The Episteme of Information and the Place of Need: the Contributions of (L)IS.[1]

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Abstract:

The episteme of information that forms the information age and the information

society of recent years is constructed of information and communication

technologies and the social and cultural traditions and forms that have multiple and

complex relations to these technologies. This paper addresses the (Library and)

Information Science (L)IS tradition's contribution to the episteme of information,

namely, its concept of "need." Information retrieval and information seeking,

Knowledge Management, and social computing systems are discussed as

progressive events in this tradition.

I. The Episteme of Information

Much recent debate has occurred upon the meaning of the term 'information'

in information science and library science, and more generally, in modern western

culture and society. The range of meaning of this term for these and other scientific

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[1] Keynote talk for the Post-Graduate Program in Information Sciences of
the Universidade Federal Fluminense's (Rio de Janeiro, Brazil) Seminar on
Information Studies on September 26, 2011. The seminar's theme was
"Archive Studies, Library Science, and Information Science: Identities,
Contrasts and Perspectives of Interlocution."

fields remains, at times, a problematic issue for proclaiming a unitary focus for these fields and their areas of specializations (such as information seeking behavior (Frohmann, 2004, chapter 2)). As a term circulating in the social domain of Western culture at large, the over-inflation of the term 'information' can, among other places, be seen in information society or information age literatures, leading to the need for a critical analyses of the disjunctions between these discursive claims and the actual powers and effects of information technologies (following Rob Kling's reasoning for the need for critical studies in informatics).

While the range of possible critiques of the information age and information society are many, chief among the questions are whether there is such a thing as an information age or an information society? And with this question, associated questions: what are the characteristics of this age or society through which it comes about? How does it take place in various domains—specialized and in larger senses of society? I want to make clear that by asking this question we are treating 'the information society' and 'the information age' in a certain empirical sense. In a Foucauldian manner we are saying that it exists as a cultural code and a set of social causes and effects; in brief, that it has real powers. It is an issue of historical and pragmatic, rather than natural existence; a social science and humanities question, rather than one of the physical sciences. It is empirical in the sense that it is a social and cultural matter, not a physical body. But, even so, it is still an empirical event— a material fact --known by its social and cultural force and its durability.

Method

I would like to begin this investigation by asking some methodological questions. For, what we are investigating is not like asking where we could find a certain empirical entity—a dog, for instance. Again, these are issues of social science and humanities research and so it may be useful to address the question of method at the outset.

We start with the concept of "episteme." An episteme is a set of social, cultural, and physical devices or affordances for reproducing a certain sense and meaning of the world for certain human beings. It is not simply an historical concept that helps us to place historical events into an understandable frame, but rather, it has both explanatory and prescriptive powers in its own present, towards practically orienting the future in certain manners and for interpreting the past in certain manners. In the case of the modern sense of 'information' in the 20th century and particularly in the post-World War II period, we have here a *dispositif* or device for organizing 'knowledge' on a new, and at the same time a very old and metaphysical, footing—generally, a quantitative, representational (in a mimetic sense), and a positivistic sense of knowledge. In late modernity, information has the sense of being a 'given'—in English, a 'fact.'

Information, today, has become a certain type of knowledge, which has supplanted the validity—popular and even scientific in other forms—of all competitors. And all other types of knowledge strive to become this type of knowledge, whether information is seen as knowledge itself or as the 'elements' for

this type of knowledge. Information, then, becomes the standard for judging all

knowledge—including, and most importantly--for judging information itself. This is

what is meant by 'the information age' and 'the information society,' and what I term

the 'episteme' of information in a synchronic sense and what I do not discount as

part of a metaphysics of information, which following Heidegger's historical reading

and Derrida's terminology, we may see as the latest unfolding of the metaphysics of

'presence.' While it may be objected that I am overgeneralizing 'information' today,

this overgeneralization—this sense given to meanings of information—is precisely

my point. My claim is that there is a metaphysics of knowledge that has been

recently historically assumed by the term 'information,' such that knowledge in

other forms becomes obscured and discounted in many specialized, and certainly,

popular, realms. That such a notion of information is bound up with computational

mediations of knowledge is beyond doubt, but my claim is not that this sense of

'information' is limited to computational mediations, but indeed, that it has a longer

history, though it may not be called 'information,' per se. The certain sense of

meaning that is embodied in notions and uses of the term 'information' today that I

point to represents an historical unfolding of knowledge as the metaphysics of

presence.

Michael Buckland, in a well-known paper "Information as Thing" (Buckland,

1991), has given us three concepts that he derives from the use of the term

"information" in English. Information as a process (as in information system

processing), information as the being informed of something, and information as a

'thing.' The concept of "information as thing," though, is ambiguous in Buckland's

article: it can refer to the sense that a thing is informative (a bird or, as in Suzanne Briet's *What is Documentation?*, an antelope, in a museum or zoo, for example) or it can refer to information as itself thought of as a thing.

Where can we point to the occurrence of this last notion? Surprisingly, everywhere today; from information economics to computational notions of data to asking for information in a library. Indeed, the meaning of the term 'information' is incredibly broad today. The problem that we are examining here is not that of the delineation and definition of different concepts tied to the use of the term in a given synchronic cultural and social space, but rather that of the historical evolution of the term in cultural and social spaces and the deployment of a certain meaning and sense of the term across those spaces. In brief, the problem lies in a combination of the vagueness and breadth of the term and in its overuse and social privilege.

Despite such vagueness and broadness and the overuse of this term, the term carries with it a sense of empirical representation. Allied with the notion of 'facts,' information is often thought to be self-referential or "auto-affective." It is in this sense, a positive notion of knowledge. We are interested, then, in those senses of information in culture that carry with them a sense of what Derrida termed 'presence.'

