Social Informatics Education in I-Schools

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Abstract
This essay focuses on the philosophical and conceptual underpinnings of a program of study in Social Informatics. We examine foundational concepts and analytical tools, ideas worked out by Rob Kling and others about the key components of an ICT-oriented education (even when the intent of their discussion was not pedagogical). Our intention is to assay Kling's program of critical inquiry for a Social Informatics education that prepares information professionals to respond appropriately and ethically in their future careers. We do not to recommend the adoption of specific courses for a Social Informatics education. We had also planned to identify those components of a Social Informatics education that I-schools and library and information science schools have incorporated in their program offerings to determine how much progress has been made to adopt a critical perspective on the relationship between technology and people. However, this proved to be nearly impossible; we discuss our limited findings based on our initial exploration. Our concluding remarks address additions to the Kling perspective on a Social Informatics education that we would like to see and offer some thoughts on ways to support a Social Informatics education for information professionals.

Introduction

Rob Kling was certainly not the first person to devote considerable attention to educational program design that incorporates a study of society and technology. He was, however, a key institution builder who tirelessly promoted Social Informatics, the interdisciplinary study of the design, uses and consequences of information and communication technologies (ICTs) and wrote on the subject of Social Informatics education throughout his professional career. As such, it is worth restating Kling's contribution as it concerns his personal commitments and the philosophical and theoretical underpinnings of the Social Informatics program of study that he articulated

and whose concepts he thought had been undervalued and unappreciated (on this last point, see Kling, 1991a, 1993, 2000; Kling & Star, 1998). This is then followed by a brief discussion of the elements of a critical education, including goal, core analytical concepts that he espoused and student outcomes. We conclude with some remarks about an empirical assay of the integration of Social Informatics in I- and library and information science school programs that we attempted to carry out, and a brief discussion of the lacunae in Kling's prescriptions for a Social Informatics education that could profit from more theoretical and practical development.

Prologue: Philosophical Commitments

Debates about society and the role of (information) technology have been ongoing for centuries, and many writers have been preoccupied with its consequences for the collective and for the individual; Kling was in good company. Value commitments and choices, political cleavages, and public policy considerations figured prominently in his earliest work (see Kling, 1974, 1978c; Kling & Gerson, 1977, 1978; McCracken et al., 1974) and were an enduring interest throughout his career (see, for example, Kling, 1992).[1] His core philosophical concerns were unwavering: the relationship between the use of computer and transformation of the social order. To what extent, he asked, could "computer-based technologies play key roles in restructuring major social relationships —interpersonal, intergroup, and institutional" (Kling, 1991a, p. 344).

In one form or another his writings focused on various elements of the normative implications of computerization, the roles and responsibilities of the public and private sectors and professions, and public policy design and its consequences for social life, work life, and the citizen. He articulated a responsibility-centered role for information professionals which flowed from his convictions about the ethical self (see, for example, Kling, 1973, 1974, 1976, 1978, 1992a, 1992b). He contended that technology was not (politically) neutral and went far beyond the technical: it had consequences for the polity, society, organizational life, and individuals; it was implicated in social change and transformation. "These issues," he wrote,

> concern the ways and means that computer technology can help foster a mature and humane society. They involve judgments of social value as well as technical comparisons. As a beginning we must understand how computer technology can be used to enhance (or diminish) the humaneness of the people who are affected by various computer systems (Kling, 1973, p. 387).

Thus, information professionals needed to carefully consider elements of power and influence, resources available to and employed by various interests, and the consequences of their personal decisions and of public policies. And they needed to apply what Kling (1974) called "person-centered standards" for the design of computerized information systems that promoted "a sense of personal competence and authority?" (p. 6).

[1] See Robbin (2005) for an elaboration on this aspect of Kling's work.

At another level we might say that Kling made two additional important contributions through his efforts to dispel the myths of technological determinism, utopianism about the benefits of computerization, and simplification of complex social and organizational processes, social change and social transformation which framed the discourse about computing and society. His was a critique of theory and a critique of evidence.

