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The Discourse of the Information Age

by

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Abstract

This thesis examines the discourse of the information age and its influence on information literacy and social networking websites. The information age proposes that society has been dramatically changed by the recent advancements of information and information technology. Discourse of the information age emphasizes a transformation in the economy from industrial to information capital, creating an emergent society with new social and cultural possibilities. The information age is a ubiquitous concept, manifesting specifically in two areas: library and information studies (LIS) and social networking websites. Information literacy, the American Library Association's education strategy for the information age, empowers library patrons with information skills to participate in the emerging era. Social networking websites (Facebook, MySpace, and Twitter) represent information-based businesses like those predicted by information age theorists. This thesis concludes that the arrival of the information age is impossible to discern, but the influence of information and information technology is significant.

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Chapter 1 - Introduction

This thesis examines the discourse of the information age and its influence on the discourses of information literacy and social networking websites. Using a Foucauldian discourse analysis, the history of information age discourse is explored creating a critical understanding of the concept. This critical understanding is then applied to the discourses of information literacy and social networking websites to understand their co-construction in the larger information age discourse. The objective of this study is to understand the origins and present manifestations of the information age, which has become a widely used meta-social label for the current society. This study is valuable for understanding the social phenomena of the information age.

The information age is the proposed new society that has emerged from recent advancements in information and information technologies. These new advancements include microprocessors, personal computers, the internet, and other related technologies. As a meta-social tag, the information age announces the arrival of a new era. The defining characteristics of this new era include: 1. a shift in the economy from industrial-centered capital to information-centered capital, 2. new forms of social relationships resulting from this shift, 3. a global computer network infrastructure, 4. a focus on the exchange of information within this network.

This proposed shift from industrial capital to information capital refers to a transformation in the foundations of the economy, first proposed by Daniel Bell in 1974. Bell argued that society was experiencing an evolutionary progression, transforming citizens from blue-collar industrial based workers to white-collar

information based workers. Emergent technologies like the microprocessor were enabling the rapid production and distribution of information, which would eventually transform society and culture. This new society was based on information as the dominant form of capital.

Bell's concepts were adopted in various forms by Jean Francois Lyotard (1984), Nicholas Negroponte (1995), Manuel Castells (1996), and Ray Kurzweil (1999) amongst others. These theorists form the discourse of the information age. Several other names have been given to this emergent society including: the information society, the information economy, the knowledge society, the knowledge economy, and post-industrialism. These synonymously refer to the same larger concept. Information as capital has changed the world and society requires a new label (the information age) to mark this change. The new social realities proposed by each theorist are widely different but all involve the four principles of the information age.

Several theorists have challenged the discourse of the information age. Fredrick Jameson (1991), Krishan Kumar (1995) and Frank Webster (2002) actively challenge the misconceptions of information age discourse, citing the continuation of capitalism, the continuation of Enlightenment philosophy, and technological determinism as criticisms of the proposed social transformation. However, each theorist accepts the increased capacity for the production, distribution and accessibility of information. This creates an interesting tension - rejecting the social projections of information age theorists while accepting the exponential increase in information.

The ubiquity of the term information age is contained within this tension. While the projections of the information age theorists may be incorrect, the growth of information and information technologies is impossible to ignore. The internet is the best example of a recent technological development increasing the production, distribution and accessibility of information. A quick search of the phrase "The information age is here" using Google returned over 2,000 results from information management, medicine, law, military, government, real estate, marketing, library and information studies, and computer science, published in newspapers, magazines, academic journals, and conference proceedings. The results ranged from 1991 to 2009, and specifically announced the arrival of the information age in *Time Magazine*, *The New York Times*, The American Library Association, and The International Federation of Library Associations, amongst others.

The discourse of the information age has manifested itself specifically in two areas: information literacy and social networking websites. Information literacy educates library patrons to locate, utilize and evaluate information in a variety of formats. Beginning formally in 1989 with a special committee organized by the American Library Association, information literacy is grounded in the information age. Responding to the proposed social challenges of the information age, information literacy enables library patrons to participate in an emergent society. The discourse of information literacy focuses on the competencies required for participating in the information age, contributing to the larger body of information age discourse. Information literacy represents an enactment of information age discourse within academia.

Social networking websites facilitate socialization online, and also represent the proposed shift to information capital. By encouraging sociability online, social networking websites create interactive social experiences for their users. Websites that best encourage sociability attract the most users and generate the most revenue. Social networking websites embody several key principles of information age discourse, and represent the proposed shift in the economy to information-based businesses. Social networking websites represent a public and corporate enactment of information age discourse.

Chapter 2 - Methodology

This thesis project is a theoretical exploration of the information age in three chapters – Chapter 3. The Information Age; Chapter 4. The Information Age and Information Literacy; Chapter 5. The Information Age and Social Networking Websites. Chapter 3 develops a critical understanding of the information age by exploring the arguments supporting and refuting the concept. This new critical understanding of the information age is then applied in Chapter 4 by exploring information literacy and in Chapter 5 by exploring social networking websites. In Chapters 4 and 5, the information age is examined through its enactment in both an academic and a public realm.

The methodological approach for this project is Foucauldian discourse analysis. Michel Foucault explains the concept of discourse in *Archaeology of Knowledge* (1972). Because Foucault is notorious for ambiguous definitions, discourse is difficult to define. Discourse is defined in the Oxford English Dictionary as "a spoken or written treatment of a subject." Foucault does not explicitly define discourse but examines how discourse creates relationships of power/knowledge. Discourse is the site where power and knowledge are combined to create a network of meaning for a society.

Discourse both permits and restricts what can be said based on normative assumptions: "all manifest discourse is secretly based on an 'already-said'; and that this 'already said' is not merely a phrase that has been already spoken, or at text that has already been written, but a 'never-said', an incorporeal discourse... Discourse, therefore, is really no more than the repressive presence of what it does not

say" (Foucault 1972, 25). Discourse, therefore, is a function of power, permitting what constitutes knowledge on a particular topic. This operates in covert ways, as an incorporeal discourse, and limits what can be said based on social norms. All written or spoken communication conforms to the standards of discourse, and expressing views outside of discourse are unheard, or "not-said."

Foucault is primarily concerned with the relationship between knowledge and power: "it is in discourse that power and knowledge are joined together" (Foucault 1980, 100). Knowledge is inherently joined to power: "there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations" (Foucault 1977, 22). Foucault does not focus on the authority of 'the truth.' Instead, Foucault assumes that knowledge linked to power (as discourse) assumes the authority of the truth and also has the power to make itself true (Hall 2001, 76). Foucault argues that truth is produced, manufactured, and reproduced through discourse; each society has its "regime of truth" (Foucault 1980, 131). Foucault redefined discourse "not simply a body of words and sentences, but the very structure in which the social world is constructed and controlled as an object of knowledge" (Morton, 2002, 85). He used this relationship between knowledge and power to study madness *(Madness and Civilization*, 1965), medicine (*The Birth of the Clinic*, 1973), literature *(Death and the Labyrinth*, 1973), prisons (*Discipline and Punish*, 1977), and sexuality *(The History of Sexuality*, 1980).

In *Madness and Civilization*, Foucault examines psychiatry to expose the discourse of insanity. In the 19th century, psychiatry defined the characteristics of

insanity, creating a body of knowledge on what it means to be insane. Because psychiatry was recognized as the leading authority on insanity, psychiatrists were granted the legal capacity to declare someone insane. Psychiatrists proposed the term "insane," defined it according to particular characteristics, and maintained this definition according to their own complex body of knowledge. The discourse of insanity authorized the judicial power of psychiatry, whose discourse combined legal authority with psychiatric knowledge. This is a classic example of combining knowledge and power, namely psychiatric knowledge with judicial power.

Michel Foucault did not create a guide for conducting discourse analysis but documented his approach for navigating and analyzing discourse in *Archaeology of Knowledge* (1972). Foucault exposes the construction of discourse by rejecting its continuity –

> we must show that [discourses] do not come about of themselves, but are always the result of a construction, the rules of which must be known, and the justifications of which must be scrutinized; we must define in what conditions and in view of which analyses certain of them are legitimate, and we must indicate which of them can never be accepted in any circumstances (Foucault 1972, 28).

By exposing the underlying assumptions, constructions, and biases of these discourses, Foucault acts as an archaeologist of knowledge, hence the title of the book. Foucault searches for ruptures, breaks, mutations, and transformations to understand the production and meaning of knowledge.

John Budd (2006) summarizes Foucauldian discourse analysis in LIS through a key question: "The description of the events of discourse poses a quite different question: how is it that one particular statement appeared rather than another?" (Foucault 1972, 27). Foucault's question highlights his break from

intellectual history - history tends to be sweeping and embrace a totality, while the Foucauldian archaeological process focuses on particulars. “The analysis of the discursive field is oriented in a quite different way: we must grasp the statement in the exact specificity of its occurrence; determine its conditions of existence, fix at least its limits, establish its correlations with other statements that may be connected with it, and show what other forms of statements it excludes” (Foucault 1972, 28). Foucauldian discourse analysis examines the contradictions as they occur but does not seek to solve these contradictions. Instead, “it is concerned with discursive practices as they are at a point in time” (Budd 2006, 73). This method has appeared in Library and Information Studies scholarship in the work of Alstad & Curry (2003), Budd & Raber (1996), Forrester, Ramsden & Reason (1997), Frohmann (1992), Frohmann (1994), Jacobs (2001), Radford (2003), Stevenson (2001), and Tuominen (1997).

Alstad & Curry (2003) employ discourse analysis to examine the recent shift in public librarianship. Traditionally, public libraries functioned as urban public spaces encouraging the free exchange of ideas and supporting the self-education of citizens for their participation in a democratic society. Libraries have recently devalued this approach in favor of popularizing the library to attract more users. This study examines the discourse of the traditional and modern library and recommends that libraries return to the traditional commitment to democratic ideals.

Budd and Raber (1996) argue that discourse analysis is a valuable method for inquiry in LIS. They assert that LIS is a discipline based on communication. Discourse analysis has the advantage of addressing both spoken and written

communication, allowing researchers to examine the theoretical foundations of LIS and apply those theories to practice in libraries. Budd and Raber define the foundations of discourse analysis as form (the structure of language) and function (language as social phenomenon), which are directly applicable to theory and practice respectively. Their study conducts a discourse analysis on the social, political, and technical implications of information services in library practice.

Forrester, Ramsden & Reason (1997) discuss the advantages and disadvantages of discourse analysis and conversation analysis in LIS research. Using two case studies, Forrester et al suggest that discourse analysis is useful when seeking general information while conversation analysis has advantages for uncovering implicit models and metaphors employed by library patrons. This paper functions as a guide for library staff to select the appropriate research method for their research project. The case studies recommended discourse analysis for re-designing the library index and conversation analysis for evaluating interface design.

Frohmann (1992, 1994) provides a similar methodological survey of discourse analysis for library staff. He details various approaches to discourse analysis, with a specific method discussed in each paper. These methods for discourse analysis explore visual and image discourse (1992) and written discourse (1994) in the context of LIS. Radford (2003) offers a similar discussion, detailing the applications of Michel Foucault's *Archaeology of Knowledge* (1972) in the discipline of LIS. Radford explores the concept of discursive formations by tracing the development of library catalogues.

Jacobs (2001) investigates the discursive influence of information technology in LIS literature. He argues that the recent proliferation of information technology has introduced technological determinism as a common descriptor of change in information science literature. While recent developments in science and technology literature offer a social constructivist alternative, there is little reconciliation between these two positions. The polarity between technological determinism and social constructivism dominates the literature. This article examines the tension between these two positions in information science discourse.

Stevenson (2002) applies discourse analysis to explore a series of public information policies and uncover the story behind Canada's Community Information Centres (CICs), first started in the 1970s. Using Norman Fairclough's critical information policy studies, Stevenson investigates the public discourse surrounding CICs and produces a modified research instrument based on this approach. Tuominen (1997) also applies discourse analysis, examining the relationship between library users and librarians. He concludes that users and librarians are positioned in unequal power relationships and calls for critical reflexivity in how scholars and patrons of LIS construct the subject positions of users as information seekers. Tuominen recommends that librarians become aware of these power inequalities and attempt to empower library users.

For this thesis, Foucauldian discourse analysis explores the information age discourse and its enactment in information literacy and social networking websites. Like other forms of discourse analysis, this involves the close study of text. Following the Foucauldian tradition, this analysis searches for ruptures, breaks,

mutations, and transformations in information age discourse. The archaeology of the information age uncovers the production and meaning of the term, as well as its enactment in information literacy and social networking. By examining key texts in each discipline, this analysis reveals the discourse of the information age. Ultimately, this thesis questions the validity of the information age as a meta-social tag while recognizing the conditions that created this concept.

Chapter 5, The Information Age and Social Networking Websites, combines Foucauldian discourse analysis with heuristic inquiry. Heuristic inquiry is a qualitative research approach concerned directly with human knowing and self-inquiry. This method "is aimed at discovering the nature and meaning of an experience" (Hiles 2008, 389). This is a departure from mainstream research "in that it explicitly acknowledges the involvement of the researcher to the extent that the lived experience of the researcher becomes the main focus of the research" (ibid). Heuristic inquiry is used to analyze the sociability features of social networking websites. These findings are then examined in the larger context of the information age using a Foucauldian discourse analysis.

Specific thematic boundaries around the major topics were created to limit the scope of each section. Because the analyses are divided into three chapters, each chapter examines approximately 15-20 resources to reach data saturation. These texts were selected based on their impact within the discipline, focusing on the foundational texts of each particular movement. Foundational texts were chosen based on their citation frequency and publication date. In Chapter 3, this involved identifying critical theoretical works (Webster, 2002; Kumar, 1995) and tracing the

history of information age theory. In Chapter 4, this involved reading a large number of articles and identifying the most frequently cited authors. In Chapter 5, this involved an exhaustive literature review exploring social networking on major academic databases. This provided sufficient data for an articulate analysis while still remaining within the scope of a thesis-length project. This section details the reasons for choosing particular historical markers as starting points for each domain of study.

1. Information Age: The information age literature has been limited from 1974 to the present. The concept of the information age first appears with Daniel Bell's *The Coming of the Post-Industrial Society* (1974) (Kumar, 1995; Garnham, 2000; Webster, 2002). *The Coming of the Post-Industrial Society* is the foundation of the information age discourse. Bell's work represents the first clearly developed vision of the information age, under the banner of the post-industrial society. His work created the foundations of information age discourse: a shift in the economy from industrial-centered capital to information centered capital and new forms of social relationships resulting from this shift. As computers and related microprocessor technology became ubiquitous during the 1980s, Bell was championed as a prophet: "he got the credit [for predicting the future] and was considered something of a guru" (Webster 2002, 3). Bell's work is the first canonical scholarship on the information age. Aside from Bell, this chapter focuses on texts dealing with the information age, either celebrating or defaming the concept. The majority of the texts were written between 1995 and 2000, during a fervent critical period.

2. Information Literacy and the Information Age: Information literacy literature has been limited from 1989 to present, with an emphasis on material published after 1996. Information literacy was recognized in 1989 with the American Library Association developing the first major report on the topic. The major proliferation of information literacy discourse began with Shapiro and Hughes' (1996) "Information Literacy as a Liberal Art." Recognized as the manifesto for the present information literacy movement (Johnston and Webber, 2006; Pawley, 2003; ACRL, 2008), Shapiro and Hughes detailed a new vision for information literacy - a skill set that would empower citizens, as the liberal arts had empowered citizens in a bygone era. Although similar manifestations of information literacy appeared earlier in the form of bibliographic instruction, library instruction, or library skills, 1996 marks a specific computer-mediated instance of the skill set, with particular emphasis on the internet. With the emergence of the internet into popular culture during the mid 1990s, this is the beginning of modern information literacy. This chapter explores manifestations of information literacy scholarship in academic publications. Because the proliferation of scholarship on information literacy occurred after the publication of Shapiro and Hughes, this chapter focuses on materials since the manifesto.

3. Social Networking Websites and the Information Age: This chapter focuses on examining popular social networking websites and their strategies to engage users- Facebook, MySpace, LinkedIn, and Twitter. This chapter explores the popularity of social networking websites and examines how these websites have enacted the information age. This is an exploratory process - by examining the social features of

these websites, this chapter details the social manifestations of the information age. In addition to the exploratory study, this chapter will use supplementary academic and non-academic scholarship to frame the position of social networking websites within the discourse of the information age.

This chapter has outlined the structure and methodology of this study. The next chapter explores the discourse of the information age. Using a Foucauldian analysis, Chapter 3 discusses the history and development of information age discourse.