The history of the information age and of the information society, then, is a rather important problem today. But it is a greatly understudied problem, perhaps because it cannot generally be accounted for in such vastness in the very informational manners of the sciences. Works, such as Manuel Castell's on the information society, seem to me to only reify this term still further, finding evidence

for 'the information society' in all sort of empirical evidence. But, this type of sociological expansion of the term and carefully chosen empirical supports are not our concerns here. The inscription of this talk takes place in the domain of the critical humanities, where we are attempting to understand the production and reproduction of a term or set of term as concepts—that is, as words tied to actions so that certain powers and events associated with those powers are produced and reproduced. So, following the language of Althusser and many others, in the research undertaken here we are attempting to account for information "ideologically."

And let me delimit what I am about to say historiographically, as well. Such accounts of historical expressions, as information, are often carried forth in (Library and) Information Science in the historiographical form of a narrative causality of 'great' and 'foundational' human agents and events. Such an account largely ignores the notion of epistemes and devices, other than taking them as a sort of necessarily posited explanatory background—'historical contexts'--what is sometimes called in the historical literature, "colligatory concepts" (Shaw, 2010) for understanding particular historical agents and events.

But, no one in particular invented the modern sense of information that makes up the modern information age or the information society. No one invented documentation or information science or library and information science. Not even those whom are sometimes called by the more foundationalist historians the 'pioneers' or the 'fathers' of these fields. Paul Otlet, for example, did not invent European documentation. Rather, he was a chief expresser of it, in so far as

European documentation existed as an episteme and a 'movement--not the least in his writings-- now more easily seen retrospectively and called "European documentation." I do not believe that epistemes are simply "colligatory" concepts. But, on the other hand, in turning away from Foucault and back to the Marxists, I will also say that although no one invented the above institutions and concepts, nonetheless social policies and individual powerful actors deployed and redeployed them.

For example, the Clinton administration in the United States in the early 1990s sold off the state funded internet to corporate telephonic entities in the name of liberalism, the same liberalism that aggressively pursued 'free trade' and saw the internet--or as it was called at the time by President Bill Clinton's vice president, Al Gore, "the information highway"—as a fast free trade highway for the trade of goods and opinions. Epistemes, in my view, do not always simply come together out of multiplicities of forces. Policies, texts and other expressive devices in the media, and powerful individuals are key in propelling certain epistemes into a normative status, and therefore of making them ideological norms for their own reproduction. And here, in my view, the foundationalists are not completely wrong in their focus, but rather, I would debate their historicist assumptions and their historiographical forms and disciplinary claims.

In any case, the concepts of the 'information age' and 'information society' like 'the Enlightenment,' are not simply conceptual conveniences for historians. Such terms are engaged even in their own times. Much was and is at stake in deploying these terms—and eventually even more in challenging them-- whether

they be literally called 'the Enlightenment,' 'the Information Age,' 'documentation,'

or something else. And even more so, this goes for the tropes and other cultural

devices and the social powers that are repetitive devices for bringing epistemes into

existence—devices of not only the same elements, but more importantly, of the

same effects (say, the valorization of computers as agents for the future).   Needless

to say, we must be careful not to get obsessed with looking for the same term all the

time, even if it is an all-pervasive one such as 'information.' Different rhetorical and

social machines can produce the same effects: so, though 'information' is not such a

privileged term in Otlet's works, still, the same tropes (a world documentary library

bringing about world peace and world communication and so-forth) take place in

his documentary rhetoric as takes place later in our 'information

society'/'information age' rhetoric, and so together they form an historical episteme

despite the differences of their precise terminology. And I want to add, that there is

no reason that these epistemes can't be part of longer historical traditions—of

'cultural metaphysics' in a sense; cultural forms for the production of thought and

social action and technological design—'metaphysics' in the sense that Heidegger or

later Derrida seemed to use the term when they spoke of a "metaphysical tradition."

Indeed, epistemes usually arise from such traditions. Established traditions and

their devices (cultural, social, and technological) are leveraged by persons in order

to push themselves and their concerns into the forefront of societies and cultures

and technological development. And by such, agents 'sell' their ideas to others.

Personal 'needs,' too, like technological objects, social forces, and cultural forms,

have historical powers constructing them and pushing some along rather than

others. There is no need to be historicist about such things; traditions are formed by ready-at-hand tools, whether they be terminological, conceptual, or physical.

Last, the devices and events that form epistemes are situational. Their occurrences do not take place simply in one place or another, but in multiple places and in differing senses. So, for example, what we now call 'the information society' can be seen in various ways in the 20th century: the notions of a world of knowledge through collected (Otlet) and then networked (Briet) documents in European documentation; the world of information as communication, feedback, and command and control in cybernetics; the world of mass communication and the advent of knowledge and art as 'information' according to a conduit metaphor, and most recently, the global vision of information as being not only a commodity or a message, but as communication, in the sense of a political liberal economy of the exchange of 'understandings' or 'opinions.'

Now that we have discussed epistemes, since I have been asked to do so let me turn to my 2001 book, *The Modern Invention of information*: *Discourse, History, and Power*. Here I attempted to intervene in the informational construction of history, specifically that of the history of information and the information age, as it manifested itself socially, culturally, and politically. When I wrote the book in 2001 while living in San Francisco, the United States and California in particular, was immersed in the frenzy of 'information society' and 'information age' rhetoric. Part of the effect of this rhetoric was a speculative frenzy—later seen as a 'bubble'—in

the stock market involving technology stocks and later telecommunication stocks.

