Information Resource Management
And The End User:
Some Implications For Education

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The objective of this paper is to suggest that the concept of Information Resource Management (IRM) should focus more on end-user concerns rather than information technology per se. IRM should develop and support IRM education for end-users emphasizing the cognitive skills required for effectively utilizing information resources. IRM should also consider adapting the concept of ‘information counseling’ as a guide to improving the interface between end-users and information resources.

Two IRM Perspectives

There are at least two traditions or perspectives underlying the current thinking in IRM. One perspective stems from data processing and management information systems traditions; another perspective is based on other information science traditions including library, communications, behavioral and social sciences.

Perspective #1

The first perspective views information as a manageable commodity or resource to be produced, distributed, and used for purposeful ends. An information system is viewed as an identifiable set of operations on data producing specific types of information products such as management reports. The methodology of this perspective focuses on the technologies, skills, and management necessary to design and implement a system that meets certain a priori defined technical standards. This system theoretic perspective is basically concerned with the supply of information and presupposes that an improved supply leads to an improved use of information. Guimaraes (1988) identified three specific IRM points of view in the literature: IRM as the management of the organization’s information resources, IRM as the management of individual information system application development and improvement, and IRM as the management of the
organization’s resources used to produce information. All three views of IRM seem to fall into this first perspective of emphasizing the technical aspects of information management.

**Perspective #2**

The second perspective underlying IRM focuses on the human use of information rather than on the supply of information. This perspective emphasizes information content, information transfer, and the interaction of users with information systems of all kinds. The focus is on the contextual factors, described in information terms, upon which human activity is contingent. The environment is not viewed as an information system per se but as a set of information arrangements. The methodology of this perspective focuses on the user’s ability to cope with information arrangements in ways appropriately defined by the user. The perspective is basically concerned with the demand for information and presupposes that an improved articulation for the need for information leads to an improved use of information. Lunin and Cooper's compilation of articles is an example of this perspective; they argue (1988, pg. 309) that '... the convergence and integration of seemingly disparate fields and disciplines, and the raising of the collective consciousness of educators, practitioners, prospective student, and society in general to the importance of information and its transfer in all facets of professional and every day life require primary consideration.

**Necessity For Both Perspectives in IRM**

Both perspectives are legitimate and necessary for IRM. The interconnection between the two can be illustrated by an example. In the situation of strategic planning a corporate executive has potential access to a wide variety of information resources, e.g., DSS models, data bases, corporate and personal files, colleagues, etc. The system perspective in this example would be concerned with the technical quality of each of these resources; it would be assumed that the executive’s ability to utilize information in this situation is his/her ability to make use of these information resources. But the executive is also engaged in a variety of information intensive activities that as a whole comprise strategic management - assumption identification, consensus building, alternative generation, value clarification, and goal setting. The social theoretic perspective in this example would be concerned with the informational arrangements of the executive’s environment that either support or inhibit these activities. It would be assumed that the executive’s ability to utilize information is his/her ability to engage in the information intensive cognitive activities of strategic management under the constraints and opportunities of both the existing and perceived information environment.

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More generally, the history of the information field is replete with absence of data or data too late to enable decision makers to respond to crisis. How often is the case that actions are taken or not taken because of the gathering of useless, irrelevant data; or where symptoms are missed and the significance of events are assessed inappropriately. These dangers become increasingly more probable, ironically, as data availability and access increase. The growth of data and data processing technology, it would seem, requires a corresponding emphasis on the information capabilities that users bring to the task. Thus, IRM ought to emphasize both information technology variables (Perspective #1) and human factors variables (Perspective #2) in the equation of improved information utilization.
The Idea of End-User in IRM

Many empirical studies have been conducted in the context of people using a computer-based information system for the purpose of classifying those people into some sort of ‘end-user computing’ taxonomy. Such a taxonomy would then be useful (supposedly) for future information system design and resource management decisions. The first studies of this type focused on differentiating between data processing professionals and professionals in other functional areas of the firm utilizing computing resources (McLean, 1979; Rockart and Flannery, 1981; Rockart and Flannery, 1989). Subsequent ‘end-user’ research has tended to focus on people who utilize the computing resource in some decision-making capacity. A comprehensive MIS literature survey by Davis (1985) summarizes this research by proposing three categories of end-users: direct users who use systems and applications designed by others; autonomous users who design, implement and use their own computer applications; and indirect users who interact with computers primarily through intermediaries such as staff analysts or personal assistants who are themselves direct or autonomous users. Also, regardless of the end-user taxonomy, much of the training literature for end-user computing focuses on the skills required to effectively utilize the computing technology, per se (Nelson and Cheney, 1987; Sein, Bostrom, and Olfman, 1987).

The point here is that the idea of ‘end-user’ in IRM tends to be limited to the idea of people using computing resources. The idea of ‘end-user’ should also encompass the idea of people using information in some position of responsibility. The IRM idea of end-user of information would focus on a person’s whole perceived information environment and the volume, breadth, and balance of their use of information sources (Stabell, 1978).

The Importance Of User Initiative

The utilization of information is related both to design characteristics of the information resources and to the variety of conditions in which they are used. A common thread here is the goal-directed activity of the user. Neither perspective underlying IRM described above views information utilization in passive terms, as something that happens to a user; rather, each sees information utilization as an active, user initiated process. In the system perspective information utilization implies the ability of a user to ask questions, decide where to look for information, articulate information requirements, decide what information is relevant, and to otherwise interact with the information resources available. In the social perspective information utilization implies the ability of users to engage cognitive processes to construct meaningful interpretations of a situation.