He argued that these myths flowed from faulty theoretical approaches that dominated the study of the introduction of computer technology into society and organizations. These approaches were "based on a highly simplified conception of computing and social life" (Kling & Scacchi, 1982, p. 2) and conveyed certainty about the consequences, outcomes, and benefits of computerization but lacked adequate empirical or behavioral data to support their theoretical underpinnings (see, for example, Kling 1991b, 2000). Moreover, they "drew *a priori* boundaries around direct computer-based systems and immediate users, their work groups, or at formal organizational boundaries that often failed] to capture important social relationships which influence[d] the development and use of computer-based systems" (Kling, 1987, p. 307).

Unpacked, the argument he made over the decades of his professional career yields the following assessment: We need better theory that problematizes the technical. We need to problematize computerization as a culturally significant symbol system that reproduces historical and current ideological thought, institutional power, and the contested terrain of political and social relations. History counts. Context counts. The technical and social cannot be analytically separated. We need better theory that accounts for socio-technical interaction and interdependency.[2] We need theory to help us understand why outcomes and consequences are uncertain and unpredictable as an alternative to deterministic impact studies. And we need empirically-based observation and a more inclusive conception of what constitutes empirically based evidence to support, refute, or modify theory, to discover what actually takes place when computerized information systems and other technologies are adopted, to discover whether social transformation has occurred, and to analyze the discourse of computerization.

At a deeper, more philosophical level Kling's contribution rests on his efforts to alter the public and professional discourse on computerization: the "critical" aspect of Kling's lifelong project.[3] Here "critical" refers to the disjunction between discursive claims regarding the social and professional use and value of "computer technologies" and empirical observations regarding their actual use and value. This disjunction is

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[2]For recent analyses of the problems of research on the "technical" and elaboration on an agenda for theory-based study of the socio-technical interaction, see Orlikowski and Barley (2001) and Orlikowski and Iacono (2001),

[3]This discussion is elaborated on by Day in a manuscript on Kling and the "critical."

socially caused and reinforced by discursive and institutional means and habits (what Kling called "ideology") and it requires explanation. Such explanations are "critical" because they intend to negatively intervene upon normative lines of social and semantic production. “Critical practice” with regard to “computer use” is a professional and social necessity. Without critical practice, we can anticipate the proliferation of (designs, implementations, and many side effects of adopting) systems that embody false or problematic social values.[4] With "critical" analysis in "professional education" and "social life" (Kling, 2002), other, more effective and "truer" lines of development can take place, resources can be better distributed, etc., and a better understanding of how political economy can be driven by discourses on “computers” and “computer use.”

There is another meaning to Kling’s commitment to the critical: to the “empirical” as a way of knowing the world. Although not schooled in research methodologies, Kling claimed correctly that there was insufficient attention to the site where computerization occurred. His critique, offered in various documents (see Kling, 1991c, 1987, 1992b), pointed to the inherent weaknesses of quantitative methodologies, specifically survey research and experiments. He advocated increased use of “qualitative” methodologies, especially those that relied on naturalistic methods like ethnography, participant observation, and, more generally, field research. Although his work is dominated by more traditional social science “empirical” observation, it is by no means the totality. And in regard to educational issues or issues of genre, discursive-textual methods and analyses dominate. His conception of the “empirical” was, as such, more inclusive, what is not traditionally seen as “empirical work”: namely, the types of interpretative-description (“conceptual”) cultural analyses carried out in the humanities. The importance of these methods increased as he turned his attention to the genres of computer discourse (e.g., Kling & Iacono, 1988, 1995/1994; Iacono & Kling, 2001), the closer his work got to what Kling calls “critical” issues. This is an important clue to us, not only about his body of work, but about where we should go beyond traditional conceptions of empirical investigation.

Embedded in Kling’s critique, as noted earlier, was also a place for history and its influence on thought and action that derives from an (unstated) symbolic interactionist perspective that he oriented to early on in his career, although explicit discussions of the role of history were rare in his work..[5] He did, however, rail against

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[4]Kling Kling, Olin, & Poster, 1991/1995) wrote much during the dot.com boom in California and attempted, as Day (1997, 2000, 2001) and others did as well, to intervene in it because of the very ideological waste of resources he saw, particularly the merging of "ideological" or literally speculative symbolic economies about "computers" (ICTs in general) with speculative financial economies during the dot.com boom.