This speculatively frenzy extended to San Francisco housing costs, which drove out

the middle and working classes. Little understood still, is the financial context

previous to the 'dot com' era, which set the stage for this frenzy. First, the Reagan,

Bush I, and Clinton presidential administrations' 'trickle-down' and then free-trade,

and overall, financial deregulation policies, and second, the subsequent change of

the U.S. from being an industrial to being a financial based economy, meant, among

other things, the end of the era of employer pensions and a government policy push

to privatize retirement investment. These policies, part of, and still part of, Reagan

era neoliberalism resulted in private personal and in institutional investments into

dubious 'information society' firms, known collectively as the 'dot coms' and then, a

little later, into the large telecoms. Together with the desperation of middle class

workers, who had seen family incomes descend from a one wage earner to two (and

then in the 21st century, family incomes relying upon debt) and inflation in housing,

energy and food (--only the industrial revolution of China and its masses of rural

labor has saved the U.S. from overall consumer inflation--), the end of pension funds

meant that individuals basically threw their money into the stock and then the

housing markets as sort of a final prayer. Of course today, we now know that all that

money invested in the information society (and housing), at least toward the end of

these investment cycles, was invested in a media and financial industries led pawn

game, which ran alongside of the political ruse of trickle down economics and

regressive taxation, which continues to to feed off of the middle class and whatever

remains of the working class (largely confined to service economy jobs now) and

the poor.[2] As with the most recent economic crisis involving housing, media outlets

and investment firms were talking up the dot coms even as they were betting on

their crash. It brief, it was an era of 'dot-cons'—with the con artists using the

symbolic economy of information technologies to fuel financial economies based on

speculation.

First, this story, as far as I know, has not been adequately told. Financial

speculation and rhetorical speculation about the information age and information

society and their technologies formed a mutually reinforcing cycle around each

other another during the last years of the 20th century and the first years of the 21st

century. It wasn't the first time in history, of course, but at the scale that it took

place it was grandiose, with remarkable consequences--consequences that we still

live with today. Second, in the U.S. these events were preceded by an evaporation of

traditional manufacturing sectors and their unions and the working class that

belonged to these, brought about by off-shore production and tax havens for

industries, 'global trade,' ideological attacks, and other federal policies. The union

structures of much of the U.S. economy that sustained it and brought about a stable

middle class in the post-World War II economy have been replaced by a neo-

liberalism that extends down to the destruction of the welfare state (and with this,

pensions) and liberal institutions (such as the university) that extended back to the

democratic movements of the 19th century. As we all know, this 'war' upon what is

extremely broadly considered to be the welfare state (i.e., any government support

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[2] See, for example, the analyses of U.S. wealth distribution in "The State of Working America's Wealth, 2011." the Economic and Policy Institute. March 23, 2011. Washington, D.C. http://www.irle.berkeley.edu/cwed/wp/wealth_in_the_us.pdf

outside of the military) continues today, particularly in the Anglo-American countries where the ideologies of liberal and neo-liberal political economy, still, are nearly hegemonic, and where the most right-wing radical, and not surprisingly, ignorant and irrational versions of these policies are increasingly dominant players in politics, despite the practical and theoretical historical evidence against such policies and visions. As with Weimar Germany, the inability to move to the political left drives the *Lumpenproletariat* further to a mystical and irrational right, so that even traditional liberal and neo-liberal market ideologues are having their own tables turned against them in the name of isolationist nationalism, politicized Christian evangelicalism, states' rights, xenophobia against immigrants, 18th century market theory, and so forth. While the so-called 'post-industrial' technical class— the so-called, 'digerati'-- are not generally of this camp, nonetheless, they, as everyone else, are increasingly unable to rise above it. Economic liberalism and neo-liberalism are the common family tree for both the U.S. libertarian ideology of the leaders of the 1990s digital revolution and their perverse step-children, those of the political right wing today.[3]

The information age and the information society are, thus, not simply technological phenomenon. In fact, they are least of all these. Nor are the technologies within them simply technological materials either. "Computers" are not simply computational machines. The class of machines that have been and are increasingly called "computers" refer both to specific types of computational

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[3] For the libertarian basis to the 1990s U.S. 'information society' see Richard Barbrook and Andy Cameron's 1995 article, "The Californian ideology"; http://www.hrc.wmin.ac.uk/theory-californianideology-main.html

machines and to a conceptually broad and unwieldy grouping of machines that perform all sorts of 'higher level' functions based on digital computation—communication, information retrieval, sensory monitoring, and so forth.

Often, in popular discourses, the terms 'computers' or 'information and communication technologies' (ICTs) are used to refer to machines that play a role in some visionary activity. Digital processing takes place in many types of machines today, but those called 'computers' in popular discourse tend to bring with them a semantic sense of not just new functions, but new social and personal possibilities for people acting and interacting through them. In other words, the term 'computer' in popular discourses refers not to computational digital processing machines, alone, but to those that have a certain cultural 'progressive' or futuristic sensibility attached to them. In brief, in contemporary colloquial English, computers are 'cool' technologies. Thus, computers in our age carry considerable symbolic capital that is speculative about the present and the future—particularly about the role, or rather dominance, of a modern sense of information within a broader spectrum of what is called knowledge. This is why they so easily symbolically link with speculative financial machines and so easily fit within political financial economies. Culturally speaking, 'computers' and ICTs are terms of the contemporary imagination.

The function of the domain of what I have in other articles variously termed 'critical informatics' (as a type of social informatics) or 'critical information theory' is that of investigating the disjunctions between social claims regarding technologies and the facts of those technologies. In the work of the late Rob Kling in social informatics, from where I adopt the term 'critical informatics' (Day, 2007),

Kling began by empirical investigations of technologies in organizational settings. Toward the end of his career, however, Kling increasingly began to investigate the discourses of "computer movements," though never quite encompassing the problem of the discourse of the information age and information society, per se, before his untimely death. Kling's acknowledgments in his late papers increasingly refer to critical theorists in the humanities. In this, Kling--originally trained as a computer scientist and having been a former faculty member at the University of California, Irvine--moved closer to the critical approach in the works of other and former Californians of the 1990s and later, in or allied with the Humanities, such as Geoffrey Nunberg, Alan Liu (*Laws of Cool*), and myself. I believe that the common observation that spurred these types of critical approaches was that of the mutual relation between hyper-inflated rhetorical and hyper-inflated financial speculation in the stock market, housing market, and in all sorts of other organizational and social investments.