Chapter 3: The Information Age

I. Introduction

The information age is a meta-social tag describing an emergent society. This society is distinct from the previous society based on a proposed shift in the economy. Capital, in this new economy, is transitioning from industrial-based to information-based. The aptly titled post-industrial society, first introduced by Daniel Bell in 1974, bases its economy on information. Rapid advances in the production, distribution, and exchange of information have transformed society, creating a new social reality shaped by an emergent computer-based technology. This new era has been given many names - the information age, the information society, the information economy, the knowledge economy, the knowledge society, and post-industrialism. Conceptually, these refer to the same movement - modern society has been transformed by a shift in the economy and subsequent transformation of culture. To reflect this new era, society must proclaim a new age: the information age.

The discourse of the information age is controversial. Critics have accused information age theorists of sweeping generalizations, misplaced analyses, technological determinism, and foolish futurist arguments. Within the discourse of the information age, the theories of an emergent society vary from network infrastructure encouraging globalization to an upcoming singularity: the fusion of computers and humans into a single entity by the year 2099. Three major theorists are responsible for the core of information age discourse: Daniel Bell, Jean Francois Lyotard, and Manuel Castells. The tenets of the information age include: 1. a shift in the economy from industrial-centered capital to information-centered capital, 2. new forms of

social relationships resulting from this shift, 3. a global computer network infrastructure, 4. a focus on the exchange of information within this network.

This chapter examines the discourse of the information age. Using a discourse analysis, the key figures in the information age movement are discussed. Both the proponents and opponents of the information age are included in this discussion. While the projections of information age theorists differ quite dramatically, the central tenet of the information age resounds: information production, distribution, and access is expanding at an unprecedented rate. The argument amongst the theorists is to what extent this information explosion is transforming society.

II. Literature Review

Daniel Bell's Post-Industrial Society

> *Among those thinkers who subscribe to the notion that a new sort of society is emerging, deservedly the best known characterization of the 'information society' is Daniel Bell's theory of post-industrialism* - Webster 2002, 3.

Daniel Bell's *The Coming of the Post-Industrial Society* (1974) introduced the theory of the post-industrial society. A rather daunting exploration on a potential future, Bell crafted an elaborate sociological portrait of the economy and society. He then extrapolated an imagined future, which he felt was the logical extension of his current analysis, in a nearly 500-page tome. Bell described his work as a "venture into the future" (Bell 1974) speculating on the next 30-50 years in what he called first-world societies (USA and USSR). Bell's work has been touted as the first major

work outlining the post-industrial society/knowledge economy/information age: "post-industrial society is an information society" (Bell 1974, 467)

The post-industrial society results from a proposed shift from the industrial society to a knowledge-based society.

> Industrial society is the coordination of machines and men for the production of goods. Post-industrial society is organized around knowledge, for the purpose of social control and the directing of innovation and change, and this in turn gives rise to new social relationships and new structures which have to be managed politically (Bell 1974, 20).

Bell sets up an evolutionary progression between pre-industrial, industrial, and post-industrial society through an analysis of the workforce. He purports that an economy can be accurately characterized by its labour. Pre-industrial workers are characterized as primarily agricultural, industrial workers as primarily industrial (that is, factories), and post-industrial workers as primarily in the service industry. Bell traces this progression through a diminishment of the previous majority - "by the end of the century the proportion of factory workers in the labour force may be as small as the proportion of farmers today" (Bell 1974, 125).

In industrialized nations, the semi-skilled worker dominates the workforce. The focus of the economy is production, primarily through factories. This is the world of the "goods economy," the assembly line, and the blue-collar worker. In post-industrial nations, the highly specialized "knowledge" worker dominates the workforce. This knowledge worker provides service, primarily through specialized services such as healthcare or education. This is the world of the "service economy," the office, and the white-collar worker. The basis of this post-industrial economy is information, generated by the knowledge-worker in a knowledge-based economy.

These new forms of employment provide no specific produced goods but function according to knowledge scarcity.

This information revolution described by Bell is remarkably similar to the industrial revolution of the 19th century. Retrospectively, the industrial revolution is seen as a pivotal marker in the development of civilization. The shift from agrarian society to industrial society becomes a pivotal signpost in human history, bringing the growth of the middle class. Similarly, the information revolution is described as a pivotal shift. While standards of living in industrial societies are defined by quantity of goods, post-industrial society is defined by the quality of life as measured by its access to services. Amenities of healthcare, education, recreation, and culture become the signposts of achievement replacing cars, televisions, and other consumer products. The underlying metaphor is progress - society becomes focused on service and leisure, while industry is the work of less-developed nations. In the same way that the factory replaced the farm, “higher” pursuits like the arts have replaced toiling in the factory.

Bell’s contemporaries adamantly adopted his theory. Although Bell himself framed his work as highly speculative, the coherence of his model and its basis in evolutionary society was tremendously seductive. His vision of the post-industrial future “just seemed to be right as a description of the coming world” (Webster 2002, 3). The arrival of microelectronic technologies in the 1970s and 1980s confirmed that society was experiencing a revolution. Computers began appearing everywhere, as the microprocessor served as a signpost for a new society. The rapid growth of

information and communication technologies was a tangible indicator of this post-industrial society.

The Coming of the Post-Industrial Society has become the foundation of the information age as a discourse. Bell's work represents the first clearly developed vision of the information age, under the banner of the post-industrial society. His work created the foundational metaphors and markers that have defined the information age: 1. a fundamental shift in capital from goods to knowledge/ information 2. redistributed workforce from blue-collar to white-collar, 3. new social reality that allows for the pursuit of leisure, 4. computerized society, and 5. the promise of a better tomorrow. As computers and related microprocessor technology became ubiquitous during the 1980s, Bell was championed as a prophet: "he got the credit [for predicting the future] and was considered something of a guru" (Webster 2002, 31).

Jean-Francois Lyotard's Post-Modern Age

> *Knowledge in the form of an informational commodity indispensable to productive power is already, and will continue to be, a major - perhaps the major - stake in the worldwide competition for power. It is conceivable that nation-states will one day fight for control of information, just as they battered of over territory, and afterwards for control of access to and exploitation of raw materials and cheap labour*.
> - Lyotard 1984, 5.

Jean-Francois Lyotard's *The Post-Modern Condition: A Report on Knowledge* (1984) examines the changing status of knowledge and its broader implications for society. Lyotard addresses the impact of digital technologies on knowledge

production in advanced capitalist economies, which he labels computerized societies. “The status of knowledge is altered as societies enter what is known as the postindustrial age and cultures enter what is known as the postmodern age” (Lyotard 1984, 3). Lyotard argues that the emergence of new forms of technology, particularly communication technology, has changed the status of knowledge. “Knowledge is now judged less by its intrinsic value than by its performance, or rather by how economically valuable, efficient, and programmable it is” (Gane 2003, 2).

Lyotard’s argument (like Bell’s) rests on a fundamental shift in the economy. The new basis for capital is knowledge, replacing the previous industrial economy and its emphasis on physical goods as capital. This has profound implications for the creation of knowledge. “Knowledge is and will be produced in order to be sold, it is and will be consumed in order to be valorized in a new production: in both cases, the goal is exchange” (Lyotard 1984, 4). Knowledge, in this new economy, plays a rather interesting role - knowledge serves as a commodity, but also structures the production of commodities. This creates a tremendous inertia of production, as knowledge serves as both the structure and the product of the structure. The generation of knowledge creates more knowledge, and increases the rate at which knowledge can be produced. This cycle of knowledge perpetuation is currently happening on the internet - as the amount of available knowledge expands, the internet expands exponentially.

Because the goal of the economy is exchange, commodities (knowledge) must be standardized, translated, and reduced, argues Lyotard. Lyotard claimed that the easiest way to standardize knowledge is to reduce it into packets that are easy to send,

receive, and process.[1] This atomized knowledge, which Lyotard relabels as information, is highly transferrable. He argues that the basis for our new economy will be digitized information. Knowledge production and its reduction into "bits" of information is the basis for a new social and economic reality that Lyotard labels the post-modern era. Controlling knowledge production and knowledge distribution generates capital, which in turn generates power.

The relationship between power and knowledge in computerized societies is the fundamental relationship in the post-modern society. Lyotard argues that this will lead to the commodification and death of truth.

> No money, no proof - and that means no verification of statements and no truth. The games of scientific language become the games of the rich, in which whoever is the wealthiest has the best chance of being right. An equation between wealth, efficiency, and truth is thus established" (Lyotard 1984, 141).

Knowledge produces truth, and knowledge production requires capital, which serves as the basis for the emergent economy. This knowledge infrastructure, in Lyotard's model, is restricted to those who can afford it, and thus the system will be restructured for the benefit of knowledge producers - the new elite.

Lyotard's highly influential work, which introduced the concept of post-modern, has contributed to the discourse of the information age. The metaphor of a basic shift in the economy similar to the shift from agrarian to industrial societies through advanced computer technology serves as the basis for a new society. Lyotard's theory of the post-modern era marks the same fundamental shift as Daniel

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[1] Lyotard's process of standardizing knowledge has a direct correlation with the technological processes of the internet, specifically relating to packets. The process of sending and receiving packets of information on the internet is analogous to Lyotard's atomization of knowledge.

Bell's post-industrial society - a shift in the economy. Lyotard's investment in an emerging knowledge-economy as the basis for a new social reality is the defining characteristic of the post-modern era. While Lyotard's future is decidedly bleaker than Bell's, the conditions for this change are almost identical. A highly advanced, computerized society experiences a drastic restructuring of its economy, which leads to a drastic restructuring of society. The form that develops from this new society is almost irrelevant - the recognition of a new system emerging from new technology is crucial.

Lyotard's contribution to the information age discourse is the transformation from knowledge into information, and the rapid exchange of knowledge through new electronic mediums. The new computerized infrastructure creates a medium for mass communication of knowledge, but this does not fundamentally alter the basis of the economy, as Lyotard suggests. Rather, this introduces a new medium of communication. Knowledge remains important, and its transfer becomes far easier, but the basis of the economy still remains exchange, control, and distribution of capital. While new opportunities may be created through the exchange of knowledge, an outright shift in the economy and society would require something far more drastic, like the ability to replicate matter and eliminate scarcity.

Castells's Network Society

Between 1996 and 1998, Manuel Castells published a staggering three volume set entitled *The Information Age*. Spanning nearly 1500 pages, Castells attempted to articulate the major patterns of contemporary civilization. Frank Webster, a major

critic and observer of information age scholarship, described Castells's work as "a major achievement" (Webster 2005, 453).

Castells's main contribution is the network society, as described in *The Rise of the Network Society, The Information Age, Economy Society and Culture, Vol. I* (1996). The network society is based around "flows of information." According to Castells, networked computers allow for the instantaneous transfer of information (flow of information). Networks, Castells argues, are fundamentally altering our society -

> Networks constitute the new social morphology of our societies, and the diffusion of networking logic substantially modifies the operation and outcomes in processes of production, experience, power, and culture. While the networking form of social organization has existed in other times and spaces, the information technology paradigm provides the material basis for its pervasive expansion through the entire social structure" (Castells, 1996, 496).

The infrastructure of the network is monumental, reaching mythical proportions. This network affects the very basis of society. The implications of the network society are immeasurable in Castells's explanation.

The instantaneous transfer of information is the crux of Castells's analysis. He argues that the network and its information flows have enabled an emergent global economy - "it is an economy with the capacity to work as a unit in real time on a planetary scale" (Castells 1996, 92). Work has been transformed through the exchange of information, reshaping the modes of production through instantaneous knowledge transfer. Similarly, the network has also transformed relationships to space - geographic communities are no longer grounded in a physical location, but connected through a network.

Information and its exchange are the crux of Castells's emergent information society. Information is a commodity, transferable through a network infrastructure. The network and its ability to send and receive flows of information also constitute a new form of power - "the power of flows takes precedence over the flows of power" (Castells 1996, 496). Again, the network is privileged over the information transferred through the network. The transferability and exchange of information is paramount; flows of information supersede the information itself. For example. the availability of information on the internet is more important than the information itself.

Castells's argument falls within the trajectory of Bell and Lyotard, specifically their emphasis on knowledge in an emergent economy. Castells has the advantage of writing in the latter half of the 1990s when the transfer of information was enabled through the mass-proliferation of networks, most notably the internet. The emphasis on knowledge-as-commodity remains, but Castells clearly articulates the transformative impact of the network. His emphasis on network infrastructure superseding the knowledge contained within the network is an important departure.

Challenging the Information Age

I have quite forcefully rejected the validity of the concept information society, even though it is much used - Webster 2002, 263.

Frank Webster's *Theories of the Information Society* (2002) provides a thorough critique of information age theories. He examines the major arguments proclaiming the information age including those promulgated by Bell, Lyotard, and Castells, amongst others. Webster provides a poignant challenge to the new age - he

acknowledges that “not only is there a very great deal more information about than ever before, but also that it plays a central role in pretty well everything we do, from business transactions, leisure pursuits, to government activities” (Webster 2002, 263). What Webster challenges is the mass proliferation of information creating a new type of society.

Webster argues that the inconsistency of information age theories reveals a naive assumption: “there has been an ‘information revolution’, [which] will have and is having profound social consequences” (Webster 2002, 264). This assumption, Webster argues, creates a discourse observed by Bell, Lyotard, and Castells - technological innovation results in social change. This is troubling for Webster, who observes that this technological determinism is reductive. By singling out technology as the primary cause of change, we

> “misconceive social change because it desocialises key elements of social change [through] persistently separating technology from the social world... only to reinsert it by asserting that this autonomous force is the privileged mechanism for bringing about change” (Webster 2002, 272).

Technological change does not result in social change, and arguing that technological advancements create social advancements is incorrect.

Unfortunately, those who argue that the information age has arrived quantify their statements with “measures that are consonant with this determinism” (ibid.). The claim that we have arrived in the information age is proven by counting phenomena assumed to signal the arrival of a new age, like in the work of Manuel Castells and the predictions of Daniel Bell. This includes information technologies, economic value of information, the increase of information occupations, the spread of

information networks, the growth of information flows, or a growth in signs and signification (Webster, 2002). The information age can be quantified by simply saying that there is more information and information technology than before. Webster claims that these arguments to quantify the information age do not signal a qualitative transformation, namely the emergence of a new age or society.

While Webster does critique the conclusions drawn by information age theories, he has recognized the importance of information age discourse as a "major reference point for thinking about the information domain and associated technological innovation" (Webster 2005, 441). Webster praises the ambition of Bell and Castells and their respective grand narratives, calling Bell's *Post-Industrial Society* an "impressive achievement" that addressed the implications of information "beyond the recondite realms of Library Science" (Webster 2005, 443). Similarily, Webster praises Castells for "helping us reconceive the current era" (Webster 2005, 446) using the metaphors of network society and flows of information. Webster does not agree with their investment in technological determinism, but recognizes the need for grand narratives and conceptual frameworks.

Krishan Kumar's *From Post-Industrial to Post-Modern Society* (1995) challenges the theories of Bell's post-industrial society and Lyotard's post-modern age. Kumar places the information age within the intellectual tradition of liberal thought rising out of the Enlightenment:

> "the concept of the information society fits in well with the liberal, progressivist tradition of western thought. It maintains the Enlightenment faith in rationality and progress. Its current exponents belong generally to the centre of the ideological spectrum. To the extent that knowledge and its growth are equated with greater efficacy and greater freedom, this view, despite its pronouncement of a radical shift

> in social arrangements, continues the line of thought created by the Enlightenment positivists" (Kumar 1995, 3).

Kumar argues that the information age rhetoric manifests itself from a trajectory of liberal ideology. Knowledge and the expansion of knowledge is equated with greater efficacy and greater freedom.

Kumar's analysis posits that our current society, whether called post-industrial, post-modern, knowledge-based, or information-based, follows the Enlightenment rationale of progress through knowledge. As a concept, the information society is a manifestation of an existing social model, where progressively increasing knowledge creates a better individual and thus a better society. Improving knowledge, which also manifests itself through technology, means greater efficiency, greater productivity, greater freedom, and ultimately greater lives for all. Kumar asserts that society continues to operate under the ideology of Enlightenment rationale - the proliferation of knowledge creates greater freedom, and greater freedom means a better world. Knowledge and its ability to empower a society become the basis for a better tomorrow. This understanding of social progress is an ideology of Enlightenment liberal thought, not a product of the information age.

Kumar further argues that we have not made a radical economic shift either; instead we are becoming further entrenched in the principles of capitalist industrialism. For Kumar, the information explosion is not revolutionary, and "has not produced a radical shift in the way industrial societies are organized" (Kumar 1995, 154). Profit, power, and control are still the primary structures of our society "and seem as predominant now as they have ever been in the history of capitalist industrialism" (ibid.). Kumar argues for a new category, "informational capitalism,"

although he himself is somewhat uncomfortable with the term. Information capitalism describes an economy where information technology and the proliferation of information creates a hybrid form of capitalism, where the rapid exchange of information attaches itself to the familiar edifices of profit, power, and control.

