The Role of the Client in Informing Science: To be Informed *and* to Inform

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Abstract

It is the assertion of this paper that Informing Science (IS) framework (Cohen, 2009) gives insufficient attention to role of the client, a failing traced to the framework's derivation from the Shannon-Weaver model of communication (Shannon & Weaver, 1949). The IS framework ignores developments in information and communication technology (ICT) and human rights and the resulting emergence of a communicative consciousness. This communicative consciousness forms the context for a new professional/client relationship based on a human right to communicate that embodies the right not only to be informed but also to inform. It is proposed this client informing should begin with the initial phase of any informing process research and development. Making a distinction between unilateral informing and interactive communicating, this paper calls for an open model of IS research and development involving a collaborative communicative relationship between professional and client in opposition to the IS framework of the passive, fragile client.

Keywords: Informing Science research, Informing Science framework, right to communicate, professional/client collaboration, communicative consciousness, open research model.

Introduction

Insufficient recognition is given to the role of the client in the Informing Science (IS) framework; indeed, to such an extent that some argue there is an urgent need for Informing Science "to identify the specific types of external clients that are to be informed in the future" (Gill & Bhattacherjee, 2007, p. 30). There is concern IS researchers have not established how to inform clients (Fitzgerald, 2003; Lang, 2003). Cohen even asks such a fundamental question as "…what does it mean to 'inform a client'?" (2009, p. 9). Some have stressed the need to consult with clients in what has been characterized as "The Inexact Science of Informing Ourselves" (Rudasill, McNeill, & Jacobs, 2002, p. 1367) while others the need to achieve the transformation of " 'Informees' as Informers" (Miliszewska & Venables, 2003).

This paper examines the role of the client the IS framework as delineated by Eli B. Cohen, founder of the Informing Science Institute (Cohen, 1999, 2009). Various revisions and elaborations have been proposed to this framework including Gackowski (2005, 2007), Gill and Hicks (2006), and Gill and Bhattacherjee (2007), nonetheless, the Cohen formulation continues to reign as the basis for considering the conceptual framework of IS. Therefore, the framework presented by Cohen in his 1999 and 2009 papers is the focus of this paper. This paper examines how the IS framework embodies a traditional pro-

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fessional/client communicative relationship consisting of a one-way process of informing that assigns a passive, largely powerless role to the client. The roots of this perspective is traced to the IS framework's foundation in the Shannon-Weaver model of communication (1949).

The role of the client can be considered from many perspectives. Gackowski asserts that "Informing sits at the crossroad among political philosophy, applied mathematics, operations research, operations management, business, and certainly education" (2007, p. 190). Among these various routes, this paper approaches the role of the client from that of political philosophy. The role of the client can be considered from at least two perspectives: (1) as a participant in the use of an informing process; (2) as a participant in the process of designing and developing an informing process. Discussion of the role of the client in the IS framework is dominated by the first perspective, focusing to a great extent on the cognitive and physiological elements of the informing system (Cohen, 2009, p. 10). It frames the largely passive role of clients in their psychological, sociological, and physiological contexts. Missing from this framing construct is the political context, in particular the power relationship between professional and client.

This paper argues it is time to incorporate within the IS discourse greater consideration of the second perspective, the role of the client in the development of informing processes. Indeed, the role of the client in the use of informing processes can only be legitimately addressed or determined through the client's participation throughout the development of the informing process. Thus, the paper proposes a collaborative role for the client in IS research and development (R & D) within a human rights perspective, specifically, a right to communicate. This collaborative role represents a change in the traditional hierarchical professional/client relationship; that is, an outcome of greater professional/client collaboration in the development of informing processes should be a far more powerful, less passive role of the client in both the development and use of the informing systems.

The role of the client in the development of informing processes is placed in the context of an emerging communicative consciousness derived from a convergence in developments in information and communication technologies (ICTs) and in human rights over the past several decades. From the perspective of the individual or client the essence of a right to communicate is the right to be informed (the current focus of the IS framework) and *to inform* (the missing component of the IS framework). The values of a right to communicate embody the right of clients to participate in the development of modes of communication. Thus, while the right to communicate is an active human rights political movement, it also serves as a conceptual framework for research on the professional and client roles in informing research and development (Dakroury, Mahmoud, & Kamalipour, 2009). The right to communicate encompasses two-way professional/client collaboration within a transdisciplinary, open model of R&D that accommodates a dynamic information technology environment.