By focusing on the discourse of information, however, I am not in this paper engaging simply in a *social* informatics—that is, investigating the *social* effects of technological investment in many forms—but we are engaging in a type of '*cultural* informatics'—if we may use this term in a critical manner like Kling used the term 'social informatics.' Kling's term of 'social informatics' may appear to us today to be peculiar, because he was not interested in promoting social uses of information technologies or in advocating for the empowerment of social actions by information technologies, but instead, in critically intervening in the social claims being made about information technologies.

Further, Kling saw critical activity as intrinsic to schools of information, computer science, and informatics, but he also realized that the embedding of critical activity in such schools was a rather optimistic, though important, endeavor. The reason for this is easy to see: there is little incentive or reward for either *a priori* or *a posteriori* interventions in technology and often science. The history of Artificial Intelligence is evidence enough that both private and public monies follow technological dreams, rather than critiques (see, for example, Ekbia, 2008).

Imaginary and symbolic discourses and rhetorical devices such as metaphors powerfully drive and fold into socio-technical movements (e.g., Kling's 'computerization movements'), grant programs and grant-getting, and the material and epistemic properties of information infrastructures (Bowker, 2005; Bowker and Star, 1999), as well as modeling and instrument design. For this reason, too, the greatest technologies of our time are greatly psychological in interesting ways. Technological development is coextensive with cultural and social expansions of the imagined understanding and use of such technologies. Science proceeds in part by the analogical progression of technologies and models through the intermediary of method. And consequently, science and technology often intersects with ordinary understandings at points of innovation and points of use, such as science fiction and technological development, and, established technologies and habits and addictions of their use. Ending this section, I will only indicate this in certain ways.

Psychological events are composed of expressive forms or 'tools' of the body and other such tools (linguistic, objects, etc.) deployed according to a wide variety of

social rules for their use that come together in social situations. In short, *expressive actions* (including informational and knowing actions) *are made up of cultural forms in social situations*. These may be personal or group expressions. While all personal forms of expression are culturally learned, personal 'toolboxes' of forms and techniques of expression are singularly assembled during one's lifetime and they are socially deployed as a person or group senses is appropriate, given the contexts of social situations. (Such social expressions include, by the way, self-reflexive dialogue, autobiography, etc.)

Technical skills, like technologies, are devices for production. Heidegger's key insight regarding technology was that the *techne* of modern technology in distinction from non-mechanical tools contains a logic of relatively non-contextual repetition. So, for example, a heavy mechanical shovel's interaction with the ground is relentlessly repetitive, but a simple shovel's dig is rather idiosyncratic and site specific. We dig a hole and we dig it in a roundabout fashion, not necessarily because we attempt to do it in this fashion, but because the hardness or softness and mineral composition of the earth forces our shovel and our bodies to interact with the earth in slightly different fashions with each shovel dig. A mechanical shovel, though, if it is sufficiently large and well enough fueled and the earth sufficiently soft, will dominate the earth and dig in the same fashion each time. If we don't control it, it can dig a rather useful or useless hole depending on what we need, but it does so based on its capability for mindless repetition and brute force. As Heidegger observed, human organizations, when fashioned as such machines, mimic an ability to work in the same 'mindless' fashion, sometimes with the goal of

generating money, at other times, generating (as in athletic or military events) the pleasure of self-destruction or the destruction of others. While Heidegger's analysis is sometimes rather crude, nonetheless it rather well summarizes not just a certain type of machine, but a certain human psychological connection to machines, whereby machines and people may correspond and connect to one another based on what Nietzsche termed the "will to power." Indeed, the repetitive nature of machines becomes both extensions and limits upon foundational human powers (both libidinal and destructive), and exponentially empower and limit such, sometimes to our own or others' destruction. The exponential increases that machine technologies can give human power (or as it is called in psychoanalysis, 'desire') marks them as social and personal embodiments, at times constituting psychotechnical pathologies.

Psychotechnical investments are captured in technological-social systems, including information and communication systems, shaping needs and reforming desire for further reinvestment by such systems. The addictive quality of such systems comes from their ability to exponentially increase human powers with minor human efforts (the power of automobiles or computer games are good examples of this). Such systems may then be symbolically fetishized, and this can be seen not only rhetorically, but in terms of overdetermined and inaccurate class descriptions where social sense overrides reference in the establishment of meaning (e.g., as we discussed, the class term of 'computers'). The power of machines inhabits the imagination of dreams in technological symbolism.

Sometimes the results of this are tragic-comic, immediately during roll out or over time as the imaginary and the real unfold themselves and so leave an ambiguous symbolism. For example, television and cinema began by transmitting images and now transmit overloaded multimedia affects and eventually they will transmit immersive actions, which are gradually appropriated as the 'needs' of, particularly, children. Telephones start with a telephonic means of 'reaching out and touching' someone (as the old Bell (telephone) company commercials in the U.S. told us), and they now continue today with our 'hanging on the telephone' (in our purses or pockets) all day long and now in whatever circumstances, waiting to be 'touched' by another person. Office workers adapt to chairs, computer keyboards and other devices and then try and make up for this adaptation by sudden bursts of exercise, leading to injuries that need further corrective devices and adaptation. Technical devices, thanks to their relentless logic of repetition in key sites of the physical and mental self and society can turn into technological pathologies (which now express in full blown horror the needs of their desired invention—e.g., to be exposed to an imagined real, to be emotionally connected over distances, to extend the body in one physical or mental manner over other manners). This event is no less present with digital technologies, which, according to Franco ("Bifo") Berardi lead to psychological scattering, inability to focus, and eventually, depression, at our being unable to keep up with our own original desires that are now exponentially powered by digital devices. Indeed, as a friend asked in bewilderment about his daughter's Facebook account, what does it mean to have 1,300 'friends'? And, ICTs now bring all the technologies and events above together in a single device and in

unitary experiences. Technologies exponentially empower the fulfillment of needs, and so, they may turn needs into symptoms, which themselves need to be managed. This technological-social assemblage of desire and the shaping and establishing of needs marks distinct moments in modernity, from simple tools to machines of the will-to-power to the simulation of desire itself and its aesthetic fallback in the exhaustive experience of the technological-social sublime. Personally and in groups, we exhaust our needs through our desires, which our machines have graciously enhanced beyond our ordinary capabilities. Our technologies become our everyday 'pacemakers.' As the documentalist Suzanne Briet (2006) noted, because of our new machines, we are constituted in 'new rhythms,' given new 'needs,' and sometimes, exhausted by these new rhythms and their residues. In new ways they take us beyond our literal bodies and cast our bodies and imaginations beyond our deaths.