Kumar further argues that scholars have a fascination with defining a new era and claiming a new vision of society. This has proliferated extensively in the last quarter century, but a critical reflection of these new labels is largely non-existent. The power of discourse for terms like post-industrial, or knowledge economy is profound, as these terms have taken lives on of their own. These are less about social reality and more about scholarly reality - a notion of an age becomes popular, and suddenly an entire generation of scholars embraces the rhetoric. And rightfully so; the discourse of a new reality is seductive. Being the first to label an era or define an age carries major academic fame. The inertia of those claims also creates interesting avenues for new scholarship.

Fredric Jameson's *Postmodernism, or, the Cultural Logic of Late Capitalism* (1991) rejects the concept of post-industrial society, choosing late capitalism to define the current era. "We are still manifestly, according to Jameson, in a capitalist world" (Kumar 1994, 138). Late capitalism signifies the "continuity with what preceded it rather than the break, rupture, and mutation that concepts like 'post-industrial society' wished to underscore" (Jameson 1991, xix). Like Kumar, Jameson argues that the current era should be viewed as a continuation rather than a departure. While post-industrial society presumes a radical break in the form of capital, Jameson affirms the continuity of Marx's theory of capital (Felluga, 2003). However, Jameson

acknowledges that late capitalism marks an era where information and communication technologies will occupy a significant position in the economy.

Jameson argues that the rise of networked computers represent an emergent trend of capitalism - the new informational or computer technology stage. This stage is important for its ability to reproduce and automate the process of reproduction. Computers, for Jameson, represent a system of automation and reproduction that enable a new capacity for consumption: consumption for the sake of consumption (Jameson 1991, 276). This operates in two ways: consumption of similar advertising or market focused messages through a new medium, and consumption of the new medium itself. The computer itself represents a "technological bonus of pleasure afforded by the new machinery and, as it were, symbolically reenacted and ritually devoured at each session of official media consumption itself" (ibid). Thus, the networked computers both reify and create a new market, the existing market mediated through computers and an emergent market for computers themselves.

Although his work preceded the mass popularity of the internet, Jameson's representations for the role of networked computers in late capitalism provide a glimpse of the future. Jameson describes the post-industrial society as an immense communicational and computer network representing a "distorted figuration of something even deeper, namely, the whole world system of a present-day multinational capitalism" (Jameson 1991, 37). Jameson posits that the technology of contemporary society also provides a "privileged representational shorthand for grasping a network of power and control even more difficult for our minds and imaginations to grasp: the whole new de-centered global network of capital

itself" (Jameson 1991, 38). While Jameson is partly concerned with this network as a system of surveillance, the de-centered global network of capital has implications for a global economy connected through the internet.

The Technology Gurus

There is another group of contributors to the world of information age discourse, the technology gurus. Exemplified by the work of Nicholas Negroponte and Ray Kurzweil, these zealots of the information age are convinced we have embarked on a new era. Negroponte's *Being Digital* (1995) announced nearly 15 years ago that "we are undoubtedly in an information age" (Negroponte 1995, 11). This group is slightly different from the theorists of the information age – they are convinced we have already arrived. Their proof is the mass proliferation of information and communication technologies.

Negroponte's proof that we've arrived in the information age is the increase in *stuff*: computers, cell phones, digitized movies, video games, and all other products associated with "being digital." The most important increase is the *stuff* itself, or information. His main argument in *Being Digital* is that information is transforming from atoms to bits. Atoms are traditional packages of information: newspapers, magazines, and books. Negroponte argues that the world's economy in 1995 was primarily measured in terms of atoms. Bits are the emerging form of information: 1s and 0s with no color, size, or weight traveling at the speed of light and accessed by anyone at anytime. Bits are reproducible and fluid, particularly through a network like the internet. Negroponte believes that atoms will be completely replaced by bits,

and bits will combine with other bits to constitute different forms of media we cannot yet conceive. This new media will in turn create a new reality, a digital life.

For Negroponte, this digital life needs a further evolved label - "the post-information age." "The transition from an industrial age to a post-industrial age or information age has been discussed so much and for so long that we may not have noticed that we are passing into a post-information age" (Negroponte 1995, 163). Post-information age life is defined by constant network access with access to all information at all times: anything, anytime, anywhere. Negroponte's utopian network (the internet) "will be in the mainstream of everyday life. Its demographics will look more and more like the demographics of the world itself. The information is more than a short cut to every book in the Library of Congress. It is creating a totally new, global social fabric" (Negroponte 1995, 183). This new global network provides free access for everyone - a utopian dream of a new world.

Ray Kurzweil's *The Age of the Spiritual Machines* (1999) is a futurist account of artificial intelligence and its impact on the human consciousness. Kurzweil, in great detail, predicts that computers with human-level intelligence will be available by 2019, and humans and computers will eventually co-evolve, creating a singular intelligence. In 2099, the furthest predicted period for Kurzweil, he assumes that "human thinking is merging with the world of machine intelligence that human species initially created... The concept of what a human is has been significantly altered" (Kurzweil 1999, 234). The distinction between human and machine is negligible, after a co-evolutionary period spanning the 100 years since the release of

his book. After creating microprocessors, with their ever-increasing capacity for computations, humans began an inevitable path of integration with machines.

Kurzweil bases his predictions on the technological history of humanity. Creator of the Kurzweil Reading Machine in 1976, Kurzweil developed the first computer-based text recognition software. His investment in the significance of technological advancements is understandable, which he documents in a meticulous timeline of the Universe. Spanning from 10-15 billion years ago until 2099, the majority of the timeline focuses on technology (particularly after the Industrial Revolution) from the water clocks of China to the spinning wheel in Europe to the automatic calculating machine to the telephone to the personal computer and so on. Kurzweil is fascinated by Moore's Law, the theory that the capacity of circuits would increase exponentially every 2 years, which has become popular for predicting the growing capacity for computer processors. Using Moore's Law and his amalgamated history of technology, Kurzweil believes that our technological capacity will continue to grow exponentially making a hybridized intelligence between humans and machines an inevitability.

Both Negroponte and Kurzweil are subject to technological determinism - the belief that technology dictates society. Although they are operating at different magnitudes of determinism, with Kurzweil's predictions extending to human evolution, their visions articulate a new reality created by machines. Negroponte's utopian internet reassembles the global social fabric by liberating information, reconstructing a world currently built on scarcity. Kurzweil's spiritual machines combine human intelligence with machine intelligence, reconstructing a world

limited by the human condition of temporal/bodily existence. Technological advances enable both realities, not by social revolutions or even technologies developed for specific social reasons. The technology enables social change, rather than social change being enabled by technology. These technology gurus are yet another group proclaiming that we have entered a new era; for Negroponte it is the information age evolving into the post-information age, and for Kurzweil, it is a post-human fantasy world.

III. Analysis

Power in the Information Age

Foucauldian discourse analysis primarily focuses on power. According to Foucault, an examination of discourse (text) reveals the relationships of power and knowledge on a particular topic. Ironically, this study examines information as a site of power, which Lyotard also called knowledge. In Foucauldian terms, this section analyzes the power relations of information by analyzing information about information.

Defining Information

Information is defined by the Oxford English Dictionary with several meanings, but most relevant to this analysis are:

> "3a. Knowledge communicated concerning some particular fact, subject, or event; that of which one is appraised or told; intelligence, news; specifically contrasted with data; 3d. As a mathematically defined quantity; now especially one which represents the degree of choice exercised in the selection or formation of one particular symbol, sequence, message, etc., out of a number of possible ones, and which is

> defined logarithmically in terms of the statistical probabilities of occurrence of the symbol or the elements of the message." (OED Online, 1989)

The slippage within these definitions is significant. In definition 3a there is a clear distinction between information and data; Dopping's *Computers and Data Processing* (1970) notes "a distinction is *sometimes* [italics mine] made between data and information by calling raw facts in great quantity 'data', and using the word 'information' for highly concentrated and improved data derived from the raw facts" (14). Shannon and Weaver's *The Mathematical Theory of Communication* (1949) cite their definition of information as a "special sense that must not be confused with its ordinary usage. In particular, information must not be confused with meaning" (99). They argue that two identical messages, one with is true and the other, which is nonsense, can be equivalent as information.

What exactly is information then? If information is knowledge sometimes comprised of individual bits of data, then information must also sometimes be simply data, or raw facts. Also, if information is a mathematically defined quantity representing a choice, then sometimes information can be either factual or nonsense: "Information in communication theory relates not so much to what you do say, as to what you could say. That is, information is a measure of one's freedom of choice when one selects a message" (Shannon and Weaver 1949, 100). What can be said about information is that it is murky, amorphous, and contradictory. Definitions of information contain noteworthy slippage.

Information is amorphous in its location. Another competing definition in the Oxford English Dictionary hints at the location of information:

> "3c. Separated from, or without the implication of, reference to a person informed: that which inheres in one of two or more alternative sequences, arrangements, etc., that produce different responses in something, and which is capable of being stored in, transferred by, and communicated to inanimate things" (OED Online 1989).

This can include information being contained in a television picture, the nervous system, the genetic code, a book, a computer disk, an atom, or an amino acid. Information is everywhere, located in animate and inanimate objects, and both separate from and contained within its point of reference. Information is storable, transferable, communicable, and inheritable.

The Oxford English Dictionary contains several competing definitions of information based on its conceptual function. Information in these definitions represents knowledge (3a), a communicated message (3d), and a natural intelligence (3c). What constitutes the "size" of information, whether raw data or a larger "bit," is open to interpretation: "Information (in the special sense required in communication theory) may be measured in bits" (Carroll 1953, 200). Unfortunately, the OED has failed to include the recent definitions of information that have emerged from LIS scholarship.

Library and Information Studies scholarship has redefined information as something far more nebulous: "information seems to be everywhere... but no one seems to know exactly what information is" (Fox 1983, 3). Brenda Dervin introduced the sense making school of information based on her work in information seeking behaviours. Dervin's sense making theory represents a user focused body of scholarship in LIS. She defined sense making as "how people make sense of their worlds" (Dervin 2003, 223). Sense making information enables individuals to make

sense of their world and move between external information (objective, incomplete) and internal information (subjective, individual). Dervin's definition is important for its recognition of the way people become informed by their own internal sense making processes. This does not restrict information to external sources or privilege formal information sources (books) over informal sources (friends, relatives).

Carol Kuhlthau's information search process (ISP) continues the work of Brenda Dervin's sense making and the focus on the user. In her influential "Inside the Search Process: Information Seeking from the User's Perspective" (1991), Kuhlthau defines ISP as "the user's constructive activity of finding meaning from information in order to extend his or her state of knowledge on a particular topic of problem. It incorporates a series of encounters with information within a space of time rather than a single reference incident" (Kuhlthau 1991, 361). Information use has often been promoted from the system's perspective and "concentrated retrieval questions that best match the system's representation of texts rather than responding to user's problems" (ibid.). Information for Kuhlthau operates within a sense-making context: information is transformed into meaning, which is then assimilated into an individual's world. Individuals actively search for meaning through information, but the information operates within a process of sense making.

Another popular definition of information in LIS emerged around information as thing. Michael Buckland created a widely cited typology that details the use of "information" as a term in three categories (Buckland 1991). First, he defined *information as process*, when someone is informed and what he or she knows has changed. Second, he defined *information as knowledge*, information as the

knowledge itself within the informing process. Third, he defined *information as thing*, objects of information such as documents or data, which are regarded as information because they are informative. Buckland argues that information as knowledge is intangible and must be represented in some meaningful way for communication and exchange. Information is best represented as thing, because information requires an embodiment for exchange, particularly with information systems. Following the work of Buckland, McCreadie and Rice (1999) defined information as thing as a resource or commodity "that can be produced, purchased, replicated, distributed, manipulated, passed along, controlled, traded, and sold" (McCreadie & Rice 1999, 42).

Several other definitions of information have emerged within LIS and its related fields (Belkin 1978; Case 2006; Fox 1983; Schement 1993; Wellisch 1972). For the purposes of this analysis, Buckland and McCreadie & Rice's definition will be used. Information as thing is a commodity, and more importantly, a highly exchangeable, transferable, and manipulatable commodity. Information as commodity best reflects a central tenant of the information age discourse - information as capital.

Information as Capital

The defining characteristic of the information age is the transformation of the industrial economy into the information economy. Beginning with Daniel Bell's aptly named post-industrial society, the new era is defined by a shift in capital. Information is the new commodity, the new capital, the new unit of exchange, and thus a new form of power. While the proposed theories of the information age differ in their

scope, information as new form of capital remains consistent. This shift is crucial, imbuing information as thing with a significant power.

Daniel Bell defines information as

> "an intellectual property, attached to a name or group of names and certified by copyright or some other form of social recognition (e.g. publication). This [information] is paid for - in the time spent in writing and research; in the monetary compensation by the communication and educational media... it is a coherent statement, presented in a book, article, or even a computer program, written down or recorded at some point for transmission" (Bell 1974, 176).

Information as capital is embedded in Bell's definition, which subsequently associates information with power. Information is a product, protected as intellectual property, with inherent monetary value. The proposed shift from industrial to post industrial societies is contingent on a shift in production. Industrial factories and the production of material goods as the major sector in the economy are replaced by the information factories and the production of information goods. Power is relocated from the industrial sector to the information sector. The worker in Bell's post-industrial society produces information capital instead of industrial capital, but the mechanisms of production remain - worker creates product. Information as capital replaces industry as capital, which according to Bell would have profound social consequences. The shift in capital signifies a shift in power, which Bell believes will cause a shift in society.

Lyotard identifies a similar power shift, but defines information as commodity more explicitly. Lyotard's focus differs from Bell by emphasizing the exchange of power through the exchange of information. "Knowledge is and will be produced in order to be sold, it is and will be consumed in order to be valorized in a new

production: in both cases, the goal is exchange" (Lyotard 1984, 4). Lyotard distinguishes between knowledge and information: knowledge is reduced into "quantities of information" (ibid) creating "informational commodity" (Lyotard 1984, 5). Power within knowledge is atomized into information to improve its exchange. Capitalism is based on exchange, Lyotard argues, and reducing knowledge goods into smaller "bits" increases the efficiency of exchange. Information is a unit of exchange: by taking knowledge and extracting its use, information is a more efficient commodity. Information is easier to exchange, easier to distribute, easier to create, and easier to consume. "The true goal of the system, the reason it programs itself like a computer, is the optimization of the global relationship between input and output - in other words, performativity" (Lyotard 1984, 11). Performativity here means the efficiency of exchange. The simplification of knowledge into information encourages highly efficient exchange of capital.

The detractors of the information age also recognize the power inherent in information as capital. Their arguments against the theories of the information age do not question the power of information as capital, but rather dismiss the social projections accompanying this new dominant form of capital: "information is of key importance to the modern world... [but] its form and function is subordinate to long-established principles and practices" (Webster 1995, 7). The point of disagreement between the information age theorists and their detractors concerns the transformative effects information as capital will have on society. Webster dismisses the arrival of the new era and its social consequences as a result of technological innovation, citing these arguments as technological determinism, which will be discussed in further

detail shortly. Kumar and Jameson argue that information as capital is participating in familiar power relationships in the latest incarnation of capitalism. However, neither Webster, Kumar or Jameson question the mass proliferation of information and information communication technology, or information as capital and its proliferation within a computerized society, or the shift from an industrial power structure to an information power structure.

Information in Transit: The Dilemma of Information versus Information Technology

At the dawn of the modern internet (1996), the discourse of the information age shifts. The focus of information as capital begins to transform from a tangible product protected by intellectual property rights to the infrastructure of distribution. Information as capital is no longer localized within media like books or magazines. Information has a new portal for distribution - the internet. What emerges is an amorphous totality of information as capital - the information flow.

Manuel Castells introduced a new understanding of information as capital. He redefined the power of information capital in its distribution rather than its production. The infrastructure of the network and the distribution of information was more important than the information itself. “The network is the unit... Networks process flows. Flows are streams of information between nodes circulating through channels of connection between nodes” (Castells 1996, 3). Information as capital does not have specific power. Rather, access to information within the network is the site of power. This creates a new metaphor for information. Rather than being contained within a locality, information becomes an amorphous cloud, accessible

through the network infrastructure. The potential to access information in its totality becomes possible provided that information is contained within the network. The rise of the internet made that vision possible, spawning the work of Castells.