The Role of the Client in the Informing Science Model

Cohen initially introduced the concept of a "transdiscipline" Informing Science in 1999, with an elaboration of his ideas in 2009 (Cohen, 1999, 2009). Cohen defines Informing Science as:

> The fields that comprise the transdiscipline of Informing Science
> provide their clientele with information in a form, format, and schedule
> that maximizes its effectiveness (2009, p. 6).

His definition embodies three key components: the task orientated client requiring information; the system delivering the information; the informing environment generating the information clients require. The effective use ICTs essentially constitutes the delivery system (Cohen, 1999).

In his explication of the client component of the IS framework Cohen stresses the importance of recognizing "that information needs of an individual are complex and are a function of context, environment, social or job role or task, and the individual's psychology" (Cohen, 2009, p. 8). In terms of IS research on the client he asserts "the psychological, sociological, and physiological contexts in which people receive and process information" form a nexus he characterizes as "cognitive informatics" (p. 10).

The focus on "cognitive informatics" casts the client in the characteristic role of research and development in the traditional professions, that is, as an *object* to be studied rather than as a collaborative subject in the research. Missing in the IS framework is any substantive recognition of the role of the client in an interactive relationship with the informer in the creation of the informing system. The Client remains largely a passive receiver in a one-way flow of information through the informing conduit. This passivity is compounded by focusing on the client's human limitations which are characterized as fragilities: "cognitive limitations of human processing of information" including "perception and processing, biases due to prior knowledge, skills, abilities, and information preferences" (Cohen, 2009, pp. 7-. 8). Accordingly, research on fragilities should focus on "psychological, sociological, and physiological contexts in which people receive and process information" (Cohen, 2009, p. 10). Thus, the client is cast as a passive, fragile receiver of information at the end of one-way conduit.

The lack of attention given to the communicative role of the client in the IS framework is inherent to the framework's foundation in the Shannon-Weaver model of communication. Cohen recognizes that the Shannon-Weaver model focuses communication research on the technical level and therefore he attempts to extend the model by bringing attention to the human context of informing (2009). Nonetheless, the IS framework continues to adhere to a passive role for the client. As well, the focus on the sociological, psychological, and physiological contexts of informing ignores the power or political context of the roles of the informer and of the informing client. As will be shown, this paper advocates drawing on a political human right to communicate framework that envisions an active, more powerful role for the client.

Origin of the IS Framework

Cohen's IS framework is an elaboration of the influential communication model proposed by Claude E. Shannon in his seminal paper, "A mathematical theory of communication," published in the July and October, 1948, issues of the *Bell System Technical Journal* (Shannon, 1948). Shannon used probability theory to address what he stated was the fundamental problem in communication: "….reproducing at one point either exactly or approximately a message selected at another point" (p. 1). The paper, accompanied by a popularization written by Warren Weaver, was re-published as a book in 1949, leading to the widespread application in many fields of what became known as the Shannon-Weaver model of communication (Shannon & Weaver, 1949).

As Shannon stipulated, the essential features of his model of communication systems are:

> 1. An *information source* that produces a message or sequence of messages to be communicated to the receiving terminal. …
>
> 2. A *transmitter* that operates on the message in some way to produce a signal suitable for transmission over the channel. …
>
> 3. The *channel* is merely the medium used to transmit the signal from transmitter to receiver. It may be a pair of wires, a coaxial cable, a band of radio frequencies, a beam of light, ….
>
> 4. The *receiver* ordinarily performs the inverse operation of that done by the transmitter, reconstructing the message from the signal.

5. The *destination* is the person (or thing) for whom the message is intended. (1948, p. 2)

Additional elements of the model include the message, signal, noise, and received signal.

For Shannon the nature of the message in terms of content or form was not an essential feature of the model; his focus was on the message as a signal, an engineering problem (1948, p. 1). Furthermore, in his schematic of the model of communication all arrows showing the flow of the signal between the "Information source" to "Destination" point in one direction: from the former to the latter only (the model is reproduced in Cohen, 2009, p.7). As the destination can be either a person or a thing, no interactive communication is envisioned, indeed, the person is objectified as essentially a thing.

While others, including Weaver himself, have attempted to transform the Shannon-Weaver model into a communication model embodying some element of feedback, their success has been limited. However, as a standard text in communication theory states: "Equating information transmission with communication …is an idea that dies hard" (Griffin, n.d., p. 55). The adaptation of the Shannon-Weaver model to Informing Science represents yet another example of equating one-way information transmission to communication. Failing to recognize the distinction between informing and communicating accounts for the largely passive role of the client in the IS framework. It is crucial to understand how technological developments over the past decade have altered the informer-client relationship, changing that relationship from one of informing to one of communicating. This development has had a highly relevant impact as well on conceptions of human communication rights.