Just how information utilization actually proceeds in a particular situation is a topic for specific case studies. Indeed, what would be useful in IRM is the development of praxiological models of various generic types of information utilization situations, e.g., semi-structured decision making in marketing a product. Such models would provide a notion of the general boundaries within which specific information and information resources could have been used in a given situation. The models would provide an idea of what would have been rationally possible for a user given the information technologies and arrangements existing at the time (Radnitsky, 1973). Praxiological models would show the potential maneuver space of the user in a given situation. Within those boundaries there are many alternative ways information utilization could proceed. For any particular user only one of these possible alternatives actually is realized. The question then is what motivates, influences, or otherwise guides the user to utilize specific resources to the extent and in the sequence that they are in fact utilized. The suggestion being made in
this paper is that a concept of user initiative is central, although not sufficient, to IRM.

**Two Implications For IRM Education**

There are two approaches or dimensions wish to emphasize for IRM education. One approach emphasizes information skills of end-users and the other approach emphasizes an information counselor concept for IRM professionals.

**End-User Information Skills**

An empirical question for IRM is how and to what extent user initiative is influenced by information technologies and their arrangements. The system perspective suggests that the increasing variety and relative complexity of information technology coupled with cost factors and functional illiteracy of users in terms of information skills may well serve to preclude certain users from taking the initiative required of them to interact with information resources. Certain users may be intimidated or lack an appropriate appreciation or awareness of information resources. On the other hand, the technical quality and human engineering of information resources along with the ability to interact with information professionals may facilitate user initiative. The social perspective suggests that user initiative is facilitated by the user’s ability to generate conceptual constructs regarding both the environment as an information resource and one’s own information behavior. This is the ability of the user to develop autonomous learning skills - knowing how to formulate problems, being able to identify available appropriate information resources, being able to know what one wants or needs to learn in a given situation. In short, a user must be able to direct one’s own learning. Central to this ability is reflexive thinking, being able to think about and evaluate one’s own information environment and behavior. Using self-generated conceptual frameworks regarding information, the reflexive-thinking user is able to heighten his/her awareness of both the constraints placed on

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and opportunities available for the development of one’s own information behavior. Zuboff (1985) makes a similar argument pointing out that the primary skills needed by people using information technology are intellectual skills - the ability to think abstractly, reason inductively, and be able to construct a theoretical grasp or mental model of the situation. The IRM issue here is people coping with ‘... the need to make sense of their work when information about their tasks comes to them primarily through the medium of a computer-based system’ (Zuboff, 1985: 10).

Educationally, IRM should emphasize and support the users’ responsibility in developing their own information utilization skills. McLeod and Brittain-White (1988) present a similar argument, that information management skills are integrally related to systems concepts, that these concepts need to be widely appreciated by users, and that these concepts ought to be presented early on in introduction to computing courses. The IRM profession needs to support integrating the teaching of basic IRM concepts in a wide variety of professional curricula including business, law, engineering, education, and nursing.

**The Information Counselor Concept**

A second dimension in IRM education focuses on the IRM professional. The current emphasis is on the IRM professional as managing the information resources, per se. What is needed as well is a concept of the IRM professional as an aid to the user in the general problem of accessing and using information technologies. A number of conceptual models have been implemented here, including the reference librarian and the informa-
tion center. Both of these examples of user-information intermediary assume that the user can articulate their information requirement and that the user primarily needs help in navigating through the various available information technologies to satisfy that need. These intermediary concepts have been successful as far as viewing information as a commodity is a useful concept. But as the volume and diversity of information technologies increases, is there a corresponding improvement in our know-how to bring these resources to bear on particular problems? Debons (1980) points out that I ... the issue in [IRM] is often not the availability of data or information, but rather the means for dealing with the vast amount of data available, or potentially available, and its application to the task at hand’ (p. 8).

The concept of ‘information counselor, was proposed over 18 years ago as an alternative to the shortcomings of the reference librarian concept (Hershfield, 1972). The idea was that the information counselor would

...understand and concentrate on human information needs, human information seeking behavior, and the design and operation of information systems structured to serve different client groups... Where information needs exist which cannot be satisfied with previously recorded material, [the information] counselor will seek out the information, record it and provide it to the client in an appropriate form ... (Hershfield, 1972: 31).

The information counselor concept was further developed by Debons (1978, 1980) and Horton (1982). Debons proposed that the information counselor be viewed as a diagnostician of a person’s information problem who then prescribes a specific information solution, analogous to a medical doctor who performs a diagnosis of a patient’s medical problem and prescribes a specific treatment. Consequently, the information counselor should possess competence eliciting and diagnosing information needs of users, competence in understanding the accessibility and use of available data-information resources, competence in formulating strategies as well as the best ways of pursuing the strategies in acquiring and organizing data-information resource, competence in interacting with and teaching users (Debons, 1978).

These early proposals viewed information counseling as a specific job position within the IRM profession. The suggestion here is to use information counseling more as an organizing concept in conjunction with development of user information skills to adequately deal with the human user dimension of IRM.

References


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