[5]The symbolic interactionist approach, particularly with its emphasis on emergent and dynamic properties of the social order, helped Kling recognize the historical aspects of the dynamic processes of computerization in organizations. In one of the few instances when “history” is made explicit, Kling writes that, “In an earlier formulation, we also identified an explicit ‘historical’ dimension because many analyses of computerization discount the way that the social organization of computing in support of a

the domination of rational actor (public choice, economic rationality, systems rationalist) theory and its implicit ahistorical explanation, emphasizing as it did presentism and certainty and disregarding context and emergent and dynamic processes. Presentism ignored the legacy (history, temporality) of decisions that shaped social, political, and organizational choices about information system design, implementation, and outcomes.

Thus, Kling was committed to understanding social choices related to computerization as a problematic and complex, contingent process. This was a process mediated by history, context, structure and agency, culture and meaning systems, symbolic and material interests and resources, and political and social processes. Reality could be discovered by empirical means. The foundational notion of "critical" work in Kling's oeuvre, and also the centrality of genre and textual discursive analyses in his oeuvre as a way of performing this work and making explicit the taken-for-granted, extends the notion of the critical beyond simple policy engagements, organizational analyses, and traditional quantitative accounting.

Critical Professional Education About Information and Communication Technologies and Social Life

The "critical" provides the basis for the conceptual foundations of a social information education for the information professional. For Kling (2003), this "critical orientation" referred to

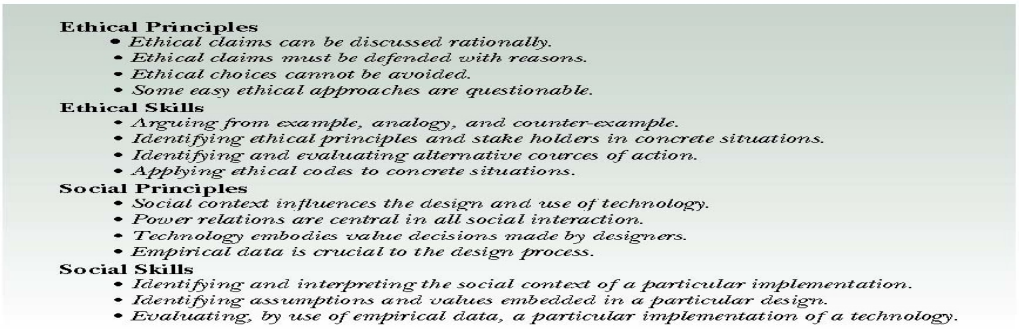
> systematic examinations of assumptions about the relationships of IT application configurations and social life and the evidence for various claims about IT applications and social life. It can examine the ways that these relationships may vary with cultural and institutional contexts. It can examine ends as well as means to achieve them (p. 404).

A formal "critical" program for a education is intended to prepare students for the roles they will play in "conceiving, developing and supporting new, workable, and socially beneficial applications of information and communications technologies" (Kling, 2003, pp. 394, 395).[6] Drawing on Huff and Martin (1995, p. 81), Jewett and Kling (1996) identified ethical principles and skills and social principles and skills as the foundation for this education.[7]

CBIS develops over time in ways that can shape its future, as well as its present" (Kling & Iacono, 1989, p. 14). They continue, "'Historical' has meaning in describing the long-term development of the technical configurations of equipment, the social organization of computing, and the politics of computing in a particular setting"; however, the historical "is not an independent and parallel category."

[6]Kling's critique originates in his assessment of the failures of the computer science and engineering fields to adequately, if at all, address ethical and social issues as they relate to IT. Our paper takes these origins as background and does not discuss this aspect of Kling's critical project.

[7]Skills are the "social know-how" (Kling, 2000, p. 228).