II. (L)IS and the Place of Need

In the second part of this paper, which was delivered at the seminar in Rio, proper, I will situate library and information science (LIS) and information science (IS—in the sense that information science is understood as part of a documentary, rather than a strictly computational, tradition), within the episteme of the 'information society' or 'information age.' I will discuss (L)IS as a tradition of the concept of 'need,' and I will do so in terms of information retrieval/information seeking (IR), Knowledge Management (KM) and, following the recent dissertation of Neal Thomas at McGill University (Thomas, 2011), social computing. Need, here, is viewed as part of the episteme of information, in so far as it signifies the positioning

of the self within technologically mediated systems of language and other meaningful sign systems. (L)IS contributes to the episteme of information in terms of this special understanding of need, shaped by IR/information seeking, KM, and now social computing. The question is: what is left out of this? I suggest that it is the production of need itself as part of the episteme of information, and with this, the unsaid of production and reproduction itself. Information, as an episteme of knowledge, generally speaking, therefore is the ideological norm that itself lies outside of the methods and theoretical approaches that it prescribes. The question of 'what is information?' here is not approached as a descriptive or a definitional question, but as a putting into question the age and its notions of society that are posed to define us. That is, the question acts as an act of *critique* into the meaning of information for us.

Critical information theory or 'critical informatics' certainly involves critiques of the 'information age' and the 'information society,' as well as other less global discursive assemblages of the informational episteme. However, let us now ask, what particular discursive forms have arisen within and in support of these epistemes and whether there are any unique elements to these that may speak to us of the specificity of the information ages that they produce and, more generally, of the modern informational episteme in general.

Such specificities do not arise out of an historical vacuum. Otlet's notion of the document belongs to what Roger Chartier (1994) has termed "the order of books." As can be seen in Otlet's Traité de documentation: le livre sur le livre:

théorie et pratique (1934), books are documents, but documents model themselves

off of books. The "book-document," as Otlet writes, is the site of the orderly

exposition of ideas, which are taken from the world of observation and then mixed

in with the ideas or influences of previous book-documents. The book-document is

collected in a universal library, and eventually will have its information transmitted

to users in the form of factual units, transmitted through electronic means.

Increasingly, as Otlet put it thirty years earlier, books are friends that we consult

rather than engage. In short, the document emerges from the physical and cultural

form of the book, as a site for a unitary exposition of the facts of the world.

For a later European documentalist, Suzanne Briet (2006), the rhetorical and

cultural order of the book is not so much a concern. Books are simply another

material form for organization. Briet expands her notion of information for an

organization to oral and what we now would think of as 'grey' literature—i.e., so-

called 'informal information.' These would be organized in specialized libraries, i.e.,

documentary organizations, which would form networks. Librarians would be

embedded in their organizational networks, and following the Anglo-American

library tradition, they would be dedicated to serving user needs, rather than being

chiefly concerned with collection development. Whereas Otlet was very concerned

with needs, it was largely for elite audiences served by the largest, most

comprehensive library, which had 'all the facts' of the world. For Briet, such a

library is a "dream" (Briet, 2006). Briet prioritized, instead, the "cultural

specialization" of users, in terms of their professional communities of practice and

their vocabularies of expression.

For cybernetics, information was a unit of command and control through reason. For Norbert Wiener, language was to obey man's reason as a social being, and as such, had to communicate clearly to the majority of users. Wiener's vision of clarity and rationality perhaps would have been very comfortable with the social networks of today, which weigh opinions and truth through algorithms of popularity, forming through calculated feedback a type of 'democratic' crowd sourcing.

Thus, what I think that you see in the modern period is an increasing attention paid to user needs, rather than to collections, as the source for information and knowledge. This is the focus of the LIS tradition that I would want to bring to your attention in what follows. Charles Cole (Cole, 2011), for example, has recently published a paper on the importance of need. There, he develops a theory of information need based on a reencounter with Robert Taylor's earlier work on reference librarianship. His work on needs, as per the LIS tradition, focuses on individual users and their tasks.

As Neal Thomas argues, in his wonderful Ph.D. dissertation on social computing (Thomas, 2011), that Nick Belkin's notion of need in his famous ASK (Anomalous States of Knowledge) model was a response to the IR strategy of exact-matching, in that it started not from a list of terms, but by asking what is the need of the user in terms of what the seeker doesn't know. As Thomas writes:

"Through the paradigm of ASK, seeing need as a cognitive deficiency of information in a user's mind is the backdrop against which all three social computing services [that Thomas analyzes in his dissertation] have developed."

Cole suggests a similar view, seeing in the difference between these two models of IR the difference between user studies and information seeking behavior studies.

As I tried to do in my article, "Death of the User" (Day, 2010), this cognitive deficiency demands that we move from a cognitive based approach to a discursive psychology or sociology.[4] In that article I suggested Lacanian psychoanalysis as one alternative frame for asking the question of the formation of need, but we could choose other traditions, and I would certainly like to show in what follows that the problem of ideology, and, for example, the Althusserian approach to ideology among very many, is relevant here.