Negroponte and Kurzweil also emphasize the power contained within network infrastructure. In Negroponte's digital world, the distribution of information as bits and bytes requires the structure of the network. Without the network, the free exchange of information and ideas, on the way to the utopian future, is not possible. Similarly, Kurzweil's proposed singularity, the point at which humans and machines converge into a single entity in 2099, requires the infrastructure of the network for humans and machines to coalesce into a single being. The singularity is a complex interconnectivity between information and information technology, where one reality emerges from the combined consciousness of humans and machines working together. While this theoretical stream is rather extreme, particularly with Kurzweil, the difficulty in separating information from information technology is crucial. Power within these proposed societies exists within the complex interrelationships of information and information technology.

This blurring between network infrastructure and information creates a dilemma: what is the difference between information and information technology? Information technology (computers and networks) is required to access information contained within said networks. Information technology enables the structure of information, and without the technology, the rapid distribution of information would not be possible. However, this ignores the foundation of the network - the information itself. Without the information itself, access to the network would be unnecessary. A

comparable example would be creating the infrastructure for television but not broadcasting any television programs. Without the content, the network is useless. The site of power exists within the relationship of these concepts rather than simply the infrastructure or the information itself.

Conversely, improving network infrastructure and increasing the distribution and production of information engages more individuals with said information. Faster computers and faster networks increase the transferability of information. Without the infrastructure of information technology, information as commodity is difficult to distribute. The ever expanding capacity to distribute information contributes to the flows of information.

The distinction between information and information technology (networked computers) is difficult to distinguish in information age discourse. Separating information from information technology is difficult - information as content is necessary to populate the flows of information. Conversely, the increasingly rapid transfer, creation, distribution, manipulation and marketing of information requires an increasing capacity in the technology for distribution. Following the work of Foucault, the proper question to ask is not which is more important, but recognizing the concurrent influence that information and information technology exercise on the discourse of the information age. The power of information requires the network, and the power of network infrastructure requires the information.

Technological Determinism

Frank Webster's critique of the information age was its meta-discourse: technological innovation results in social change. Webster observed that information age discourse is prone to technological determinism, the belief that technology is a driving force of history: "a technical innovation suddenly appears and causes important things to happen" (Smith & Marx, 1994, x). Technology, in this understanding of history, plays a decisive role and often a causal role. "A complex event is made to seem the inescapable yet strikingly plausible result of technological innovation" (ibid, 11). This is typified by sentences like "The automobile created suburbia", "The robots put labourers out of work", or "The Pill produced a sexual revolution". This position is troubling for its reductive stance, ignoring the socio-economic, political, cultural, ideological, or other major factors that define an era. Rosalind Williams summarized technological determinism as a three-word logical proposition: "Technology determines history" (Williams 1994, 218). And, like all good historians who oppose technological determinism, she refuted the concept by citing myriad other influences on history (socio-economic factors, political factors, etc.).

The power of the machine and the genius invention is nothing new for Western culture. The machine as agent of change is pervasive in modern history. Smith & Marx argue that the machine-as-agent is embodied in a series of fables, with "a simple yet highly plausible before-and-after narrative structure" (Smith & Marx, 1994, x). The compass, for example, enabled Columbus and his fellow explorers to cross the Atlantic and colonize the New World. Navigation equipment is seen as a

necessary pre-condition and cause of European colonization. Similarly, the printing press has been cited as a cause of the Reformation. Before Gutenberg, copies of the Bible were restricted mainly to the clergy, but the mass production of Bibles allowed laypeople to gain direct access to the word of God, fueling the Reformation and the rise of Martin Luther. Similar narratives exist around the cotton gin and the American Civil War, as well as the atomic bomb and World War II.

The discourse of the information age centers around the computer. Although his work centered more on information as human capital, Daniel Bell's early conceptions of the information age experienced a renaissance with the rise of the microprocessor. The computer became a site of power in his emergent society, as an interface for the new knowledge economy. Similar to Bell was Jean-Francois Lyotard's vision for the reproduction of information through new computerized media. Lyotard argued that the emergent knowledge-economy was possible through the mass production of information, again mediated through computers. Although these theorists did not imbue direct agency or power on the computer, production and distribution of capital in their knowledge-based economies relied on the technology.

The information age theorists most invested in technology-as-agent were those of the mid-to-late 1990s. As the first web browsers emerged and computers became more pervasive in industrialized countries, the causal relationship between social progress and computer-enabled technology became a popular argument. The explicit recognition of computers as sites of power became pervasive within the discourse. Castells's discussion of information flows argued that networks had fundamentally altered our society. Computer networks, Castells argued, were

recreating existing social networks within a technological infrastructure to produce new power relationships as information flows. These flows created a new kind of exchange, removing physical and geographical boundaries and enabling a system of instantaneous transfer. This transfer included both knowledge and information, but also community and identity. While Castells does not attribute specific agency to networks, his arguments for networks as the site of power for a new social reality, namely globalization, erred towards technological determinism.

Similar arguments for the transformation of society through the rise of the network are made by Negroponte and Kurzweil, but with far more power attributed to the network infrastructure than Castells. Negroponte argues that an all-encompassing network will create a utopian future, where individuals will have access to all information at all times. This network will serve to create a "totally new, global social fabric" (Negroponte 1995, 183). Kurzweil takes Negroponte's enthusiasm and investment in the network infrastructure a step further, placing the network on an evolutionary trajectory. He predicts that the development of computer-based technology and human evolution will converge, creating a technology-infused human hybrid existing in something resembling a state of unity. Kurzweil even predicts that this technology enabled singular consciousness will emerge within 100 years of his writing (in 1999).

While Bell's and Lyotard's information age projections indirectly invoke computers as sites of power, they lack the amplitude of Castells, Negroponte and Kurzweil (on an increasing scale of amplitude). According to the school of technological determinism, the work of the post-microprocessor theorists is guilty of

reductive arguments. These theorists are all participating in a vision of humanity where technology has a significant power. However, this is another instance of confusing information and information technology.

The causal relationship of technology determining history is simplistic and does not accurately reflect the predictions of information age theorists. Bell and his followers foresee new social arrangements that have been enabled by information technology, specifically around the reproduction and transfer of information. The desire to exchange information has not been determined by the technology, but rather the technology has enabled the exchange of information to occur more efficiently. Webster argues that these theories err towards technological determinism, but he has failed to recognize that the computer is not the proposed site of power - information and its free exchange through networks is the site of power.

Webster gestures towards a different problem within information age discourse, but has mislabeled the phenomena as technological determinism. Information age discourse is heavily invested in the narrative of technology as an agent of change, with the arrival of microprocessors and networked computers improving the access, distribution, and consumption of information. But the emphasis is on information - creating an efficient method for accessing and distributing information requires information as thing. Without the stuff, the distribution network is useless. Information as capital, highly fluid capital within the network, is the source of power.

IV.Conclusion

The discourse of the information age reveals a concept in flux. There is no consensus definition of the information age: Bell describes an information economy; Lyotard describes as a post-modern relationship to knowledge; Castells describes a networked society; Negroponte describes a digital culture; Kurzweil describes a utopian singularity; Webster rejects projections and proofs for transitions; Kumar asserts a continuation with Enlightenment philosophy, and Jameson describes an emergent form of capitalism. The resonant point through these analyses is the power of information. Even for those who reject the information age, information has power.

The rise of the term information age has a specific history, coinciding with an increasing amount of information technology. Bell's work re-emerged with the growth of microprocessors (personal computers being the best example), and his vision of a new workforce enabled by these new technologies seemed like an obvious conclusion. Suddenly, personal computers began appearing in offices, and then homes, throughout industrialized Western countries. This seemed like a signpost for a new kind of society, one mediated by technological advancements. The rise of the internet brought similar conclusions - a network of computers giving users potential access to unfathomable amounts of information. The world seemed to be shrinking, forming new communities, new identities, and new possibilities mediated through new information and communication technologies.

The new social realities predicted by Bell, Lyotard, Castells, Negroponte, and Kurzweil have not come to pass. Nor should they have come to pass - no theorist can predict the future. Rather, these theorists are reacting to a technological phenomena -

the capacity for information production and distribution has increased. Information "stuff", that is information itself and information technology, is expanding and improving at a rate previously unknown. This could have profound effects on society and culture, but the specific manifestations of social and cultural change are not important. Recognizing the information explosion is important. Information is a site of power, and being aware of information-as-thing is important for a culture with an increasing emphasis on information/information technology.

This chapter discussed the discourse of the information age. The next chapters examine the discourse of the information age in two manifestations: Chapter 4 – The Information Age and Information Literacy; and Chapter 5 – The Information Age and Social Networking Websites. As academic and public manifestations of information age discourse, information literacy and social networking websites participate in their own discourses and co-construct the larger discourse of the information age. These chapters discuss this co-construction of information age discourse.

Chapter 4 - The Information Age and Information Literacy

I. Introduction

Responding to the emergence of the information age, American libraries adopted a new approach to empower library patrons – information literacy. Information literacy is defined as "the skills to use and locate information in a variety of formats, and the intellectual ability to evaluate such information, as techniques or 'tools' essential for a successful adaptation to the rapid social and technical changes that we will all face, we are told, throughout our lives" (Pawley 2003, 423). Information literacy encompasses both the location and evaluation of information, in an age where "information is expanding at an unprecedented rate" (What is Information Literacy). Information literacy has been portrayed as competencies for the information age.

Information literacy is the American Library Association's reaction to the information age, reframing existing library competencies into a more general skill set for general information use. The principles of information literacy reveal the library slant on the information age: democratic participation, fair and equal access, and empowering users. Within LIS discourse over the past decade, a rift emerged between information literacy scholars: the Utopians argued that information literacy would uplift a generation of citizens to participate in the information age, while the Skeptics argued that information literacy needed to question its foundations and understand the dominant power structures within an emergent information age. Neither group questioned the arrival of the information age, but interpreted its arrival through

specific critical lenses. The objective of each group was identical: empowering users in a new era.

This chapter examines the discourse of information literacy and its role in constructing the discourse of the information age. By examining the debate between Utopian and Skeptic information literacy scholars, this analysis traces the assumptions of LIS scholarship within the context of the information age.

II.Literature Review

The term information literacy first appeared in 1974 in Paul Zurkowski's "The Information Service Environment: Relationships and Priorities." Zurkowski defined information literacy as "techniques and skills for utilizing the wide range of information tools as well as primary sources in molding information solutions to [a set of] problems" (Zurkowski 1974, 6). Zurkowski's work called for critical engagement with information, believing this was vital for an emerging information economy. He asserted that the National Commission on Libraries and Information Science should establish a national program to achieve universal information literacy by 1984. This recommendation was not followed.

Information literacy re-emerged and entered the mainstream of Library and Information Studies in 1989, when the American Library Association created a Presidential Committee to develop a report on information literacy. Their report concluded that information literacy is crucial for the information age, particularly for social development. While this report was prone to hyperbole, the metaphor of the new era is significant. The information age is a new reality, and dealing with this

reality "will have enormous impact on our democratic way of life and on our nation's ability to compete internationally" (American Library Association Presidential Committee on Information Literacy, 1989). As individual citizens and as a nation, information literacy is critical for success. While the report does not explicitly define the information age, the acceptance of the new era is resounding. This report was subject to the discourse of the era; the fervor of the information age, the post-industrial society, the knowledge economy, and the information society, (or any of its other myriad names) created a movement within the American Library Association. At the time, the possibilities of networked computers were still unclear as the modern web-based internet had yet to emerge. But like its theoretical predecessors, this report claims a vision of a new society; a new era with many exciting possibilities. This was the beginning of the popular information literacy movement.

"Information literacy has thus far been mostly a practical and strategic concept guiding the library field's efforts in teaching information seeking and using skills" (Tuominen et al. 2005, 329). In 1989, the American Library Association (ALA) created the National Forum on Information Literacy (NFIL). The NFIL defined information literacy as "the ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information" (NFIL, n.d.). The plan was to empower library users by teaching them these skills, under the instruction of library professionals trained in information literacy education. Libraries across North America began adopting information literacy programs en masse in the mid-to-late 1990s using the Information Literacy Competency Standards published by the ALA. The major target group for this

program is students, which are divided into two groups – grade school students and post-secondary students. The program has been deemed as an invaluable resource for students, and subsequently adopted by many American school boards and most major American universities following the initial wave of supporters. The major site for these information literacy programs is the school library (or university library). As a guidebook for instructors (mostly librarians), Information Literacy Competency Standards contains clearly defined standards for both grade school students and post-secondary students, with clear student deliverables such as "organizes information for practical application" and "determines accuracy, relevance, and comprehensiveness" (American Library Association, 2009).

Two Camps Emerge

Two major schools have emerged within LIS scholarship concerning information literacy: Utopians and Skeptics. Beginning with Shapiro and Hughes' Utopian manifesto "Information Literacy as a Liberal Art" (1996), a large body of scholarship has explored the question of information literacy. Utopians have celebrated the arrival of information literacy, and Skeptics have questioned the validity of this emergent field. Despite the conflicting ideologies of the two groups, neither group questioned the arrival of the information age. The embrace of the information age and the new consciousness of information literacy reverberate throughout the literature, even between opposed ideologies.

The Utopians

The utopians (the American Library Association, 1989; Shapiro and Hughes, 1996; Mutch, 1997; Johnston and Webber, 2006; Ward, 2006) believe that information literacy offers an opportunity for social and economic equality. A society where information capital has surpassed industrial capital will reduce the inequalities of previous goods-based economies and encourage open and equal access. Creating change within society requires citizens to be information literate, and the new critical consciousness and understanding of information will change the world as we know it.

The Utopian manifesto of information literacy was published in 1996 - Jeremy Shapiro and Shelly Hughes' "Information Literacy as a Liberal Art" (1996). Retrospectively, this article is a pivotal moment in information literacy's history, marking the emergence of widespread information literacy discourse. Shapiro and Hughes proclaimed that

> "information literacy should in fact be conceived more broadly as a new liberal art that extends from knowing how to use computers and access information to critical reflection on the nature of information itself, its technical infrastructure, and its social, cultural and even philosophical context and impact – as essential to the mental framework of the educated information-age citizen" (Shapiro and Hughes 1996, 3).

The information-age citizen is the new subject, and participation in the new information age requires a new consciousness. Information literacy equips individuals to think critically about information, which Shapiro and Hughes believe "is part of what it means to be a free person in the present historical context of the dawn of the information age" (ibid.). Again, the rhetoric of the information age resounds - a new consciousness for a new era is necessary for participation as a citizen. The shift happens at both a personal and social level, similar to the ALA's coupling of

individual and nation, and the necessity of information literacy standards as a response to the information age and democratic participation.

Shapiro and Hughes argue that information literacy enables individuals to adapt to a society-in-flux. Rather than teaching individuals how to use information and information technology, information literacy would equip individuals to think critically about information generally. This critical concept, information literacy as a requirement for participation in the information age, is consistent amongst Utopians. Their metaphor describing information literacy revolves around the "new consciousness" or "critical consciousness." The new consciousness involves teaching citizens to effectively use information, which would liberate our society through knowledge: "If the information society is to be a free and humane one… let us contribute to liberty through advancing citizen's knowledge, through democratizing education. Let us design a comprehensive, multi-dimensional and thoughtful information literacy curriculum" (Shaprio and Hughes 1996, 5-6).

Knowledge as liberator and force for democracy is not a new idea for librarians. The American Library Association's policy on intellectual freedom has promoted similar ideals since the 1930s. Louise S. Robbins' Censorship and the American Library: The American Library Association's Response to Threats to Intellectual Freedom, 1939 – 1972 (1996), outlines the development of intellectual freedom as a central tenet of American librarianship. Robbins classifies America in 1939 as "characterized by a confidence in the American democratic form of government… Political intellectuals of the period painted a picture of a unique American pluralist democratic system characterized by a diversity of special-interest

groups all competing on a level playing field" (Robbins 1996, 2). The American political climate of this period established a unique opportunity for libraries, promoting a multitude of information from a multitude of cultures. Freedom of information was central to American democracy and social participation. This political ideology also promoted the value of libraries as political entities. "The pluralist democratic value of primacy to libraries, as part of the system of communication and as institutions 'to educate for democratic living" was the value of free expression, the so called free-marketplace of ideas" (Robbins 1996, 3). Libraries, and the promotion of intellectual freedom, function as democratic institutions.

Intellectual freedom and information literacy are closely connected. The relationship between these two movements and socio-political participation is strikingly similar. In the 1930s, intellectual freedom was considered essential for participation in the American pluralist democracy. Knowledge enabled a citizen to participate in the democratic process, and limiting knowledge through censorship would impede the democratic process. Similarly, information literacy has been called "part of what it means to be a free person in the context of the dawn of the information age" (Shaprio and Hughes 1996, 3) and "a prerequisite for participating efficiently in the information society" (Information Literacy Meeting of Experts 2003). Participating in the information age requires information literacy, giving information literacy substantial power as a core competency for social participation.