Kling's own interests and his role as a researcher also framed what he conceived as essential for a program to educate information professionals in Social Informatics: communication of research findings on and developing an understanding of the "relationships between IT configurations, socio-technical interventions, social behavior of participants in different roles, and the dynamics of organizational and social change" (Kling, 2003, p. 395).

Critical professional education about IT and social life leading to improved and socially responsible IT design, implementation and use may be broadly categorized as an organized program of study that is systematic, theoretical, conceptual, empirical, analytical, and prescriptive. This education is designed to create reliable knowledge about discourse, cultural models, infrastructure, and ethics (Kling, 2003).

Understanding the different discourses reveals how language as a symbol system shapes the meaning and character of IT applications and how language is open to "varying situations and to the range of interests of speakers and audiences" (Edelman, 1988, p. 116; 1977). The concept of "cultural models" illuminates the origins of these discourses, the "social values and assumptions embedded in technology," and "power relations that are central to all social interactions" (Huff & Martin, 1995, p. 81). And the concept of "infrastructure," what Agre (1995) calls "institutional circuitry," represents the context of networks, flows and the interdependencies of social relations, information, and technology (Agre, 1995; Bowker & Star, 1999; Kling, 2003; Star & Ruhleder, 1996.).[8] The normative component reflects concerns about ethical behavior and professional responsibility and accountability to produce "effective socio-technical design of IT applications" (Kling, 2003, p. 397). This program of study and learning environment prepares students with significant knowledge about the "relationship between built artifacts and human values and conflicts about them" (Kling, 2003, p. 398) and "deep socio-technical analyses to develop or support IT applications in a contextually human sensitive manner" (Kling, 2003, p. 410). This will require

[8]Agre (1995) defines "institutional circuitry" as "the forms and pathways that specific social formations maintain for the movement of their own categories of communicative practice" (p. 227).

unpacking assumptions and premises and uncovering biases. But the foundational premise is always that "social forces help shape technology" (Kling et al., 1996, p. 123).

A Social Informatics education must (1) be grounded in theoretical and conceptual frameworks about socio-technical processes that are implicated in the "design, configuration and implementation of ICTs"; (2) provide analytic techniques "to identify and evaluate the social consequences of ICT-based systems"; and (3) help technically trained people to "develop a more critical," that is, "a reflective, inquiry-focused and problem-based appreciation of the benefits and limitations that ICTs provide" (Kling et al., 1996, pp. 104-105). This education should be grounded in research and practice, with students guided so that they arrive at an understanding of the paradoxical nature of ICTs, their benefits and costs, and the ethics and unintended consequences of design. This education requires a deeper knowledge of social and organizational life. Finally, it requires a variety of pedagogical approaches that emphasize inquiry-based learning.

Core Analytical Concepts

Embedded in what Kling et al. (1996) call "Social Informatics issues" (see Figure 2, p. 117) are some of the concepts deemed core to a SI education. These include but are by no means the only ones in Kling's analytical toolbox:

- *context*: Technology is embedded in a web of social relationships (Kling & Scacchi, 1982; Kling, 2000, pp. 225-226), in an "environment of use" that "influences its meanings and roles" (Kling et al., 1996, p. 117).
- *value-neutrality*: ICT design reflects the structures of power and authority relations, can be expected to be contested, and "creates winners and losers" (p. 118).
- *paradox*: Similarly designed ICTs can have different outcomes in different situations, and anticipated as well as unanticipated consequences (p. 118);
- *ethics*: Moral principles are associated with ICT design, implementation, and use.
- *configuration*: ICTs are "reflections of collections of distinct components" that can be assembled, reassembled and reprogrammed and lead to socio-technical networks that are "unique for each social system" (p. 119).
- *trajectory*: There is a technical and social "history and a future" to ICT development and an "unfolding" process that takes place over time as ICTs and the social system mutually adapt (p. 119).