As I suggested in my article, the user or 'searcher' needs (largely for ease of use and following Cole (2011), I will use the term, 'searcher' here) are linguistically composed. Now, the use of concept clusters (Cole (2011), p. 1224, in reference to Belkin and Vickery, 1985) in an ASK IR system as an aid to searching could be said to involve two horizons for positioning a person's knowledge in relation to 'information.' As I suggested in "Death of the User," those two intersecting horizons are, first, cultural affordances—operating though the expressions of language and other semiotic orders--, and second, social effects—operating according to social 'rules' or habits of using language and other tools in social situations. The

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[4] I am now convinced that my reading of Belkin's ASK as a cognitive theory (in the sense of Artificial Intelligence), which began this article (Day, 2010) and which I had enacted in previous articles, is incorrect. The 'cognitive turn' in LIS, unlike in AI, and subsequent work in 'information seeking behavior' did in certain ways take this discursive turn. The rest of the argument of this article (Day, 2010) seems to me, however, to remain unaffected by this error.

expression of personal 'needs' within a search statement and the subsequent identification of an information source is a pragmatic problem of the searcher locating him or her self within the norms of these two horizons for a given topic. The psychological and sociological problem of searching is, thus, personal expression by means of relevant cultural forms in social situations. It is never an issue of what is popularly assumed to be the case of matching ideal 'needs' within a user's 'head' or 'mind' to the content of documents. What exists inside a head are neurons and other biological matter. Following the work of Rom Harré, I write that minds are expressions and potential expressions by persons, and persons are made up of selves (singular collections of expressive skills) and socially recognized powers of expression and social agency.

Information seeking and searching is very simple: as best as we are able, we pick the best cultural form in a social situation for some sort of goal.   And in doing so, as Lacan put it, we situate ourselves in a 'symbolic order.' Wittgenstein's notion of language use through language games is the same sort of thing.

Now, information seeking and retrieval are one sort of information activity that functions according to 'needs'—not only for information of one sort or another, but as a more considered reading of ASK might arrive at, the more primary need of situating one's self in a socio-cultural conceptual order for the purpose of not only 'getting information,' but also for—often the ultimate purpose of all sorts of 'information seeking'—expressing one's self in all sorts of ways and through all sorts of expressive tools and means.

"Knowledge Management" (KM) as a type of information management, has been, too, concerned with addressing needs—the needs of future doers of the same or associated activities, the need for evidence, and so forth. Basically, KM since the 1990s has been concerned with the organization of knowledge in the context of information ecologies that are not specifically dominated by specific documentary types (such as books) and corresponding documentary institutions (such as the library). In this sense, it follows the earlier model of documentary centers in Europe, which dealt with any type of information—formal or informal—in any medium or form and was dedicated toward user services. Knowledge management practices across wide or diverse ecologies, especially when combining different informational forms, medias, communities, and users over time, deal with a wealth of problems of standardization, both technological and socio-cultural (e.g., vocabulary). User participation was a strong element of KM in the 1990s, an issue which today is seen not only in terms of user generated content, but also user generated metadata.

It is important to note, though, that beyond organizational imperatives per se, KM as a movement in the 1990s and early 2000s was co-historical with the organizational imperatives within what is known as post-Fordist or post-industrial transformations in the workplace. Western management went through a relative transformation in the 1980s and onward from a more 'vertical' management structure to a more 'flat' or 'horizontal' structure made up of worker teams, relatively more worker autonomy and self-responsibility, and the need for 'clearer' vocabularies and discourses to hold this all together. As the 'information ecology'

flattened and became more networked, rather than overtly hierarchical, so there was a greater need for not simply language, but *communication*--understood as the transmission and inscription of 'clear' statements and the establishment of common classification structures, cataloging terms, and technical linking protocols. In other words, paradoxically, the more 'free' the worker became in terms of management control, the more restricted the worker became in terms of language. Command and control was maintained less through direct force, and more through restricting and establishing the forms for expression. Yates (1989) has shown how this tendency forms the history of communication and management in organizations in modernity, moving from the use of written argumentative reports in the 19th century to checklists and forms in the 20th century. The difference here is that KM was, in part, concerned with the common construction of common forms for expression. The training of workers, both on the job and through social and cultural institutions (schools, community organizations, politics, the family, etc.) to hold common values and to use restrictive normative modes of expression (i.e., language and expression understood as *for* communication, rather than as for 'argument' or demonstration, poetics, art, or discovery), has been a highlight of not only the organizational culture, but the political and educational cultures, of the age (Reaganism in the U.S., and Thatcherism in the UK). In other words, the central social concern during the 1980s, 1990s, and even now, has not only been the 'freeing of the self' from the shackles of industrialism, but the inscription of the self into a regulated markets of language. The 'invisible hand' of merging information ecologies is that of user self-adaptation to social norms, without much critical

reflection upon how those social norms are generated and where they head. In this environment, metaphors and tropes float from ecology to ecology, without awareness of how they are shaping understanding and actions. (As, for example, the metaphor of 'team' floated from sports to business to family organization or 'cohort' floated from military to educational institutions in the 1980s.)

One starts to identify and fulfill information needs by positioning one's self in normative cultural forms in social situations (which themselves are imagined as normative). Finding information about the newest pop star is a relatively simple information need to fulfill. Finding out what is going on in politics, for example, can be vastly more difficult.

Why is this? Information storage and information retrieval, as well as knowledge management, are vocabulary and discourse issues. Today, the newest manner of addressing user needs is that of using social computing. Social computing functions through vocabulary assessment and the relation of users to one another, including their ability to 'vote' on objects and the views of others (Thomas, 2011).

Much has been made about the wisdom of the crowd in global networks, but we are aware from many previous examples in the 20th century of the failure of the wisdom of the 'masses.' It is often supposed that the concept of the crowd differs from that of the masses because the former term is associated with democratic modes of political participation while the latter is associated with fascist modes of political participation. But, of course, things are not that simple. People are swayed based on dominant views, regardless of what we call the political system, and the

names that are given to political systems often tell us little about what actually happens politically inside of a political state. Crowd or mass psychology research investigates the formation of social groups as they form through language and through the tendency of humans to form their points of view based on what others are expressing. Information seeking, as a problem of the user positioning him or herself in terms of other conceptual associations in contexts, speaks to the fundamental role that social psychology plays in phenomenon of personal information seeking. People *position* themselves as selves and as persons based on cultural forms and social situations. Social computing deals with algorithm based mediations of socio-cultural positioning over vast populations (see Thomas, 2011).