Technological Developments and Communicating

As cognitive archaeologist Colin Renfrew explains, cultural developments are a result of human encounters with the material world: "It is in this process of material engagement that the origins of growth and change are to be understood" (2008, p. 87).

The drive to find ever more sophisticated technological means of communicating continues to be an important process of material engagement in the consciousnesses of humans including recent developments in information technology and electronic communication (McIver & Birdsall, 2004). The development of satellite communication in the 1960s (Dakroury, 2009, pp. 30-31) had profound implications for conceptions of communication and human rights and for the development of a communicative consciousness that embodies a right to communicate and collaboration. An examination of the role of the client in the IS framework needs to be considered in the context of these developments.

At the time Shannon was working on his theory of communication in the 1940s, another visionary was working on a process of material engagement of his own that would also contribute to the revolution in global communication. In 1945, Arthur C. Clarke, later to achieve world recognition as the co-screenwriter of the movie *2001: A Space Odyssey*, published his own seminal technical paper proposing the launching of orbiting space stations for transmitting communication signals (Clarke, 1945). His conception was translated into reality when the United States sent the first communications satellite into space in 1964. The economic, cultural, and political potential of global communication through direct broadcast satellites (DBS) was immediately recognized by national governments and international organizations such as the United Nations (UNESCO, 1968).

It was also recognized that satellite communication could dramatically change the nature of the prevailing model of mass media communication based on a unilateral, top-down flow of information from a few to the passive many (Dakroury, 2009). Such a change had profound implications for traditional rights relating to such issues as access to information and modes of communica-

tion, privacy, intellectual freedom, and intellectual property as well as the role of individuals in the development and use of communication media.

When Shannon and Clarke were making their profound contributions to global communication in the immediate post-war era there was a further development that also had profound global implications: that is, the adoption by the United Nations in 1948 of the Universal Declaration of Human Rights (UDHR) (available at http://www.un.org/en/documents/udhr/). This was the first internationally adopted document that endorsed the concept of *universal* human rights making it the foundation for the world-wide human rights movement. In time, the global ICT innovations arising out of the communicative visions of Shannon and Clarke would be linked to the human rights movement by yet another visionary. This conceptual linking was done in 1969 by Jean d'Arcy.

Due to the introduction of direct broadcast satellites (DBS) the need to link universal human rights and communication was grasped by Jean d'Arcy, pioneer of French and European television in the 1950s, colleague of Arthur C. Clarke, and in the 1960s, Director of the U.N. Radio and Visual Services Division (Dakroury, 2009). In a1969 article, "Direct Broadcast Satellites and the Right to Communicate," d'Arcy asserted the traditional communication rights as enunciated in the UDHR would need to be reformulated within an encompassing universal human right to communicate (d'Arcy, 1969/1977). New modes of electronic communication would, according to d'Arcy, change the role of the individual to such a degree that the traditional mass media model of one-way, top-down flow of information would become obsolete. Individuals and groups would be able to participate in horizontal, interactive personal communication through global communication systems (d'Arcy, 1979, 1983).

For d'Arcy, the traditional media model of unilateral, one-way distribution of information by a few to the many was not communication. Genuine communication requires interactivity. Within the context of global electronic interactive communication, the role of the individual in a right to communicate framework is transformed from a passive receiver of information to an active participant in the development and use of channels of communication. The recognition of this activist role of the individual in two-way, collaborative communication gives equal emphasis to clients being informed and to clients themselves informing. The activist role of the client can be understood better by exploring further the difference between informing and communicating in the context of a right to communicate.

Unilateral Informing and Interactive Communicating

Human communication is a complex, universal process arising out of the inherent, genetic capability to learn complex languages (Renfrew, 2008, p. 90). However, the exercise of this capability begins at birth within a specific language and cultural context (Renfrew 2008, p. 117). This link between genetic universal capability and diverse cultural contexts is vividly captured by Varnedoe in his observation, "What is important about us individually, what makes us human, is precisely that we are wired for communication, for negotiation, for exchange with others" (2003, p. 270). It is because of the universal, inherent capability to learn a distinct language and to communicate that a right to communicate is a basic, universal human right. However, because of the diversity of the cultural context of communication it is not surprising that, as yet, there is no agreed upon precise definition of such a right. While d'Arcy himself never provided a precise definition, academics, policy experts, communication activists, and others have attempted to define a right to communicate (Birdsall, 2006; Hamelink & Hoffmann, 2008).