The rhetoric of information literacy creating a new consciousness also appears in Mutch's "Information Literacy: An Exploration" (1997), which argues that information literacy operates at the level of 'meta-cognition.' "A key to the effective

use of information is not only a conscious recognition of the relationship with knowledge but also a critical awareness of the factors surrounding knowledge production" (Mutch 1997, 386). By taking a step beyond the relationships of knowledge, information literacy promotes a critical awareness beyond the primary relationship of user-information. Addressing how information literacy might be used within a "business field," Mutch argues that information literacy empowers people to think more critically about information retrieval and production. This critical awareness, rather than information technology, enables a learning organization.

Dane Ward, Associate Dean for Public Services at Illinois State University, describes information literacy as positively changing the world in "Revisioning Information Literacy for Lifelong Meaning" (2006): "Many of us contend that information literacy programs must be created to make a positive difference in the world… to help students become transformed so they that they might change the world" (Ward 2006, 402). Ward speculates that information literacy is intimately connected with self-discovery, and that transforming students will lead to the uplifting of humanity. He envisions a new kind of information literacy, one that incorporates intuitive knowledge with rational thought. Information literacy then becomes a holistic device for self-discovery, allowing students to integrate their intuitive and rational selves. Again, the rhetoric of personal transformation through information literacy is paramount.

Bill Johnston and Sheila Webber's "As We May Think: Information literacy as a discipline for the Information Age" (2006) suggests that information literacy "is a necessary way of supporting citizens in this information society. If this describes a

utopia, we believe it is a necessary one" (Webber and Johnston 2006, 13). Drawing on the work of Vannevar Bush, Johnston and Webster believe that we have entered an age of information overload, and that information literacy will provide a new system of interpretation. Johnston and Webber outline information literacy as a "soft-applied" discipline; rather than applying "value free" knowledge proposed by hard disciplines (chemistry, physics, mathematics), information literacy should be value-based knowledge, reflecting the information needs of the individual. With this approach, information literacy will enhance the personal and social life of individuals by focusing on the interpretation and integration of knowledge. Again, knowledge is an enabling commodity. Information literacy improves the lives of individuals by empowering them with essential knowledge skills.

In 2003, the Information Literacy Meeting of Experts made a declaration on information literacy in Prague, in conjunction with UNESCO. The meeting was organized by the US National Commission on Library and Information Science and the National Forum on Information Literacy, representing 23 countries. Their basic information literacy principles include the following statements: 1. "The creation of an Information Society is key to social, cultural and economic development of nations and communities, institutions and individuals in the 21st Century and Beyond"; 2. "Information literacy is a prerequisite for participating efficiently in the information society, and part of the basic human right of life long learning"; 3. "Information Literacy... plays a leading role in reducing the inequities within and among countries and peoples"; and 4. "[Information Literacy is] a necessary step in closing the digital divide through the creation of an information literacy citizenry, an effective civil

society and a competitive workforce" (Information Literacy Meeting of Experts 2003). The overwhelming support for the information age as a transformative global development is noteworthy. According to this meeting, the information age will transform and improve the world, and information literacy is a pre-requisite for participating in this new society.

The Skeptics

The Skeptics (Pawley, 2003; Swanson, 2005; Elmborg, 2006; and Andersen, 2006) argue that the information society has arrived, but information literacy should empower people to question the dominant structures of this emergent age. The general consensus is that the information age is wrought with the same power inequalities of traditional capitalism, and the same systems of exploitation will continue in the information age. Information literacy, then, should serve as a critical awareness of the social and political nature of information. The questions raised in the literature concern the potential for adoption of radical new approaches to information literacy. These include: 1. Challenging the neutrality of education, particularly information literacy education, as informed by Paolo Freire (Swanson, 2005); 2. Understanding the socio-political nature of information (Pawley, 2003; Anderson, 2006); and 3. Engaging with different forms of literacy - "the information sciences have yet to engage with critical literacies and with the larger epistemological questions raised by new technologies and postmodern reconstructions of discipline, knowledge, and identity" (Elmborg 2006, 193).

Swanson's Information Literacy for the Oppressed

Troy Swanson's "Applying a Critical Pedagogical Perspective to Information Literacy Standards" (2005) follows the pedagogical model of Paolo Freire's Pedagogy of the Oppressed – citizens, once informed, can change society. Freire's perspective begins with the premise that education is not neutral. Education is inherently political, and generally supports the status quo. Effective education, in this model, requires an instructor to disclose their biases, and not impose their biases on students. The instructor's purpose should be guiding students to incorporate their own world-views and life experiences into their education. As an extension of education and its political nature, Swanson also explores information as a political entity. "Information is a social construct created with specific purposes. Students are often encouraged to hold on to a 'dualistic' idea of information. That is, it is either true or false. They are not encouraged to understand where information is created" (Swanson 2005, 72). Again, Swanson applies a pedagogical / critical model and encourages librarians to engage their students with questions about the social function of knowledge. Since information is primarily social, information literacy requires librarians to develop a student's critical consciousness. This critical consciousness model is nearly identical to the Utopian understanding of information literacy, aside from the rejection of status-quo society.

As students are equipped with information literacy skills, they are enabled to make informed choices and change the fundamental nature of their world, and thus the world at large. Information literacy, as a pedagogical practice, should ultimately aim to change the basis of society, allowing citizens to make rational, informed, and

critical choices. “Without the ability to command information, students will not only find themselves left out of the information economy, they will find themselves unable to have a voice in our society” (Swanson 2005, 77). Swanson warns that information literacy has the potential to support the status quo and reinforce dominant social norms on society. Instead, he sees information literacy as a subversive force, something that can topple social inequalities by empowering citizens with knowledge. This has notable Marxist undertones - using the tools of the master to challenge the inequalities of society.

Pawley and Andersen on “Information”

Pawley, borrowing from Geoffrey Nunberg, defines our modern conception of information as “morselized” (Pawley 2003, 432). “Morselization has to do with ‘quantization’ or ‘atomization’ that makes its measurement possible, so that information can be broken into small chunks… that can be disconnected and recombined, counted, stored, and retrieved” (ibid.). By breaking down information into constituent parts, information ceases to have an authorial origin, and exists as a neutral fact. Pawley identifies this trend in a number of modern print genres: “Newspapers, reference books, and library catalogs, school and college textbooks consist largely of uniform packets of information that have been taken out of context and then recombined… The voice of the author is muted: textbooks take on a disembodied, decontextualized life of their own” (Pawley 2003, 433).

Pawley rejects morselization and argues instead for the recontextualization of information. “Information never stands alone – it is always produced and used in

ways that represent social relationships. And these representations and relationships are not merely a matter of chance or individual choice but reflect the underlying patterns that structure society" (ibid.). Information always has a context and a history (and political agenda), oftentimes a very complicated history filled with overt political strategies. Information production was traditionally (and continues to be) controlled by a rigid elite, forming a "top down" system of information distribution. Experts in a particular field hold a monopoly on information and disseminate this information according to the rigors and practices of their established fields. Libraries themselves are the products of these rigid information dissemination structures. Information in this model serves as a cultural re-enforcer, creating rigid patterns of discourse that become legitimated by their network of construction. All information is constructed, and thus has an inherent bias. Information that has been legitimated, or deemed "worthy," by society (namely newspapers, textbooks, manuals, dictionaries, encyclopaedias, etc.), conforms to these inherent constructs.

Pawley argues that LIS has not effectively questioned the social structure of information use.

> "The discourse of information literacy and, indeed, of LIS in general, provides few alternatives to this dispiriting portrait of monolithic social control… LIS researchers have too often presented 'information use' as a relentlessly utilitarian activity, in which metaphors of 'searching,' and 'retrieving,' 'receiving,' and 'transmitting' prevail" (Pawley 2003, 435).

The political implication of treating information as neutral, morselized, and unbiased creates a rigid hierarchy for knowledge. The relationship between "producer" and "consumer" in this standard model posits all authority with "experts," whose work is legitimated by working within the conventions of their discipline.

As a solution, Pawley offers user-centered models of information dissemination. User centered models place the individual in the process of information construction. By viewing information as an act mediated through an individual, the reader becomes an active participant, or an agent, in knowledge – both consumer and producer. According to Pawley, this hybridization of producer as consumer and consumer as producer is crucial for challenging the dominant structures of information (Pawley 2003, 437).

Similarly, Jack Andersen's "The Public Sphere and Discursive Activities: Information Literacy as Sociopolitical Skills" (2006) argues that an information literate person should have knowledge about information sources and recognize how knowledge is politicized. Drawing on Habermas's theory of the public sphere, Anderson asserts that information is a commodity linked to production, and the author's production of text is inherently connected to that author's society. Information cannot be separated from its social and political context. Information literacy, Anderson argues, should be concerned with recognizing the socio-political bias of information. Understanding the public sphere is essential for understanding these biases.

Elmborg on "Literacy"

Elmborg defines literacy in highly political terms. Literacy "is the ability to read, interpret, and produce 'texts' appropriate and valued *within a given community*" (Elmborg 2006, 195, italics mine). Literacy, in this definition, is contingent on the given community, which could subsequently be defined as

contingent on a given world view or cultural group. This definition rejects the primacy of one literature over another and the privileging of institutionalized or high culture over common or folk culture.

Elmborg is critical of information literacy, which he believes lacks a critical understanding of "literacy." He argues that the primary goal of information literacy should be the development of critical consciousness rather than information gathering (Elmborg 2006, 192). Librarians, in this scenario, would assume the role of active educator, raising the awareness of library patrons and students (and also librarians themselves) through critical engagement with controversial topics. However, Elmborg does not feel that librarians are currently ready to undertake such a position, because they lack a basic understanding of "literacy": "the information sciences have yet to engage with critical literacies and with the larger epistemological questions raised by new technologies and postmodern reconstructions of discipline, knowledge, and identity" (ibid).

For librarians to effectively implement information literacy, Elmborg argues that they must first understand the larger political structures they participate in and reinforce. Elmborg traces this argument by defining literacy as a culturally situated phenomenon (Elmborg 2006, 193). Basing his ideas on Paolo Friere's social justice movement and critique of education, Elmborg argues that education in the west is a capitalist function, actively reinforcing the dominant political and social class through mass education. In this scenario, libraries act as "knowledge banks," holding the cultural commodity of knowledge for students to "withdraw." Students acquire

information/knowledge via traditional education models (including libraries) and "sell" their knowledge as labour in their future employment.

Elmborg's critique of libraries as "culture factories" has major implications for the social and political position of libraries. "Literate" and "illiterate," terms which define not only our society but also information literacy as a discipline, are social/political constructions based on the dominant ideology (ibid.). In a post-modern culture or multicultural context, literacy needs to evolve to include a multiplicity of definitions, with literacy being defined by a constituent community's values. Libraries should champion all forms of literacy and encourage literacy in its multiple varieties. Literacy, according to Elmborg, is a plurality, and American society normally defines literacy as a singularity – the ability to read and write according to a homogenizing education system.

III. Analysis

The Information Age is Here

Information literacy scholarship assumes that the information age has arrived. In 1989, the American Library Association's Presidential Committee on Information Literacy proclaimed:

> "No other change in American society has offered greater challenges than the emergence of the Information Age. Information is expanding at an unprecedented rate, and enormously rapid strides are being made in the technology for storing, organizing, and accessing the ever growing tidal wave of information" (American Library Association Presidential Committee on Information Literacy 1989, 1).

In response to this information explosion, the ALA identified information needs for its patrons: "Out of the super-abundance of available information, people need to be

able to obtain specific information to meet a wide range of personal and business needs" (ibid.). These information needs (for the information age) will be met by information literacy, which instructs individuals "[to learn] how to learn" (ibid.). Teaching patrons how information is organized, categorized, and classified, as well as how to find information, use information, and present information will help them participate in the proposed new era.

Information literacy bears a striking resemblance to another practice in American Libraries - bibliographic instruction. Bibliographic instruction is an

> "instructional program designed to teach library users how to locate the information they need quickly and effectively... usually covers the library's system of organizing materials, the structure of literate of the field, research methodologies appropriate to the discipline, and specific resources and finding tools" (ODLIS 2009).

These finding tools can include online catalogs, bibliographic databases, and other internet resources. The difference between bibliographic instruction and information literacy is their investment in the library - bibliographic instruction is specifically grounded in the library, focusing on teaching individuals how to use their library effectively. Information literacy is grounded in more general concepts surrounding information use.

Information literacy embodies a more generic definition around information skills, and is far less invested in the library as its contextual basis. This creates a unique space for information literacy. Liberated from bibliographic instruction's close relationship with library usage, information literacy instead becomes a skill for all information related activities. But are information literacy and bibliographic instruction different? Information literacy could be described as bibliographic

instruction for the information age, or for an era where information is increasingly available electronically. The same principles of how to use and locate information apply to both disciplines. Adopting information literacy as a practice reiterates the library's investment in the information age, by both announcing its arrival and claiming the practice as a competency in this new era.

The assumption that the information age has arrived is not questioned within information literacy scholarship. Even the critics of the information literacy movement who argue that the discipline should question the dominant power structures of the information age do not question the arrival of the age itself. Information literacy is seen as a site of tremendous power - either with the power to re-create unequal social relationships, empower marginalized groups within society, or subvert the system of social, political and economic domination. The fervor surrounding the possibilities of the new era is salient within information literacy discourse.

Redefining Information

Information literacy discourse redefines information from a user based perspective. Building on the work of Dervin and Kuhlthau, information literacy discourse has adopted a constructivist theory of learning, stressing that individuals not only seek and absorb information but also actively create sense and meaning from said information. The information literate user is not a passive receiver, but an active interpreter. Carol Kuhlthau's *Seeking Meaning: A Process Approach to Library and Information Services* (2004) argues that "the central goal of information literacy is to

instill in students a sense of the process of learning from a variety of sources of information and skills to construct their own understandings from that information" (Kuhlthau 2004, 164). Dervin (2003) similarly argues that information operates within a sense-making context. Information seeking exists within a particular time and space, enabling users to acquire information as a bridge for their own sense making process.

Both the utopians and skeptics in information literacy discourse have adopted this user-based perspective on information. Shapiro and Hughes (1996) emphasize the individual within the information age, stressing the importance of social participation enabled through information skills. Mutch (1997) encourages users to think beyond the existing relationships of user and information within the corporate world, urging the individual to understand their participation in information retrieval. Ward (2006) believes that information has the power to transform the world through encouraging self-discovery and personal growth, combining intuition and personal experience with information practices.

On the skeptical side of information literacy discourse, Swanson (2005) encourages a rejection of dualistic information. Challenging the true/false paradigm of information use, Swanson offers an individualized sense making process. Information must be scrutinized and analyzed through an individual perspective. Pawley (2003) rejects the "morselization" of information, calling for a demystification of information production. In its place, Pawley prefers a user-centered model of information dissemination, viewing information as an act mediated through the individual. Finally, Elmborg (2006) questions the basic structure of the

library itself as a knowledge/information bank, rejecting the privileging of one literacy over another. Instead, Elmborg suggests a plurality of literacies and a recognition of individuals and their cultures as necessary for social equality.

Information is a site of power in information literacy discourse, but a far different site of power from information age discourse. Information literacy defines information from the perspective of the user. Users seek information to understand their own world, to create meaning, and to participate in their society. Information as thing lacks agency, appearing inert without the interpretation by a subject. This is a decidedly constructivist approach, where individuals generate meaning from their own experience. Returning to Buckland, this is information as process - when someone is informed and what they know has changed. The proposed shift in society relies on the critical engagement with information, and the site of power shifts from information itself to the interaction between information and user.

Critical Thinking

The interaction between information and the user is possible through critical thinking. Information literacy promotes critical thinking as its cornerstone, educating individuals to understand the creation, production, distribution, and use of information. The skill set of information literacy is encapsulated in this process of critical thinking about information. Promotion of the practice is ubiquitous in information literacy discourse. Because information literacy discourse focuses on the interaction between the user and information, critical thinking is a site of power.

Critical thinking as a site of power first appears in the work of Zurkowski (1974). Information, Zurkowski argues, has a direct correlation to individual success - those who understand how to produce, manipulate, and utilize information are more successful in society. He defines information literate people as a small portion of society "trained in the application of information resources to their work" (Zurkowski 1974, 6). Information literates, as he calls them, are employed in myriad disciplines and comprise the social elite. Conversely, information illiterate people "do not have a means for the value of information, [and] do not have an ability to mold information to their needs" (ibid). These information illiterates require information literacy skills to improve their social status and reach the upper echelons of the information literate.