Elements of Informed Critical Thinking for a Program of Study

The goal is for students to develop the capacity to be skeptical and to understand that "clear-cut answers" for solutions to ICT design, implementation, and use "are rare" (Kling et al., 1996, p. 123). In addition, students must develop the capacity for making good decisions that incorporate moral thinking. This means that a Social Information education program needs to be designed so that students learn

- not to "automatically and implicitly adopt the goals and beliefs of groups that commission, design, or implement specific ICTs" (p. 123);

- to see "ICT designs, configurations, and related social practices and choices about these practices from multiple perspectives" (p. 123), i.e., the possibly many constituencies and stakeholders as well as different points of view and perspectives (Jewett & Kling, 1996, p. 10);
- to reflect on these multiple perspectives from different levels of analysis (p. 123);
- to reflect on and integrate theory and research into practice;
- to develop a personal point of view based on the analysis of major issues (Jewett & Kling, 1996, p. 9);
- to become ethically and socially responsible information professionals.

How to stimulate inquiry-based learning requires the integration of research and theory into the program, as noted above. Social Informatics comprises diverse literatures. Students will need to understand terms, concepts, and theories from different disciplines (Jewett & Kling, 1996, p. 9), which also have different methods of knowing. and, as such, students will need to acquire a knowledge of their critical-conceptual tools.

To be pedagogically effective and enhance conceptual learning, courses need to employ "examples, case studies [applications], and student-based projects of local/personal interest (in university or local community)" (Kling et al., 1006, p. 124) and personal experiences (Jewett & Kling, 1996, p. 17). Internships and cooperative education provide "practice-based experiences" (Kling et al., 1996, p. 128). These pedagogical methods provide opportunities for concretizing the theoretical and moral principles that have been articulated and for developing a reflective practitioner (Schon, 1983; Schon & Rein, 1994).

Consistent with Kling's theoretical position on the underlying processes of the socio-technical, he recommended that the technical components of the information professional's education be thoroughly integrated into the larger social context and that a "social informatics approach be process-oriented" (Kling et al., 1996, pp. 128, 129). He did not, however, counsel a "one size fits all" program of study, believing that "course-level content had to address the specific needs of the [diverse] ICT-oriented disciplines" (p. 128). He argued only that Social Informatics topics and concepts be thoroughly integrated in a curriculum where ICT was the principal focus and that students be educated with the analytical tools that would serve them "through their education and subsequent career" (p. 129).

An Empirical Examination of LIS Curricula

When we first began thinking about this paper, our intention was to assay the status of Social Informatics education in LIS and I-schools. We attempted to carry out an empirical study to determine whether Social Informatics topics had been incorporated

in LIS programs of study.[9] In order to provide a systematic accounting of the landscape of SI courses taught in LIS curricula, the list of ALA accredited programs (N≅56) was examined to determine whether we could, in fact, identify courses with Social Informatics topics.[10] Titles and descriptions of courses taught in these LIS schools were skimmed and course instructors and syllabi were scanned if they were available. The process turned out to be rather difficult, with a variety of problems encountered,[11] such that we are very limited in our ability to say anything concrete or with certainty about the status of Social Informatics education in LIS schools.[12]

Keeping in mind the constraints that we operated under (see fn. 11 and 12), there are only a very few observations that we can make about SI courses in LIS curricula. We found that most schools have included at least one "Information Policy" course in their program. "Information Policy" could be considered as a SI course, but, again, the content of the course depends on who teaches it. Many times this is the only SI course in each school. Six LIS schools offer more diverse SI courses than others, and it appears that these schools have more researchers who specialize in Social Informatics (University of Michigan, University of Illinois Urbana-Champagne, Indiana University, University of Missouri-Columbia, and University of Washington). We have concluded that the difficulties we encountered could be resolved by having instructors nominate their own SI courses.

Concluding Remarks

This essay has not discussed lacunae in the Kling perspective about the Social Informatics education of information professionals. We have, instead, tried to summarize core principles that Kling articulated during his professional career. It could legitimately be argued, however, that his thinking was theoretically and pedagogically incomplete. For example, although he strongly emphasized the need for empirical research as a basis for knowing and was critical of the dominant methodologies, his was not a deep interest in the methodological (epistemological); as such, training in research methods was never explicitly discussed by him. He was openly disdainful of

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[9]Among the list of I-conference schools, this initial review did not include the programs at the University of California, Berkeley; University of California, Irvine; Georgia Institute of Technology; Indiana University School of Informatics; and Pennsylvania State University.