As Thomas suggests in his dissertation, there is a clear line that links Belkin's ASK through information systems understandings of Knowledge Management and contemporary social computing. That is the line of *need*. Need is both formed and fulfilled by the ability of digital computing systems to position users within vocabularies and knowledge (e.g., libraries) and social situations by means of the large scale processing and the weighing of vocabulary and other meaningful indicators of what is important. The algorithms of these calculations constitute the overarching 'reason' of the positioning and determination of subjects and the objects that they seek (Thomas, 2011). We should not lose sight that our addiction to social computing and our desire to construct need through documentary means (that is, our age and society of information) represents both an opportunity for broader social alliances and an affordance for micro-fascisms in group dynamics and personal narcissism. An ignorance of the personal and group positioning that

these systems accomplish suggests the triumph of the worse of modern quantitative social science over critical thought in not only the study, but also the formation, of contemporary personal and social being. Far from making us more knowledgeable and careful toward other beings, information can give us a comforting stupidity.

The fundamental positioning of need within symbolic and social orders, however, has been recognized for a long time, in mass psychology, social psychology, anthropology, psychoanalysis, positioning theory, and so forth. The psychology of need that defines the modern information environment and marks the two core traditions of (L)IS—as the problem of the subject in IR/information seeking and as the object of study in bibliometric speculations--, is based on a normative psychology of cultural forms and social situations, constructed by analyzing language vocabulary and other semantic markers and social associations.

The one question that is rarely asked of large-scale information systems, though, is: How do they contribute to the reproduction of the productive forces of cultural forms and social norms? This is a problem of the production of ideology and of social positioning (in the Marxist critique, called 'class' positioning). It is a critical question, not the least because empirical social science research asks questions within already established social frames and norms. As Adorno wrote many years ago about opinion research in the U.S., asking a person to press a button or 'vote' on whether they like this better than that tells you very little about the reasons for a person's psychological and social positions-- and even less about the researcher's! All one gets from this is the reproduction of ideology (understood here as inclusive of social positioning). So, when we do critical research upon

Internet use, for example, we must pay attention to how both social dynamics and algorithmic functions lead to the formation of users and needs, rather than taking users and needs as a posteriori givens.

Isn't it curious, for example, that if we look at Google news it seems that the top ranked important news around the world seems not only on the same topics, but often to give the same points of view as commerical broadcast TV and radio news and the dominant political powers? The crowd-source argument, here, tautologically states that these are the top news stories and resources because they are the most linked to or searched authoritative sources in the web news universe. Bloggers then position themselves in relation to these topics and readers organize their knowledge and opinion in relation to these various news sources.

Certainly such 'news' is important. But, what is missing here? Largely the same thing that is missing from corporately owned newspapers: true investigative reporting. What is missing from crowd-sourced opinion? Often, evaluated knowledge. What is missing from personalized recommendation systems? What you disagree with or what you may not know. As with bibliometrics, scientometrics, and webmetrics, generally, 'the data' tells you very little about how that data came to be. And studying it simply as data can also mask what one is trying to make the data say in studying it in certain ways.

In sum, using and explicating information by more information within the same framework, tells you nothing about the assumptions involved. One needs to critically examine and make judgments and argue about the assumptions that go into the empirical. Speaking in a Lacanian discourse, we can say that the real

doesn't always, and sometimes never, appears in the symbolic, but instead, it lies in what the symbolic leaves out—in the 'unsaid.'

It isn't clear that the tradition of information—of *need*--does very much in the way of offering the unsaid, other than to treat it as a minority opinion. Nor does it very often by itself produce knowledge (for this reason, information systems are not a replacement for the evaluative qualities of librarians and evaluated collections and the 'wisdom of the crowd' on the Internet is not a replacement for experts and critical investigations). The "unsaid," here, means not a minority opinion, but an investigation into the systems of production and reproduction. That is, into a critique of production as the reproduction of productive forces. Humanities research attempts to provide an *understanding* of how things came and are coming to be, in the sense of studying the conceptual-historical repetitions of devices for framing natural and social bodies. They study the facticity and historicity of the 'facts' that sciences claim to study, including the facts of the sciences' methods and techniques and technologies.

As I tried to suggest in my book *The Modern Invention of Information: Discourse, History, and Power*, the system or machinery of reproduction that is avoided most of all in information science is that of the production and reproduction of information as an episteme of knowledge. In terms of IR/information seeking, this refers to the rational socio-technical production of privileged terms and concepts. In terms of Knowledge Management, this is the organizationally and technologically determined domain of meaningful statements for organizational productivity. In terms of social computing, it is the algorithms of regulating the

normative and privileging the importance of social opinion as a paradigm for information and knowledge. Overall, the age and society of information is that of social positioning via treating language as communication and constructing identity as social performativity. **What is critically unsaid are the means—linguistically, conceptually, technologically, and through history and political economy-- that this age and society has been erected. And along with this, the knowledge forms and the personal desires that are not addressed by such 'information' and 'needs.'**

Speaking of information as a primary or a secondary human 'need,' as often is done in the LIS literature, is always derivative upon speaking of need within the episteme of information. "Need" means here: the technologically assisted assessment of probabilistically relevant personal positioning within the social. It means, in short, information, understood as a technologically derived mode of knowledge; a knowledge form whereby technology is not just a means for its expression, but technological manipulations using vast social networks are a necessary condition for its existence.