Shapiro and Hughes argue that information literacy comprises three competencies: 1. how to use computers, 2. how to access information, and 3. "critical reflection on the nature of information itself, its technical infrastructure, and its social, cultural and even philosophical context and impact" (Shapiro and Hughes 1996, 3). The critical reflection is strongly emphasized, which is argued to be "essential to the future of democracy" (ibid.). Shapiro and Hughes scrutinize the basic activities of production and consumption of information as the activity for pawns in the information age. Participation in the new society requires critical thinking around information. Citing goals like creating a society of liberty, advancing civilization's knowledge, and abolishing unnecessary inequality, Shapiro and Hughes advocate critical thinking as the transformative educational tool for the information age.

The project of critical thinking described by Shapiro and Hughes is embraced by information literacy scholarship. The ALA's Presidential Committee on

Information Literacy's Final Report (1998) reiterates the importance of critical thinking, and again, the rhetoric of participation in the information age is present: "Such a restructuring of the learning process will not only enhance the critical thinking skills of students but will also empower them for lifelong learning and the effective performance of professional and civic responsibilities" (ALA 1998). The language of empowerment, lifelong learning, and social participation is familiar, appearing throughout both the ALA reports and information literacy discourse.

Both the Utopians and the Skeptics believe that information literacy empowers citizens through teaching critical thinking about information. These empowered citizens can participate in the information age and improve their lives, along with improving the larger society. The difference between the two groups relates to the participatory actions of the information literate citizen. Utopians believe that the information literate citizen should celebrate the information age and utilize their new critical thinking to participate in society. Skeptics believe that the information literate citizen should challenge the information age and utilize their new critical thinking to question the power structures of society. The focus of power remains on the individual and critical thinking.

Enacting the Information Age

Information literacy is the American Library Association's response to the discourse of the information age. The information age from the perspective of information literacy is something quite different than the imagined societies of Bell, Lyotard and Castells, amongst others. Power resides with the individual rather than

information as thing. The metaphors of social change do not place the same emphasis on information commodities and a proposed shift in the marketplace. This is a user-focused perspective emphasizing information literacy as an instructional tool for critical thinking.

Promoting critical thinking is not a new concept in LIS practice. Libraries have been instructing users on the appropriate uses of information throughout the modern era. Information skills, from navigating the catalogue to selecting appropriate resources, have a specific history within LIS, notably predating information literacy with bibliographic instruction. Information literacy is perhaps best viewed as the ALA's response to the discourse of the information age. Familiar library practices were reformatted to meet the needs of the information age library user.

How does the discourse of the information age create the discourse of information literacy? Returning to Michel Foucault's understanding, discourse creates relationships of power/knowledge which become the framework for thought and action. Ideologies are always expressed in discourse, usually in texts contributing knowledge about a certain topic or area. In an era when information and information technologies are expanding rapidly, the discourse of the information age becomes seductive. The discourse of the information age, with the emergent economy, shift in the workforce, and possibilities for new social dynamics, was embraced by LIS scholars and practitioners. For Foucault, social practice is a manifestation of discourse. The creation of information literacy programs is a product of the discourse of the information age.

How does the discourse of information literacy contribute to the information age? Foucault has a different conception of power from the traditional form of repression, namely the repression of a marginalized group by an institution or other authority group. Power, for Foucault, is productive, creating new relationships and situations: "discourse, like ideology... like any text, produces subject positions which then govern individual's choices, understanding of reality, actions, and beliefs" (Klages 2006, 144). The discourse of the information age created the discourse of information literacy, which itself contributes back to information age discourse. The perpetual use of terms like information age and information society creates a complex network of meaning. Institutions like the American Library Association that adopt terms like information age reify the discourse and imbue a new series of meanings onto the term. By shaping the reality of librarians, whose very occupation is information management, the discourse of the information age was reinforced.

Discontinuity

Foucault places emphasis on recognizing origins, ruptures, disruptions, and limits in discourse. The information age has a specific origin in information literacy, beginning with the work of Paul Zurkowski (1974), later re-emerging with the American Library Association's Presidential Committee on Information Literacy (1989) ultimately leading towards modern information literacy discourse following the manifesto of Shapiro and Hughes (1996). These events mark specific discursive formations within information literacy discourse. Foucault describes these shifts in

discourse as discontinuities: “the fact that within the space of a few years a culture sometimes ceases to think as it had been thinking up till then and begins to think other things in a new way” (Foucault 2002, 56).

These three discontinuities correspond to specific points within the discourse of the information age. Zurkowski’s first mention of information literacy and its relation to the information industry immediately follows the theories of Daniel Bell (1974). While Zurkowski does not specifically mention the work of Bell, the emergence of information-related discourse in both fields is a noteworthy occurrence. While the gap between Lyotard’s *Post Modern Condition* (1984) and the ALA’s Presidential Committee on Information Literacy (1989) is slightly larger, the continuity of information age discourse creates the necessary social conditions for information literacy. Legitimating the IL movement with the emergence of the information age marks a period of stability for both discourses. The interplay between the two movements mutually constructs validity, although the contribution of the information age discourse to information literacy is far more cursory. Shapiro and Hughes’ manifesto (1996) coincides with Manuel Castells’s first volume of *The Information Age*. Castells argued that network culture, with its emphases on flows of information, provided the necessary information technology infrastructure to rework the entire social structure. Similarly, Shapiro and Hughes’ vision of the information literate society constructed a new utopian vision for the information age. The advent of the popular internet likely contributed to these visions, marking a specific era in the discourse of each movement.

Foucault asks: what does it mean to no longer be able to think a certain thought? Or to introduce a new thought? (Foucault 2002, 56). These points of discontinuity in the information literacy discourse suggest the emergence of new thought, revealed by the new forms of discourse. These discourses are representations of larger social phenomena, and contribute to both their individual meanings and the larger meanings of social ideologies. The rapid growth of information and its acceptance as an agent of change was interpreted by the LIS community from the perspective of the user. Simultaneously, information as agent of change was interpreted by the larger scholarly community from the perspective of society, and the emergence of new social norms.

IV. Conclusion

Information literacy is a reaction to information age discourse through the lens of LIS. This is not the information age predicted by Bell and Lyotard, but something embedded within the context of the library. The focus is on the individual, empowering citizens to participate in an uncertain society. Principles of democratic participation, freedom of speech, and equal access are inherent to information literacy. Information as capital, from information age discourse, is non-existent. The focus instead is on critical thinking skills. The user is the site of power in the information age, building on the work of Kuhlthau.

Information age discourse as a popular movement starts with Shapiro and Hughes' work (1996), an era associated with the rise of the internet. The explosion of information and information technology during this time removes the need to debate

the validity of the information age. What better marker for the information age than the information super highway? Not only was information becoming easier to access, but the demand for information technology, namely computers, was increasing with the internet's new found popularity. Debating whether or not the information age had arrived was not a necessary discussion. The ubiquity of the internet continued following Shapiro and Hughes, further removing the need to question the origins of the concept.

Instead, LIS recognized the potential of the information age to repackage its existing information practices. Librarians are an obvious candidate to help individuals navigate a massive amount of information. The internet and libraries/librarians have a symbiotic relationship: librarians can improve the organization and structure of information online, and the internet provides a massive collection of information. Both the Utopians and Skeptics recognized the potentials of the internet and the information age, but applied a different critical lens to the potentials of the information age.

Chapter 5 - The Information Age and Social Networking Websites

I. Introduction

Social networking websites (Facebook, MySpace, LinkedIn, and Twitter) offer a variety of features to facilitate socialization online. Users share pictures, photos, songs, text, and videos to interact with their social connections. Social networking websites are amongst the most visited sites on the internet (Alexa, 2009), and their popularity has grown exponentially within the last few years. These social networking websites have different conceptions of sociability, hoping their vision will attract the largest user base possible.

What do social networking websites have to do with the information age? Social networking websites are information-based businesses, like those predicted by information age discourse. Their success depends on users sharing their information and interacting with other users. Creating a large network of users is profitable for these websites, whose user base functions as an emergent market for advertisers. Like radio and television, the success of the social network depends on its audience and the potential to sell advertising space for that audience.

Social networking websites offer a range of different services and features to encourage sociability. These are the design elements or web services that attract new and existing users to use the website. Sociability features embody the major task of social networking sites - keeping users interested. Websites that best encourage sociability attract the most users, which creates a larger community and larger advertising base. The economic success of these websites is directly related to their users: more users, larger advertising base, more money. Therefore, sociability is

capital for social networking websites. Returning to the television network comparison, sociability is like television programs. The station with the most popular programs receives the most viewers and thus commands the most money from potential advertisers.

This chapter examines the discourse of social networking websites by evaluating their sociability. Based on an earlier study of sociability online (Keenan and Shiri, 2009), this chapter compares the discourse of social networking websites with the discourse of the information age. Comparing these two discourses will reveal their co-construction of the information age.

Methods

Four websites were chosen - Facebook, MySpace, LinkedIn, and Twitter. Facebook and MySpace were selected for their continued popularity and ubiquity as social networking websites. LinkedIn was selected for its focus on a specific audience. Twitter was selected for its recent surge in popularity and focus on a specific technology. The number of websites was limited to four to allow for a thorough discussion of each website.

Two sources were used to evaluate these websites – user experience and literature about the website. The focus of this evaluation was researcher experience. For the data collection process, each website was evaluated by exploring the sociability features from the perspective of the user. Using Facebook as an example, the data collection simulated a typical user experience by navigating through the major features of the website. This method is not exhaustive, but simulates the social

activities of a Facebook user. The focus of this method is to understand how social networking websites encourage sociability amongst users. Essentially, this approach mimics a usability study, but limits the user group to one researcher. After collecting data on how each site encourages sociability, the findings were verified by consulting the "About" sections of each website.

This method of analysis is known as heuristic inquiry. Heuristic inquiry uses human knowing and self-inquiry as its analytical process. This is different from mainstream research as it directly involves the experience of the researcher. In this study, the experience of the researcher using sociability features on social networking websites provides the data for analysis. The thorough use of the four social networking websites has been documented and generated data for analysis in the discussion section.

Evaluating sociability lacks a standard definition of terms. This chapter will use operational definitions of several key terms. These include:

Sociability - the ability to interact with others, or to socialize (Preece, 2006). Websites encourage sociability through design standards or integrated web applications. For example, Facebook has integrated a web application, an instant messenger client, to encourage sociability amongst its users. Twitter encourages sociability through design standards, creating a simple interface for user interaction.

Social networking sites - websites that encourage sociability through user accounts built around personal homepages. Social networking sites often carry the label Web 2.0 (O'Reilly, 2005), meaning they incorporate information sharing, user-centered design, interoperability, and collaborative applications. Popular social networking sites include Facebook and MySpace. Social networking websites and social networking are often used as synonyms, but the two concepts have decidedly separate meanings. Social networking websites refers specifically to web sites and web technologies, while social networking is an existing body of theory relating to human interaction, with an emphasis on network structure rather than individuals. Social networks have been studied for over 100 years, beginning in rudimentary stages with Emile Durkheim and Ferdinand Tonnies and proliferating in the 1930s in a number of disciplines including anthropology, psychology, sociology, and philosophy (Freeman, 2004). Social network analysis (SNA) has developed into its own research field, but does not apply to this study.

Social Web - web sites or web-based technologies that encourage sociability online. This includes social networking sites along with more traditional social web-based technologies such as bulletin boards, web-based chat rooms, and message boards.

II. Literature Review

Social websites encourage sociability online through user interaction and web applications. There are two major types of social websites – 1. People-focused; and 2. Activity-focused. People-focused social websites encourage sociability through

user generated personal content. These websites facilitate socialization around a user's profile or home page. Members of these communities share information or other media using their profile page. The amount of information shared is at the discretion of the user. People-focused social websites emphasize user identity as the site of interaction. Facebook is the most popular people-focused social website in terms of site traffic, closely followed by MySpace (Associated Free Press, 2009). These people-focused social websites are popularly called social networking websites.

Activity-focused social networking websites encourage sociability online through site-specific user generated content. These social networking websites are organized around a specific theme, and encourage users to contribute content relating to that theme. Various interests are represented in activity-focused social websites. These sites often contain elements similar to people-focused social websites, but differentiate themselves through their thematic focus. Flickr (photos), Lavalife (dating), imeem (music), YouTube (video), and del.icio.us (bookmarks) are activity-focused social websites. This analysis discusses people-focused social websites or social networking websites.

Social networking websites are often discussed in conjunction with the information age. Quinn (2009) discusses how the internet has affected Western democratic nations. "We are living in the information age, an era characterized by ubiquitous computing and communication devices that have made information much easier to collect, transmit, store, and retrieve" (Quinn 2009, 41). A central feature of the information age, argues Quinn, is social networking systems connecting

"hundreds of millions of users" (Quinn 2009, 5). The new communication networks and technologies are a logical progression from earlier technological advances that attempted to connect people more quickly, which Quinn traces beginning with telegraphs. Quinn's work represents a body of scholarship aligning social networking websites with the emergent information and communication technologies of the "information age."

Similar articles appear in a variety of sources including education websites, the *Wall Street Journal*, business magazines, and marketing websites. Ovenell-Carter (2009) discusses the advantages of using information age web technology, namely social networking websites, to enhance the learning experience of middle and high school students. Doyle (2008) argues that businesses need to utilize the content distribution models of social networking websites, harnessing user-created content to populate corporate websites with relevant material for consumers and by consumers. Asala (2009) pitches the power of social networking sites to create a community around a specific product or idea. The product, Asala argues, is not important. The community built around the product should be the new focus for entrepreneurs in the information age, and what better to facilitate that community than social networking websites. Crovitz (2008) ironically argues against social networking websites as being facilitators of genuine human interaction - "Human beings may not after all have evolved that far from those first caveman gatherings around the fire - the original social networking sites" (Crovitz 2008). Crovitz's critique highlights the social side of social networking websites - the desire to meet with people has not changed. The important piece from Crovitz' article is his participation in the larger

discourse of the information age, placing social networking websites within the discourse (even as a critique).

Analyzing how social networking websites encourage sociability is an emergent trend in academia. boyd (2008) represents a body of scholarship using social networking websites to track the way people interact online. boyd includes an analysis on the strategies used by websites to encourage social participation by the site's users. However, boyd's focus is teenage Americans' behaviours on social networking sites, rather than the features of the site itself. This applied research, looking at the behaviours of users on social networking websites, represents a large body of scholarship.

In November 2008, a digital media and learning initiative funded by the MacArthur Foundation published Hanging Out, Messing Around, Geeking Out: Living and Learning with New Media, a three year ethnographic endeavor that observed and interviewed over 800 youth and young adults on new media. A major portion of this study focused on social networking websites, but the focus was on the ramifications for American youth. The focus was on social behaviours within new media rather than an analysis of new media itself. Findings of this study did not provide insights into the design strategies of social networking websites, but encouraged parents to understand the social networking environment to stay connected with their children. The report also recommended that educational institutions incorporate new media to engage a new generation of learners.

Similar studies of youth and teenage interaction with social networking websites and online communities have been conducted by Holloway and Valentine

(2001), Lenhart and Madden (2007), Livingstone (2008), and Pascoe (2007). The results are similar to the MacArthur Foundation project. Holloway and Valentine (2001) use sociological methods to explore children's experiences with "the Information Age" from online communities to mobile phones. The focus is on the experience of the child as an indicator for an emergent global society mediated by local experiences of technology. Lenhart and Madden (2007) survey a group of teen students on their use of social networking websites and examines their behaviours of interaction, friendship, and connectivity. Similarly, Livingstone (2008) studies the differences between different age groups and their strategies for communication and interaction. Pascoe (2007) examines the social networking behaviour of one 17-year-old girl as a model for larger trends in American teenage life. The focus for each of these articles is the role of the social networking website within a larger social context. This is a significant trend in academic literature dealing with social networking websites: the examination of the role of the social networking website within a specific community.

This study takes a different approach - exclusively analyzing these social networking websites strategies to encourage sociability. There is not a standard method for evaluating sociability online (Preece & Maloney-Krichmar 2003). Preece & Maloney-Krichmar (2003) attempted to develop a method for evaluating online communities using three principles – purpose, people, and sociability. "Purpose" refers to an online community's theme or purpose. For example, the purpose of YouTube is sharing videos, while the purpose of eBay is online auctions. "People" refers to the members of the community. Social networking websites designed for

teenagers would have a different design and focus than an adult social website, or a Christian website versus an Anarchist website. “Policies” refers to administration of a community. The culture, norms, and values of a community differ between social websites, and the policies of that community reflect those differences.

Preece (2001) outlined specific measures of sociability using quantitative values. To determine sociability, Preece quantified several metrics including: number of users, number of sent messages, user satisfaction, user retention, user recruitment, validity of messages, community productivity, and a host of others. These proposed metrics were established to evaluate and critique the technical aspects of websites and improve sociability through design.