[10]http://www.ala.org/ala/accreditation/lisdirb/Alphaaccred.htm

[11]It was often not easy to identify course instructors. If records of course instructors were found, the instructors' research interests were checked to see if they include Social Informatics as a part of their research. Course syllabi were rarely available.

[12]First of all, it is known that instructors teach based on their expertise. As a result, under the same course title and description, a course could be taught in a different way by different instructors. For example, a course entitled "Digital Library" could be taught as a technological course to develop digital libraries, an archiving course to learn digital archiving techniques, a management course to discuss issues of managing digital libraries, or a Social Informatics course to specifically study social aspect of digital libraries. This means that, unless we know the instructors who are Social Informatics researchers, it is uncertain whether it is a Social Informatics course.

cultural studies and post-modernism, although he himself was sensitive to and influenced by this thought, and this influence is clearly evident in his various articles on the discourse of computerization (Iacono & Kling, 2001; Kling & Iacono, 1988, 1994; Kling, Spector, Fortuna, 2004). His sociological theoretical orientation to the organizational, institutional and processual may have constrained his attention to the subjective; thus, although he argued that students needed to learn how to think at multiple levels, the concept of "human agency" received little (if any explicit) attention and it never became part of his theorizing.[13]

Although Kling recognized that there was a dynamic to the controversies and debates over computerization and he stressed the importance of studying "computer use" within terms of socio-historical discursive regimes, his own theorizing about socio-technical interaction networks (STINs) appears to have neglected, or at least left under-specified, the role of history. Thus, "history" as an analytical concept was never explicitly incorporated in the tool box of analytical concepts that he advocated for educating the information professional. Similarly, he was not preoccupied with the terms and concepts of "information" and knowledge," except as they were relevant to his concerns about information flows inside organizations, social accountability of the information professional, public policy, and professional issues. As such, it would probably be useful to broaden and deepen the program of study that Kling advocated to include these theoretical, epistemological, historical, and cultural issues.

Where does our empirical study leave us? If Social Informatics is to have a presence in LIS or I-schools, there must be a champion. Yet, having a tireless champion institution-builder like Rob Kling did not ensure the integration of SI concepts and topics in a curriculum. This integration requires much, much more; this project is very complex. A critical mass of scholars and teachers, proponents of SI, must be trained. They must then populate the I- and LIS schools (as well as other non-I and LIS schools) to educate students. Integrating SI concepts and analytical tools in a program of education requires the intellectual support, respect, and good will of colleagues whose intellectual interests are different. Equally important, financial support from senior administrators must be forthcoming, as well as funds to support the training of doctoral students who will become future faculty.

SI scholars and teachers need to share information about research and teaching, including the development of collaboratively designed research projects and course materials. Information about SI research and courses needs to be publicly and freely available, and also available to administrators and funding agencies. We hope that this first I-conference provides us with this opportunity. The Rob Kling Center for Social Informatics could play a pivotal role as a mechanism for sharing information about research and teaching, developing collaborative undertakings, and furthering the principles that Rob Kling articulated over the course of his professional career.

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[13]The sociological self as "users" and "social actors" is what Kling emphasized (see Lamb & Kling, 2003).

Traditionally, computer science or library and information science programs have not included social informatics as a core component of their curricula. Kling (1994) argued eloquently but ultimately unsuccessfully that computer science needed to embrace social and organizational informatics. Towards the end of his career, Kling (2003) was persuaded that I-schools offered the appropriate "institutional circuitry" (Agre, 1995) for fostering social informatics discourse and a critical analysis of ICTs. We too believe that I-schools can play a pivotal role. We hope that our essay will generate discussion during this first I-Conference about integrating social informatics in I-school curricula and developing a curriculum for information professionals that emphasizes a critical perspective on the relationship between technology and people.

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