Although debate continues over what precisely constitutes a right to communicate, from the beginning two components have been consistently recognized: individuals have the rights to be informed and to inform. Shortly after d'Arcy called for the recognition of a right to communicate, a Canadian federal government telecommunication policy commission asserted, "The rights to

hear and be heard, to inform and to be informed, together may be regarded as the essential components of a 'right to communicate'" (Canada Department of Communications, 1971, p. 3). To be informed and to inform have continued to be included in various formulations of a right to communicate (Harms, 2002; Richstad & Anderson, 1981, pp. 26-27; UNESCO, 1980, p. 265). Clearly, an *Informing* Science should be cognizant of such a right and the role it envisions for individuals in the communicative process.

The IS framework concentrates on assisting informing clients to exercise their right to be informed while giving little attention to the implications of their right to inform. As d'Arcy asserted, this one way flow of information is not communication and is a totally inadequate model in an environment of increasingly sophisticated modes of communication technology. Although not addressing IS specifically, Venezuelan communications expert Antonio Pasquali describes well the consequences of the current IS framework:

> To inform refers essentially to one-directional messages of a causative and ordering nature, that tend to modify the behaviour of a passive perceiver; to communicate is the interrelation of relational, dialogical and socialising messages between interlocutors who are equally enabled for a simultaneous reception/emission. If Information tends to dissociate and establish a hierarchy between the poles of the relationship, Communication tends to associate them; only communication can give rise to social structures. (Pasquali, as cited in Burch, 2002)

Of particular importance is Pasquali's observation that one-way informing establishes a hierarchical relationship between those doing the informing and those being informed; that is to say, a power relationship favoring the informant over the informing client. This traditional professional/client relationship is an issue of power and, hence, falls within a communication rights discourse. The traditional hierarchical professional/client model is no longer viable in the era of a growing communicative consciousness throughout the world.

Communicative Consciousness

The confluence in the 1990s of the development of the Internet, the creation of the World Wide Web, and the increasing availability of access to personal computers and mobile communication devices is a development giving rise to a growing communicative consciousness. Communicative consciousness is "the individual self reflecting upon the meaning and nature of communicative relationships between itself and others through its participation in interactive communication via global electronic networks" (Dakroury & Birdsall, 2008). One reason there was not a wider recognition for many years of the need for a right to communicate is that when d'Arcy and others were exploring such a concept the vast majority of people had no direct experience with satellite-computer based communications. As a result, there was no wide-spread political movement in support of such a right. Now, as more people gain experience with communication technologies and the many challenges they present to traditional concepts of communications rights there will be an even greater consciousness of the symbiotic relationship between themselves and technological modes of communication. As a result, a growing number of users of ICTs will become more aware that issues relating to access to technology and information, privacy, intellectual property, and IT governance, development and policy are not just technological issues but must be addressed in a human rights context. A recent *New York Times* article on web access, privacy, user participation, and copyright privileges begins with the very question, "Is Internet access a fundamental human right?" (Pfanner, 2009, p. B4). Such public discussion within a human rights framework is both evidence of and a reinforcement of a growing communicative consciousness.

If the right to communicate envisions the role of the client as an active participant in a professional/client collaboration that recognizes the client's right not only to be informed but to inform, what are the implications of this client role for IS?

The Client Role in Informing Science Research and Development

A key value in the right to communicate framework is that people have a right not only to use information and communication technologies and systems but to collaborate in their development. Efforts in the 1970s and 1980s to promote a right to communicate were fueled in part by the movement for media reform at that time among media activists, academics, and policy experts (Napoli, 2007). These efforts to "democratize" the media included the idea that members of the public should be able to participate in the development of the mass media. Such efforts were restrained by a general lack of support for human rights movements due largely to the prevailing Cold War atmosphere. This rights environment changed in the 1990s during which there was a dramatic revival of rights activism (Cmiel, 2004). Throughout the world people from all cultures remain committed to universal human rights as expressed in the United Nations Universal Declaration of Human Rights (WorldPublicOpinion.Org, 2008). As well, as people have gained experience with a vast array of information and communication technologies there is a renewed recognition of a need for a right to communicate (Dakroury, 2008).

Not surprisingly, the idea of the right of public participation in ICT research and development within a right to communicate framework is being revived from a variety of perspectives. There is increasing challenging of expert authority and growing valuing of "lay knowledge" in ICTs policy making, knowledge creation, and development (Burch, 2002; Winter & Wedemeyer, 2009, p. 54). Web 2.0 can be seen as an example of increased emphasis on user participation in the development and use of ICT systems. While the meaning of Web 2.0 may be ambiguous, the common theme of user collaboration is captured in its characterization as "democratic; respect for users; user-orientated; community building; collaborative; interaction; participative; sharing; social networking" (Birdsall, 2007). Consequently, due to the commonality of values shared by the right to communicate and Web 2.0 -- interactive communication, user participation, collaboration -- Web 2.0 development can be placed within the larger communication rights movement (Birdsall, 2007).