Preece’s methods for evaluating sociability were designed for an earlier incarnation of the internet. Preece’s metrics were intended for message boards, bulletin boards, and multi-user domains (MUDs). This is a different social web from its current incarnation in social networking websites like Facebook and MySpace. Sociability online previously consisted of user-specific communities. A collection of users would create an online community dedicated to a shared interest and share text-based interactions with other users. Communities centered around topic-based discussions appearing as threads of conversations amongst users. Preece’s evaluation methods are designed for these topic-specific online communities.

Social networking websites like MySpace and Facebook offer a different type of social web experience, functioning as a meta-community and focusing on the individual identity of the user. Unlike the topic-specific message board communities, current social networking websites amalgamate users into a single community. The

space for topic-specific communities still exists within social networking websites, but operates within the larger environment. For example, users on MySpace can join "Groups" for topic-specific content, which are created and managed by the user community. Users can join or create multiple groups depending on their specific interest. The new social web emphasizes the identity of the user. Users profile pages have become the primary site of interaction, whereas the previous social web emphasized the conversation amongst users. The new sociability of social networking websites requires a new method of analysis. Because analyzing sociability on social networking websites is an emergent trend, this analysis details the sociability features of these websites from the user perspective.

III. Analysis

Facebook

Facebook encourages sociability through familiarity, recreating existing social connections in an online space. Facebook represents your "real world" connections and networks on the web and recreates your "real world" identity through a private web environment. Sociability on Facebook emulates sociability in the public realm, restricting personal information to those whom you allow. Users outside of the designated "friends" or "networks" do not have access to information on Facebook. By recreating a familiar social environment, Facebook encourages sociability amongst its users.

Facebook differentiated its approach from other social networking websites by encouraging users to use their legal name. This is a major defining feature of

Facebook, emphasizing the "real world" identity of users through a familiar name. Legal names also improve search relevancy. Users are able to search familiar legal names rather than potentially confusing aliases containing numeric characters or unfamiliar spelling. The legal name protocol also promotes safety and familiarity, along with an authority of legality. Facebook becomes a metaphorical "safe space" where personal identity is protected by restricted profile access and carries the authority of a legal name. Facebook becomes something resembling a public resource like the phonebook rather than a web space for socialization.

Facebook's aura of safety and security is further emphasized by restricted profile access – perhaps Facebook's most defining feature. The foundation of the Facebook social network is "friends." To view the profile of a Facebook user, that user must designate you as a "friend." Once two users become friends, their information is viewable. Unlike MySpace, which encourages publicly viewable profiles, Facebook distinguished its network through privacy. Facebook users can make their information publicly viewable or grant access to a larger community by changing their privacy settings, but the emphasis remains on user privacy.

Facebook's recent redesign (March 2009) has changed the initial home page of users from their own profile to "News Feed." News Feed displays all the recent activity from a user's network of friends. This allows users immediate information on the updates to their friends' profile pages. From this update hub, users can interact with other users by commenting on status updates, pictures, links, or events. Frequent Facebook users can quickly check the recent updates from their friends and socialize from a centralized destination. News Feed has been particularly effective for

Facebook's microblogging feature "Status Update." Status Update asks users "What's on your mind?" to reflect what users are currently thinking, feeling, or doing. Status update has a 420-character limit, emphasizing short updates. The combination of News Feed and Status Update enables users to quickly navigate their friends activities and comment on their Status Update from a centralized location. This increases the efficiency of information flow between users and thus encourages sociability.

In summary, Facebook encourages sociability by emulating "real world" social connections online. Facebook's sociability features encourage users interact quickly and efficiently by combining microblogging features into a centralized hub of information. By emphasizing "real world" identity and socialization through a secure web environment, emphasizing the safety and privacy of its users.

Myspace

MySpace encourages sociability through visibility by publicly representing their users' identities. As a virtual public space, MySpace encourages open access for members of the MySpace community. Sociability on MySpace emphasizes both "real world" and virtual connections, allowing friends, members of the MySpace community, and the larger body of internet users to access MySpace profiles. Users are encouraged to interact through open, publicly accessible user profile pages. Unlike Facebook, MySpace encourages visibility and public access.

MySpace profiles are open and publicly accessible over the internet. This means MySpace profiles are indexed by search engines. Google searches return results from MySpace's user directory, allowing web users and MySpace users to

easily locate MySpace members. This public accessibility on MySpace has been highly attractive to musicians. Independent and commercial artists have both utilized the public visibility of MySpace and become members of the community. MySpace recently launched a new profile format "MySpace Music" to distinguish musicians from other users (Sandoval, 2008). MySpace profiles have become a popular strategy for musicians to communicate with fans, offering information on upcoming concerts, upcoming recordings, and previews of new music. The public visibility of MySpace has also created a popular space for fan clubs, where MySpace users dedicate pages to their favorite artist or celebrity. This has led to a rise in "spoof" accounts were someone assumes the identity of a celebrity. MySpace users are able to create private accounts and restrict their publicly displayed information, but this requires users to make specific changes to their privacy settings. Public accessibility defines MySpace's sociability features.

MySpace has suffered recently, cutting an estimated 30% of its workforce (Nakashima, 2009). "Advertising revenue has deteriorated and Facebook and Twitter have surpassed Myspace in buzz and popularity in the technology and media worlds" (MacMillan, 2009). One reason for this downturn is MySpace's failure to integrate features that encourage users to visit the site regularly, like micro-blogging. MySpace once dominated social networking websites through its early arrival. As the first major social networking website, MySpace had the largest user base but has since failed to introduce new features and retain users. With the rise of Facebook and Twitter and their emphasis on consistent user participation, MySpace has fallen in popularity, and will likely continue to fall.

MySpace encourages sociability through public visibility and public accessibility. Both MySpace users and outside internet traffic can access MySpace profiles using popular search engines. Recently, MySpace has suffered financially for its lack of innovations. While Facebook and Twitter continue to grow in popularity, MySpace seems to have grown stagnant, searching for a new approach to encourage sociability in their publicly accessible network.

LinkedIn

LinkedIn encourages sociability through community, focusing on professionals and business-related social networking. This specific community focus recreates the sociability strategies of bulletin boards and earlier web communities. LinkedIn offers three major services to encourage professional relationships: 1. Connecting users with business colleagues and associates; 2. Connecting with the hidden job market through these colleagues and associates; and 3. Connecting with industry experts for information on career specific topics. LinkedIn attempts to emulate business networking on the web. Sociability is encouraged on LinkedIn by representing a professionally focused community in a virtual space to strengthen and expand existing business networks.

Sociability on LinkedIn is focused exclusively on business networking and professional relationships. The sociability features on LinkedIn exist solely to improve business relationships. LinkedIn represents a different sociability model from MySpace and Facebook – the highly specialized social networking website. Like the previous generation of social websites, these community focused social

networking websites target a specific audience. LinkedIn's audience is professional and upwardly mobile. This has two significant effects: 1. Restricting the scope of the community; and 2. Appealing to a specific demographic. From the user perspective, this ensures LinkedIn members have similar ambitions for professional success, creating the understanding that members of LinkedIn will be more successful than those who do not participate. LinkedIn's purported access to the elusive hidden job market also creates a mystique that joining the website may drastically improve their career.

LinkedIn encourages sociability through a unique privacy system. Based on the gated access approach, where you must receive permission from a user to view their profile page, LinkedIn has attempted to emulate the business connection model. LinkedIn allows users to introduce their friends, or "connections" to one another using a web of relationships. Users can be introduced to mutual connections based on their professional interests or career ambitions. This allows connections to interact with potential colleagues through a mutual connection, a unique LinkedIn feature. LinkedIn also offers a pay-for-subscription version of their website. The defining feature of this subscription is avoiding the barriers of mutual connections. Users are allowed to connect with any member of the LinkedIn network without having a corresponding connection within the web of relationships.

Twitter

Twitter encourages sociability through simplified technology. Twitter has streamlined its technological approach by focusing specifically on micro-blogging, a

shortened version of blogging limited to 140 characters. Twitter has cleverly limited user's status updates (tweets) to comply with the character restrictions on SMS messages (mobile phone text messages). Users subscribe to other user's "tweet" feeds to receive their updates. Other users or friends are added either by email or by invitation. From a privacy perspective, Twitter has variable options. Users are able to protect their Twitter updates by altering their privacy settings, but the default account displays Twitter updates publicly.

Twitter's content is generated by a small percentage of its community, with 90 per cent of tweets coming from 10 per cent of Twitter users. A Harvard study conducted in May 2006 that surveyed 300,542 users found that Twitter is dominated by "super users" who generate the majority of Twitter's content (Heil & Piskorski, 2009). "Twitter's resembles more of a one-way, one-to-many publishing service more than a two-way, peer-to-peer communication network" (Heil, 2009). Because Twitter feeds can be publicly posted and linked to a specific domain (www.twitter.com/availablename), Twitter has become popular with many celebrities and corporations. Twitter users can follow the tweets of their favorite celebrity or corporation, but are also able to read other public Twitter feeds by visiting a specific domain, which is also publicly searchable. Popular Twitter users include celebrities Oprah, Shaquille O'Neal, Barack Obama, Britney Spears, and Ashton Kutcher as well as CNN, *The New York Times*, and Downing Street (representing the UK Prime Minister).

In popular usage, Twitter does not follow the standard conventions of social networking websites. While other social networking websites emphasize the interaction between users, Twitter has been co-opted as a broadcast medium. "Twitter

is a broadcast medium rather than an intimate conversation with friends" (Heil, 2009). While interaction on Twitter is still an available feature, most notably by replying to the tweets of other users, the mass proliferation of Twitter and its content is based on its super users and celebrity presence (Barnett, 2009).

Twitter is the fastest growing social network in the world (Snyder, 2008). The simplicity of microblogging has catapulted Twitter into the mainstream of social networking websites. Reading a 140-character message accessible through the web or delivered directly to a mobile device is a simple activity. The multi-platform format for both mobile phones and computers makes Twitter quick and direct. But Twitter also occupies a strange space, functioning as both a broadcast medium and social interactive tool. The success of Twitter is a combination of its simple technology and its super users (dominated by celebrities and corporations).

IV. Discussion

The Discourse of Social Networking Websites

The purpose of social networking websites is encouraging sociability. Returning to Preece (2001), sociability is the ability to interact with others, or to socialize. Sociability embodies the major task of social networking sites - keeping users interested. The previous analysis of sociability illustrates how different social networking websites keep users interested. Facebook emphasizes privacy, MySpace emphasizes publicity, LinkedIn emphasizes professional relationships, and Twitter emphasizes simple broadcasting. Beyond the different approaches, each website is

participating in the larger discourse of social networking. This discourse emphasizes staying connected, interacting with people, sharing, and free access.

Staying connected is a popular concept in social networking websites. The "About Us" section of each social networking website uses a variation on the term: "Facebook helps you connect and share with the people in your life" (Facebook, 2009); "MySpace keeps you connected" (MySpace, 2009); "People are eager to connect with people and Twitter makes that simple" (Twitter, 2009); "Our mission is to connect the world's professionals to make them more productive and successful" (LinkedIn, 2009). Social networking websites emphasize staying connected. Staying connected is important, and choosing to participate on their website ensures users will stay connected. Being disconnected connotes being left out, missing an opportunity, not fully participating, and otherwise being marginalized. This has interesting correlations to being disenfranchised, or being socially marginalized. By not participating in social networking websites, individuals are missing an important experience. In a society that encourages social interaction and participation, connecting is an important process.

Interacting with people is one of the manifestations of staying connected. Again, the "About Us" section of each website emphasizes interacting with people: "Millions of people use Facebook everyday to keep up with friends" (Facebook, 2009); "MySpace is a place for friends" (MySpace, 2009); "The result of using Twitter to stay connected with friends, relatives, and coworkers is that you have a sense of what folks are up to" (Twitter, 2009); "LinkedIn exists to help you make better use of your professional network and help the people you trust in

return" (LinkedIn, 2009). Ironically, most social networking websites do not facilitate interacting with people - they facilitate interacting with a database. Aside from Facebook's instant messaging client, all communication on social networking websites is asynchronous. Users post material to a database which is then attributed to their profile or avatar. The designers of these sites have created the illusion of interacting with people because of the connection to a name/picture/avatar/profile. Despite that, the discourse of social networking websites includes interacting with people, namely friends.

Sharing is another key feature of staying connected. By sharing information, be that pictures, videos, blog posts, etc., users connect with their communities. Returning to the "About Us" sections: "Facebook's mission is to give people the power to share and make the world more open and connected" (Facebook, 2009); "Share your moments with your friends and family" (Myspace, 2009); "Simply put, Twitter is what you make of it--receive a lot of information about your friends, or just a tiny bit" (Twitter, 2009); "Create and collaborate on projects, gather data, share files and solve problems" (LinkedIn, 2009). Sharing is important for empowering users to express themselves. This is a significant attraction for users, and has resulted in developers spending millions of dollars attempting to build interfaces that best encourage sharing. The result has been web applications for easier picture and video uploading, as well as improved site designs for accessing information. Twitter's success is based on its simple interface that encourages sharing by asking "What are you doing?"

All of these social networking websites are free. Becoming a member, sharing pictures and videos, chatting with friends, browsing content, and all other activities on these websites are provided without cost. LinkedIn does provide a premium service to "give you more tools for finding and reaching the right people, whether or not they are in your network," but justifies the fee based on their success in finding jobs for their users. Despite this exception, the promotion of open access and free services is a defining feature of social networking websites. This is a different model of service, exchanging web services for exposure to advertising. Open access through free service is crucial for the social networking discourse.

The discourse of social networking websites encourages users to stay connected. Staying connected seems great, especially when staying connected is free. Websites like Facebook provide a platform for users to interact with the people in their lives, offering a space for users to share their experiences with others. These websites have invested millions of dollars to keep users entertained, and have them participate with their website as often as possible. The reason is simple: websites that command the largest user group also have the largest advertising base. Success in social networking is directly correlated to the size of the community. Larger communities attract more advertising revenue. The more users stay connected by participating in these social networking websites, the more valuable these websites become.

A Tale of Two Discourses

Social networking websites are embedded in the discourse of the information age. The core features of the information age manifest themselves within social networking websites: 1. a shift in the economy repositioning information as capital, 2. new forms of social relationships resulting from this shift, 3. a focus on exchange of information through this new network infrastructure, 4. globalization; the ability to access information from around the world. Sociability online embodies all of these characteristics.

A shift in the economy repositioning information as capital

Social networking websites are essentially large repositories of information. Their physical holdings consist mainly of server farms hosting substantial amounts of information. They do not have the traditional capital holdings of an oil company or car manufacturer, whose product is made of material goods. Their product is a blend between the site's design and the information stored on the site's databases, but the entirety of the product is information. However their products are still worth a substantial amount - Facebook was recently valued at $6.5 billion (July 2009) with some analysts believing the company was worth upwards of $10 billion.

New forms of social relationships resulting from this shift

Social networking websites offer new ways for people to interact. The asynchronous communication of these websites creates the illusion that people are interacting with their closest friends, when in fact they are interacting with a database

that will be viewed by their friends. Each user on these websites is broadcasting their information through the network, creating a new kind of interaction. Users are mimicking traditional broadcast mediums like television, radio, and print - providing information updates viewable by an audience.

A focus on exchange of information through a network infrastructure

The success of social networking websites is dependent on users' ability to socialize, or to exchange information through the network. This is shown in the analysis of sociability. The better the design of the website, the more users the website attracts, and the more valuable the website becomes. Sociability features encourage users to interact with each other. The most effective sociability features generate the most interaction, and thus the highest exchange of information through the network. Being able to consume, produce and exchange information more quickly creates the best social networking website.

Globalization; the ability to access information from around the world

Shrinking the globe is a popular metaphor for the information age. The network allows users from around the world to participate in each other's lives through the exchange of information. Social networking websites allow users to broadcast their lives (through text, video, pictures, etc.) to a potentially global audience. Assuming that the audience has access to the internet, they can participate in social networking websites.

The core features of information age discourse are represented in social networking websites. Seemingly, social networking websites are proof that the information age has arrived. Daniel Bell's proposed shift in the economy from industrial to post-industrial capital is the fulcrum for this argument. Social networking websites, specifically Facebook, have received a valuation of several billion dollars indicating that the shift in capital has occurred. However, this proposed shift in capital is incorrect for two reasons: 1. the value of these websites is based on speculative valuations, which have been volatile, 2. the information as capital does not represent the value of these websites.