Today, we are told, that such a knowledge that is called 'information' is knowledge itself. Not only is this knowledge itself—or is a better knowledge than what was called knowledge before--, but the human product of information is being itself—or is a better being than what was called 'being' before. This is what is meant by the 'information society,' in the sense that this term indicates a myopic social evaluation of these technologies as they are thought to socially function to represent 'mankind.' And this is what is meant by 'information age,' in the sense of that this

term indicates a myopic historical evaluation of these technologies in terms of what is now believed to be the true. Thus, in how these technologies culturally and socially function, it is believed that these technologies *are* producers of democracy, *are* producers of truth (as data, 'speaking for itself'), *are* producers of the genuine qualities of social and personal being (following the epistemological and social claims of empirical, data driven, social science research in the modern period). In sum, the 'information age' and 'information society' episteme is built out of the beliefs that information and communication technologies (ICTs) are agencies for retrieving and delivering a true representation of reality itself in all its forms.

If ideological critique, and critical investigation more generally, is the investigation into the reproduction of the means of production, then should we have any more important area of critical research today than this technologically mediated socio-cultural reproduction of 'what is'? That is, is there any more important area of critique than this episteme of information?

Information science--or if you like, library and information science--is an important area to research. Not simply informationally—by finding out its historical and social 'facts'--, but rather, by trying to understand what is being in-formed by such, what has given birth to such, how these disciplines work in regard to an emerging or existent set of terms and social situations.

Today, and for the foreseeable future, let us say the obvious: that at least in the research university and in 'science' (whatever this term may now mean, since it is used for all sorts of coherent activities), and with responsible people involved with policy, that this critical work into the foundations of information will very

likely not be seen as a 'productive' mode of research—if it is even seen as being research, or even scholarship, at all. In fact, quite the contrary in many if not most places: without data, without needs as embodied in specific and a priori research questions, without a determined science-like method to supposedly insure empirical validity, it will be considered somewhat or completely irrelevant, and even mystical; at worse, as a humanities activity of the worse kind—pure speculation and sophistry. Perhaps, informative, but not information and not built out of information.

In brief, our situation with information is not so different than was the situation of the moderns—such as Heidegger and Adorno—particularly in regard to the research university and the politics and culture of their times. The difference is important, however**. The post-Fordist transformation shows us this difference: the conditions for the reproduction of productive forms has now shifted to user self-generation by means of 'invisible' technological aids.** At least three of (L)IS's historical stages--IR/information seeking, KM, and social computing--show the increasing broadening and refinement of the socio-technological reproduction of informational need, up to the level of attention itself (the so-called 'attention economy').

A critique of 'ideology,' today, must take account of not only the social and the technological means of social reproduction, but the socio-technical means of such. A critique of reason, today, must take into account socio-technical reason as a means for producing normatively productive social and personal beings. In sum, a critique of the information age and society today means a critique of social

reproduction as aided by technological machines that directly mediate personal expression and social and cultural development. Such includes the development and character of science and knowledge as they are informationally characterized today.

Today, an ethics of self-critique is surely lacking for information professionals of both practical and theoretical stripes. In part, this is because of self-interest, but also, in part, because the episteme of information itself remains defining of all aspects of life, including of its possibilities for critique (which reduces critique to criticism).

What can we bring out of the LIS tradition that is not structured by 'information'? Such a question boggles the mind today, as librarians and other 'information professionals' purport to be, as the term suggests, 'information providers.' But if we are looking for powerful information providers, we should look online to search engines and the people who design them. Indeed, such a comment like this today would be met with disbelief—betrayal to the library profession and alike. But, I would suggest, that being information providers or information professionals is not what librarians are and not what the library part of the documentary professional most calls out for. For, librarians are not simply information providers or information professionals, but they are, more essentially, knowledge providers and knowledge professionals. In this, they are closer to scholars than to search engines.

How can we legitimate such a claim? Very easily. Librarians, like scholars, *evaluate* information, in collection development and services. Collectively, today we are awash in information, but we don't collectively seem much smarter. How can this be? It is because information is not knowledge. Knowledge is evaluated information, in terms of contexts of production and contexts of use.

Today, knowledge is often seen as a sort of additive product of information. Students 'mash-up' or cut and paste historical narratives and so see themselves as aesthetic composers of history. But history as a mode of thought and of social action is not aesthetic, but ethical. And so it is true for all difficult thought. Knowledge in this manner is critical—it is the insertion of agency into the thinking and construction of the future by means of trying to alter the way that the present (as well as the past and the future) is conceived and deployed. Against the metaphysics of knowledge as additive information—that is, today, against information as the reigning episteme of knowledge--we reassert here a tradition of knowledge as understanding, agency, and *critique*. Such thought begins with the evaluation of information and knowledge in terms of its production. The librarian, as the knowledge professional, begins with thinking cultural forms—particularly documents and other established forms of expression--in social situations.   This critical thinking takes place historically, conceptually, and rhetorically. It is the first step in thinking.

Here, instead of just enacting a continuous critique of information and of knowledge, as these terms are largely understood today, we point to a reply to the call of thinking—what Heidegger termed the "end of philosophy and the task of

thinking." It is not too much to discuss thinking as an ethical reply to both a tradition of thinking that takes place outside of metaphysics and positivism and as an ethical reply to metaphysics and positivism. This task is both philosophical and not philosophic. It doesn't end with the tools of philosophy and it doesn't begin with information, which continues the metaphysics of presence in the field of knowledge, and in thought, more generally. Instead, it begins with reading and involves *critique*. Information, here, is not necessarily progressive knowledge, but rather it is both a possible tool and is a point of critique. Only through reading and understanding can we come to understand the value or lack of value for positive knowledge. Only through reading and understanding can we understand the production of information and the various epistemes of knowledge. And only through these can critique intervene in the metaphysical construction of individuals and the world.

The starting point for my book, *The Modern Invention of Information: Discourse, History, and Power,* was that we not only have the right, but the responsibility, to rethink our future. Such a right is the fundamental gift that is given to human beings. An engagement with the episteme of information is very important in our consideration of our historical age and our societies and in our self-assessment of who we are as human beings and our relation to other beings.

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