It is in this context of a growing communicative consciousness, an active communication rights movement and greater expectations of user collaboration that the role of the client should be viewed in the IS framework. This role should be one of collaborative R&D between IS researchers and members of the client communities. Furthermore, it is important to recognize the diversity of client needs and modes of generating, using, and sharing information. This diversity requires an open model of IS collaborative R&D. The following principles proposed by Birdsall and Shearer for an open model of knowledge organization can also be applied to an IS collaborative model

- It recognizes the diversity of ways of knowing and knowledge systems
- It embraces the central, collaborative role of members of specific communities of knowing in the formulation of values, methodologies, and institutions to meet the needs of their knowledge system
- It advocates the reform of legal and institutional structures that will encompass differing knowledge systems
- It exploits technological opportunities to meet the needs of diverse knowledge systems

- It is flexible, open-ended, and dynamic
- It fosters interdisciplinary collaborative research and practice involving both the knowledge organization community and the multiple communities of knowing. (Birdsall & Shearer, 2007, p. 50)

It would be counter to the spirit and intent of an open model to prescribe how collaborative R&D should be undertaken between the IS and user communities. There has been a longstanding call for user participation in IT system development although this is neither put into practice as much as it is called for nor is the value always as evident as desired (Terry & Standing, 2004). It is common for user communities to be consulted through surveys, focus groups, usability testing, and so forth (Rudasill et al., 2002). However, such efforts are undertaken within the traditional professional and client/consumer hierarchical framework. Rather than consultation, the open model research methodology should arise out of a genuine collaboration between the IS researchers and the user community throughout the development process.

Conclusion

Gill and Bhattacherjee (2007) contend it is time to identify Informing Science's clientele. This paper contends it is also time to identify more precisely the role of clients. I have argued that the IS framework gives an inadequate recognition to the role of the client. This inadequacy is inherent to the framework's origins in the Shannon-Weaver model of communication that represents a one-way flow of information in a traditional professional/client relationship privileging the professional over the client. The client is assigned the role of a passive, powerless receiver of information. Such a role ignores the distinction between informing and communicating. The current environment of global, interactive electronic communication and a resulting growing communicative consciousness encompassing a right to communicate are creating among potential clients the expectation of greater collaborative participation in the development and use of informing systems.

By examining the current context of communication technologies, a communicative consciousness, communication rights, and ITC collaborative development, it is proposed that the role of the client be a collaborative one within an open R & D model. While this changes the hierarchical power structure characteristic of the traditional professional/client relationship, it can contribute to a more successful strategy of identifying and attracting a viable clientele for IS. Furthermore, such a collaborative strategy opens the opportunity to determine both the role of the client in the development of informing systems as well as their use. When Cohen raised the question of what does it mean to inform a client, he also asked: "Is it merely providing information or does it involve more?" (2009, p. 9). This paper argues that it does indeed involve more, and that more, including what informing means, can only be determined through close professional/client collaboration beginning with the design of the informing process itself.

Cohen correctly points out that MIS, librarianship, medicine, education, and other professions and services all inform (2009, p. 4). Not surprisingly then, other disciplines are already pursuing means of how "informationists" can work in collaboration with practitioners (Robison, Ryan, and Cooper, 2009). Thus, IS must as well pursue not only the identification of clients but their different roles in IS. As Miliszewska and Venables observe, turning "informers" into "informees" can result in "a more horizontal process of interaction" between professional and client (2003, p. 163). It is just such a process of horizontal interaction that is the form of communication embodied in a right to communicate. Collaborative, horizontal communicative interaction between IS professionals and clients could lead to a substantial re-conceptualization of the IS framework if not an entire reformulation.

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Biography

Dr. William F. Birdsall is a library consultant, Halifax, Canada. Senior university library positions include 18 years as University Librarian, Dalhousie University, Halifax, Nova Scotia and Executive Director, Novanet, a consortium of university libraries. Areas of research interests include the future of libraries and librarianship, communication rights and public policy, professionalism, and the development of knowledge systems. Recent publications appeared in *EJC/REC: the Electronic Journal of Communication*, *First Monday, New Review of Information Networking, Media Development*, *Webology, Global Media Journal-American Edition, Evidence Based Library and Information Practice*, and IEEE ISTAT08 *Proceedings*. He holds a Ph. D. in Library and Information Studies, University of Wisconsin, Madison.