The speculative valuations of social networking websites are volatile. In October 2007, Facebook sold a 1.6% stake to Microsoft for $240 million, which valued the company at an estimated $15 billion. At the time, Facebook had an estimated 42 million users, which generated a $357 per-subscriber valuation. News Corp, headed by noted billionaire Rupert Murdoch, applied that same per-subscriber valuation to MySpace's user pool of 185 million registered users, valuing the company at $65 billion. One analyst commented that "there simply aren't enough data points to value [Facebook or MySpace] right now" (Cimilluca 2007), but the news of the massive values for these social networking websites resonated rather quickly. A brief history of Facebook's valuation reveals the volatile nature of this figure (adapted from Caroline McCarthy's "Facebook's Valuation: The Cheat Sheet" [July 14, 2009]):

$10 million	June 2004: Paypal co-founder invests $500,000 into Facebook, which is followed by shaky rumors that Facebook was offered $10 million from competing social networking site Friendster.
$750 million	March 2006: *BusinessWeek* reports that Facebook turned down a $750 million acquisition offer.
$1 billion	September 2006: Yahoo offers to acquire Facebook for as much as $1 billion.
$15 billion	October 2007: Microsoft invests $240 million in Facebook at a $15 billion valuation.
$2 billion	April 2009: *TechCrunch* reported that Facebook received an offer from potential investors valued at $2 billion and turned it down.
$6.5 billion	July 2009: Digital Sky Technologies begins its buyback of up to $100 million in Facebook employee shares at $14.77/share, valuing the company at $6.5 billion.

Facebook's success, or rather its generally favorable valuation, is the exception within social networking websites. MySpace, by comparison, was recently valued in June 2009 at a paltry $600 million, down more than 10 times from its October 2007 price. The volatile nature of these prices is reminiscent of the infamous dot com crash, the rapid drop in internet-based business stocks in 2001, losing an estimated 5 trillion dollars in companies like Netscape, Nortel, and Cisco.

Social networking websites are not valuable for their information capital. Rather, they represent an emergent advertising base. Valuations on Facebook and MySpace in October 2007, placing a specific dollar value on each registered user, reflect this value on the audience over the information. The information contained on these websites is important for identifying consumer trends, namely what topics and items are popular within a specific demographic. This information can be easily obtained from analyzing tremendous amounts of data contained within the website's databases. However, this information would be useless if these websites did not have

a captive audience. If the audience of Facebook were to drastically diminish, the speculative value of Facebook would also drastically diminish. The best example of this is MySpace, as previously discussed. A better way to understand the value of social networking websites is comparing them with traditional media. Having the largest captive audience is important. The information as capital helps to target this captive audience, but the audience is paramount.

Revisiting Late Capitalism

Returning to Fredric Jameson's *Postmodernism, or, the Cultural Logic of Late Capitalism* (1991), he argues that society is experiencing the continuation of capitalism rather than the rupture or mutation signified by information age discourse. On first glance, social networking websites seem like a departure from capitalism. By offering free services and open access, the exclusive relationships of haves and have-nots emphasized by capitalism seem to have dissolved. Jameson explains this by recognizing an emergent form of capitalism.

Late capitalism differentiates itself culturally through two important streams: 1. new forms of media interrelationship and 2. emergence of networked computers. Jameson argues that the relationship between media and the market has become convoluted. Media itself has become a commodity. "It is not the commercial products of the market which in advertising become images but rather the very entertainment and narrative processes of commercial television" (Jameson 1991, 276). While Jameson was talking about commercial television, the same principles apply to social networking websites. The entertainment provided, that is staying connected and

sharing information, exposes users to embedded advertisements within the page itself. Television enacted a similar process by inserting advertisements into the structures of narrative, commercial breaks, story, characters, fashion, and even the production of stars and celebrities. In both scenarios, media operates as a space for advertising, diffusing advertisement messages throughout its broadcast.

This relationship between advertising and culture first emerged in the work of Adorno and Horkheimier (2005) on the "culture industry." Their work describing the advertising processes of radio are more analogous to the processes of social networking website advertisements than Jameson's reading of television. In the age of radio, products (meaning radio programs) were free for listeners, who had a variety of programs to choose from. These programs were supported by advertising, presented in distinct segments. The choice between different radio programs gave listeners the illusion that they were freely choosing their entertainment, rather than being exposed to an advertising space. A similar process occurs on social networking websites, where users observe their desired information while being exposed to advertisement.

Jameson's defining features of culture in late capitalism, that is new forms of media interrelationship and emergence of networked computers, manifest themselves distinctly in social networking websites. The structure of the network blurs the lines of traditional media relationships. In traditional relationships, that is television and radio, media producers broadcast their programs to their audience and exposed them to advertising in the process. The money generated from advertising covered the costs of producing the programs, and created a profit for the media companies. The companies with the best programs sold the most advertising space, and therefore

generated the most revenue. Television, radio, and print generally followed this same model. The best content attracted the largest audience, which generated the most advertising revenue. Companies with the largest audiences made the most money.

In this new relationship, the media producer, or more appropriately the information producer, is the audience. The users of the site generate the content for other users. Content is still key - the site with the best content attracts the largest audience and therefore commands the most advertising revenue. However, in this relationship, the sociability of the website is the content. The better the sociability, that is how well the website encourages users to interact with others, the better the content. The strategies used to encourage sociability differ from site to site, as the previous analysis has shown. Therefore, commanding the largest audience depends on the design of the website, and the best designs are those that best encourage sociability. Like radio and television, social networking websites offer free services in exchange for exposure to advertising.

Advertising Woes and Monetization Mayhem

Unfortunately, the advertising model for social networking websites is not working. The struggle to monetize represents the largest challenge for social networking websites. Standard internet advertising approaches, that is embedding banner ads within pages on social networking websites, have not been effective. Creating new approaches to advertising has been a major challenge. The most infamous example of this challenge to advertise is Facebook's failed Beacon project.

Facebook's Beacon was an advertising program that sent data from external websites to Facebook. This allowed Facebook to track the activity of its users and provide targeted advertising to the user and the user's network of friends. Users were outraged (Catone, 2007) by this surveillance of their web activity, and eventually a public apology from Facebook CEO Mark Zuckerberg was issued. "We've made a lot of mistakes building this feature, but we've made even more with how we've handled them. We simply did a bad job with this release, and I apologize for it" (McCollum, 2007). Beacon was then renamed as "Social Ads" and required users to opt out of participating. In September 2009, after a year long class action suit, Facebook finally removed Beacon/Social Ads all together. This suit was filed in August 2008 by a group of Facebook users advocating for user privacy protection.

MySpace has had slightly more success with its monetization strategies. Capturing the popularity of their musician pages, MySpace started embedding advertisements in music videos in February 2009. The banner advertisements within the videos are directly related to the artist - for example, watching a U2 video will generate advertisements for the latest U2 album, or provide a link to the U2 website. MySpace has attempted to disguise the ad as informative content. Rather than an interruptive segment or unrelated product, the ad promotes the band featured in the video unobtrusively. The viewer also has the option to close the ad and continue watching the content. *TechCrunch* reports that this strategy has had "impressive results" (Kincaid, 2009).

The difficulty to monetize is best reflected in the approach from Twitter. On Twitter's about page, the company poses a question to itself: How do you make money from Twitter?

> Twitter has many appealing opportunities for generating revenue but we are holding off on implementation for now because we don't want to distract ourselves from the more important work at hand which is to create a compelling service and great user experience for millions of people around the world. While our business model is in a research phase, we spend more money than we make. (Twitter, 2009)

In other words - monetization strategies are difficult and distract the company from making a product worth monetizing. Advertising online, in its current incarnation, is not an effective strategy for social networking websites. The monetization strategies may be just around the corner, but for the mean time, the speculative value of these websites is most important. Commanding the largest audience gives these social networking websites their largest speculative value, so focusing on encouraging sociability is most important.

Without a monetization strategy, these websites seem like failing enterprises. However, these are not typical companies. These social networking websites will not share the same fate as their dot-com crash predecessors because they are not publicly traded. Instead, these sites have relied on angel investors, granting large sums of money to cover the operating costs. In the case of Facebook, valuations are based on the percentage of the company sold to the angel investor. MySpace is owned by Rupert Murdoch's NewsCorp and operates as a subsidiary of their social media division. Twitter has managed to generate investment from various sources, most recently T. Rowe Price and Insight Venture Partners recent $100 million investment

(Hall, 2009). These sites continue to search for ways to monetize while their investors dream of potential capital gains.

IV. Conclusion

Sociability is the defining feature for social networking websites. The ability to encourage user interaction and participation determines the success of these websites. Twitter's recent surge in popularity centers around its simplicity, encouraging users to continually interact with the network by providing quick updates, often through mobile phones. By offering something slightly different from the more complex MySpace and Facebook, Twitter has captured a significant audience and therefore a significant amount of power within the world of social networking websites. The next craze in social networking websites will likely be introduced by a different small company, offering a slightly different version of sociability that resonates with its users.

Social networking websites seem like the perfect embodiment of information age discourse. These are businesses built around information. Their product is encouraging sociability online by delivering information and encouraging information sharing amongst its users. Sites like Facebook, MySpace, and Twitter have a staggering number of users, receive a great deal of coverage in the media, and possess the elusive "cool" factor. Staying connected is cool in modern North American cultures, and these websites seem to have a great deal of power in the marketplace. These websites appear to be the pinnacle of a new information-based business. The information as capital model predicted by Bell and Lyotard and the

power of the network predicted by Castells seem to have manifested themselves in social networking websites.

The discourse of the information age has manifested itself in social networking websites. Unfortunately, that does not mean that the information age has arrived. Instead, social networking websites are involved in familiar roles mimicking the processes of traditional broadcast media, like those described by Jameson's late capitalism. And like traditional broadcast media, these websites are having a difficult time finding effective marketing strategies. Some websites like Twitter have stopped trying to find monetization solutions all together. Facebook and MySpace have had varying degrees of success with these attempts, but still lack a cohesive approach. The dollar values of social networking websites still remain speculative. Their hope is that social networking websites can find an effective strategy for monetization. Established internet companies like Google and eBay remain as icons of achievement for social networking websites, who hope to emulate their success.

Chapter 6 - Conclusions

Summary of Findings

The discourse of the information age proposes a shift in society from the recent advancements of information and information technologies. Information age discourse emphasizes a transformation, an historical moment from which society is forever changed. Like the industrial revolution or the bronze age, the information age signals an emergent society with new social and cultural possibilities. This society has four defining characteristics: 1. a shift in the economy from industrial-centered capital to information-centered capital, 2. new forms of social relationships resulting from this shift, 3. a global computer network infrastructure, 4. a focus on the exchange of information within this network.

Information age discourse has a specific history. As the discourse progressed from Daniel Bell (1974) to Manuel Castells (1996), the emphasis changed from a knowledge-based economy and shift in the workforce to a global network infrastructure and the flow of information within the network's super structure. Challengers of the information age also present different forms of critiques, asserting that the new social revelations of the information age have not recognized the continuation with a previous society. Jameson (1991) and Kumar (1995) argue that the cultural and philosophical foundations of capitalism dominate the proposed information age. Instead of a radical shift, society is experiencing a refined incarnation of capitalism.

The point of convergence within information age discourse is the exponential growth of information and information technology. Information as "stuff," be that

information technology or the information accessed by said technology, is growing rapidly. There are more computers sold, more websites created, more material and content generated, and more people accessing the various information networks. The information age, referring to the increasing production, distribution, and consumption of information, was adopted by many different fields as an historical marker.

Library and Information Studies reinterpreted the information age through its own theoretical lens and created an empowering set of competencies for the new society - information literacy. Their focus was on the library patron, providing users with skills to participate within an uncertain society. Following with the tradition of LIS, information literacy emphasized democratic participation, freedom of speech, and equal access to information. The information age also presented libraries with an opportunity to repackage their existing information practices. Information practices developed in LIS were directly applicable to the emerging information overload of the internet. Librarians seemed like obvious candidates to help bring structure to this new information environment, and legitimate the profession in the process.

Social networking websites embody many of the characteristics of information age discourse. Their business models conform to Bell's predicted shift to information as capital. Social networking websites create environments that encourage information sharing and sociability online. The websites that best facilitate sociability online generate the largest user group and therefore contain the most information. On closer examination, social networking websites conform to the principles of Jameson's late capitalism and his emphasis on advertising. Social networking websites with the largest number of users attract the most advertising

capital. While a monetization strategy has yet to emerge for social networking websites, their success (meaning their value) is contingent on the size of their advertising base.

Further Applications

Analyzing the discourse of the information age is a potentially ongoing project. This critical lens could be applied to other disciplines to examine their participation and enactment of information age discourse. Any discipline invested in information and information technology has a potential co-construction with information age discourse. Such a study could include a discourse analysis of transhumanism, computer science, human computer interaction, or art and design.

Transhumanism, the cultural movement encouraging the use of science and technology to improve humans, is a promising area of research for analyzing information age discourse. Similar to the work of Negroponte and Kurzweil appearing in Chapter 3, transhumanism promotes the integration of computer technology for transforming the human subject through a variety of means. Some of the more popular speculations of transhumanism include stem cell regeneration, nanotechnology, cryogenic stasis, and more outrageous prospects like computer-enabled immortality and the singularity (the merging of humans and machines to create a boundless reality). The discourses of utopian society, technological determinism, and computer as liberator contribute to both transhumanism and information age theories.

Contribution to Scholarship

This thesis contributes to the larger body of scholarship through the examination of three discourses: information age discourse, information literacy discourse, and social networking discourse. Revisiting information age discourse from a later historical perspective provides a critical distance. In an era where the internet has established itself as a significant information medium, the discourse of the information age has more referents for verification. Critiquing predictions about the future is far easier when the future has arrived. This critical perspective creates an applied theoretical lens for examining information literacy and social networking websites. Comparing the discourse of the information age with the discourses of information literacy and social networking websites reveals their dialectic co-construction.

Practical Applications

This project provides a critique of information literacy and its investments in the larger theoretical constructs of the information age. For scholars and practitioners of information literacy, this has practical applications for understanding the foundations of information literacy. Information literacy promotes critical awareness around information use, which was first presumed to be a necessary competency for the information age. Whether or not the information age has arrived, the promotion of critical thinking and information skills are core competencies of life long learning and social participation. This follows a long tradition of libraries empowering citizens in

democratic countries. Therefore, practical applications of this study for information literacy emphasize the underlying principles and pedagogical goals of the discipline.

The social networking chapter has practical applications as a guide for creating effective social networking websites. Building on a previous study (Keenan and Shiri, 2009), this analysis emphasizes the importance of encouraging sociability uniquely to attract the most users possible. Focusing on sociability as the defining characteristic of successful social networking websites could shift the initial design of new social network developers towards a different kind of website. The recent success of Twitter embodies this explicit focus on sociability. Twitter has created a streamlined broadcast that directs interaction between users into a simple interface. The next big social networking website could emerge by designing their website on this sociability-first design principle.

Theoretical Applications

The social networking website discussion contributes a new theoretical approach to analyzing social web design. The Foucauldian discourse analysis of sociability features is a new application of discourse analysis. Sociability features represent a new text for discourse analysis. The process of encouraging sociability and the theoretical assumptions underlying these websites provide a unique discourse for analysis. This approach has potential for future applications in analyzing user experiences on a variety of social networking websites.

The Boundaries of Information Age Discourse

The information age is a constraining concept. It claims a specific vision of the future and details a society forever transformed by the rise of information and information technology. The shift in the economy to information capital is a supersessionist discourse; accept the information age or face marginalization. Participation in the information age requires its citizens to accept the new parameters of society. Early adopters of this new society would benefit the most from this transformation. Those who failed to recognize the economic and social shift would become marginalized.

For LIS, this fear of marginalization and desire for legitimation manifested itself in information literacy. The rhetoric within information literacy conveys this same urgency, encouraging citizens to understand the power of information and utilize information skills for social participation. Familiar metaphors of democratic empowerment permeate the discourse of information literacy, but focus specifically on information skills as necessary requirements for the information age. This is a public manifestation of information age discourse, attempting to improve the lives of users through library-based education programs.

Social networking websites represent the commercial manifestation of the information age. As a new form of media, social networking websites have advertising potential, targeting consumers more directly than previous mediums. Early investors in this new media have the potential to make significant returns. While the strategies for advertising have not been successful thus far, the potential of these social networking websites drives their development and growth. From an

investment perspective, the information age and its new media are a financial opportunity in a society-in-flux.

Has the Information Age Arrived?

There is no way to verify the arrival of the information age. As a meta-social tag, the information age refers to many different projected futures by a number of scholars. There is no consensus on the defining features of the information age. However, the term may gain validity if the information age refers to a period of time where information and information technology are expanding at a rate never witnessed before. The advent of the internet and the rise of the personal computer have created an information explosion in developed countries, and increasingly in developing countries. The information age will become a valid meta social tag in retrospect if the rise of the popular internet marks a turning point in the social and cultural development of the world's influential societies.

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