefit from information and information technology in a particular situation. Information equity, then, is best achieved by assuring that all individuals have the background and skills to use information effectively for their particular ends and purposes, and that essential types of content remain freely available to everyone.

Obviously, there are, always have been, and likely always will be economic, social, and political inequities. But if equity is a desirable social goal, both the vertical and horizontal dimensions of access and use must be considered. The distribution of resources and systems (perhaps thought of as primary goods) should be complemented by efforts to foster social and human capital and capacities, and the provision of relevant content. At a minimum, we propose that five elements or factors should be considered in any evaluation of information equity.

The first element is clearly indicated by the decades of studies that show consistent and enduring disparities in information access and use between higher and lower socioeconomic groups. Without question, like other resources, information and information technologies are distributed unevenly; problems of information access and use are exacerbated by economic and social disadvantages. As long as information resources and technologies are distributed primarily on an ability-to-pay, market basis, these disparities will persist and are likely to grow. Therefore, continuing efforts must be made to ensure a more even distribution of information resources in society.

Second, it is equally clear that if people lack the skills and background to understand or use the information resources that are available, even the most strictly apportioned distribution of resources is meaningless. Research and policy must assess people's abilities to use the resources they have, and provide a wider range of learning opportunities for those who wish to take advantage of them.

A third factor is related to skills and background. People's capacities depend a great deal on the values they share, including support of open information resources, open inquiry, and the norms of social reciprocity and trust that make information sources credible. Education and training must incorporate the values that support information seeking, as well as convey technical skills.

Fourth, the available content must be contextually relevant and meaningful in people's lives. Some evidence suggests, for example, that a small but substantial proportion of Internet users have become "Internet dropouts" because they do not find the information online to be useful or interesting. A similar phenomenon has been observed with certain ethnic and language groups, including African-Americans (Sponner & Rainie, 2000). Research and policy should be directed to identifying what is considered essential information in various communities, and creating conditions that ensure the wide availability of such information.

Finally, much more needs to be known about the social and life contexts that shape people's information needs and interests. Certainly, a great deal of work has been done that investigates the information-seeking patterns of particular groups, primarily professionals, students, and academics. But these efforts should be expanded to include more complex everyday life contexts. These contexts are not stable, and people

may inhabit or move among several contexts simultaneously, so it is critical to understand how people navigate among contexts, how contexts affect each other, and any common elements of this movement.

The framework advocated here has several implications for the evolving field of information studies. First, this approach to information equity would necessarily expand the domain of research and policy analysis beyond traditional concerns with the management and distribution of systems and services. Researchers would also need to investigate the interests, orientations, practices, and complex social relations among individuals and social groups to gain a deeper appreciation of how people obtain, understand, and use information.

Of course, this was the clear agenda behind the paradigm shift in library and information science in the 1970s described previously (Dervin & Nilan, 1986). And librarianship has a long tradition of research and service aimed at developing the skills of information seekers and library users; for example, various types of literacy or after-school programs and services. But we wish to suggest that research and policy should do more than teach people how to adapt or reframe their interests to fit existing systems and resources. More basic research is needed to learn about unconventional, socially based information resources (social networks, for example), and how to help individuals and groups design and use resources that better suit whatever people value doing or being. It requires a creative, flexible approach to hypothesizing about information needs, uses, and sources that moves beyond documents and systems to relationships, cultural practices, and how ideas diffuse in communities.

The second implication is organizational, and to some extent hinges on the first. Conventional or taken-for-granted organizational forms and processes should be rethought and redesigned. Experts in urban planning, organization studies, and economics have identified new organizational forms, such as informal alliances, information hubs, and network firms, which take advantage of information technology and infrastructure as well as the networks of social relations and expertise among individuals and groups. Such organizations change shape, dissolve, reconfigure, or reincorporate as circumstances and needs require, according to the abilities and relationships of the people within them. Increasingly, libraries, archives, and other types of cultural institutions

may need this same kind of flexibility to engage effectively with the communities they serve.

To some extent, the digital library projects of the last decade were intended to lay the infrastructure for just such new ways of distributing and delivering information resources. Networked computing and telecommunications services promised to free information from geographic space and organizational “territories,” and digital libraries were meant to take advantage of this dynamic (Borgman, 2000). However, as the “new economy” bubble has deflated in the 2000s, incumbent institutions have moved to shore up their traditional prerogatives and controls over content, markets, infrastructure, regulatory regimes, behavior, and so on, that they appeared to be losing to small, unconventional challengers in the 1990s (Putting IT in its place, 2001). Libraries and other cultural institutions are unlikely to be immune to the current wave of retrenchment and centralization, and so digital libraries are likely to remain tied as adjunct or ancillary services of established institutions (government agencies, educational/research institutions, private firms, nongovernmental organizations) for the foreseeable future. New avenues for organizational innovation will be needed.

The third implication of the dimensional view of equity has to do with the nature and training of information professionals. Information studies must educate information professionals who combine both traditional technical and organizational skills with an almost anthropological or sociological sensitivity to social relationships and change. The combination of vertical and horizontal equity concerns requires that information professionals develop an ability to interact with diverse individuals and groups so that they can facilitate, broker, or navigate those groups’ various interests and practices—again, to achieve whatever people may value doing or being, in whatever contexts and to whatever degree people consider important. Information practice should include not only identifying and accessing existing resources, and teaching people to be “users” of those established resources; it will also require the ability to recognize and bring into play a heterogeneous range of social, cultural, and documentary information resources—interpersonal and family networks, informal links among experts, and sources of local and universal knowledge.

To conclude, then, the environmental and dimensional approach to information and social equity builds on a foundation of earlier work, but is also an attempt to open up new questions and issues for research, policy, and practice. We hope we have provided a starting point for a new and fruitful discussion.

Endnotes

1. Although we use the terms “horizontal” and “vertical” in our discussion of information equity, we do not want to suggest that these aspects are independent or orthogonal. Indeed, they are necessarily interrelated because one’s vertical opportunities or circumstances may influence one’s horizontal interests and activities, and vice versa. Although we use these terms, we will try to avoid the problems that led Tilly (1998) to criticize the concepts of horizontal and vertical social mobility proposed by his teacher, Pitrim Sorokin (1959). Tilly objects to the labels horizontal and vertical because they suggest that there are clear steps or ranks in each dimension (Sorokin’s social strata); thus creating a matrix of slots or positions into which individuals can be classified. Certainly, a number of the “vertical” studies reviewed here do in fact regard relative social status, and therefore information access and use, in this ranked or stepwise fashion. But in our view, the two aspects are more continuous and fluid. We use the terms “horizontal” and “vertical” more as heuristic concepts than as absolute scales for measurement.
2. We encourage readers to review the previous *ARIST* chapter on equity (Doctor, 1992) for a comprehensive survey of information and equity research prior to the early 1990s, especially with regard to power and democracy.
3. Although, as Meadow and Yuan (1997) observe, to call information a commodity simply describes one of its attributes, and not its essential nature.
4. Perhaps the most remarkable attempt to measure information in this sense at the whole-society level (i.e., the production and consumption of characters, words, or documents) was made by Japanese researchers between the 1960s and 1990s, using measures such as the “johoka index” (Ito, 1981) and the “information activity index” (Kurisaki & Yanagimachi, 1992).

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