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# **A General Model of the Information Seeking of Professionals: Role Theory through the Back Door?**

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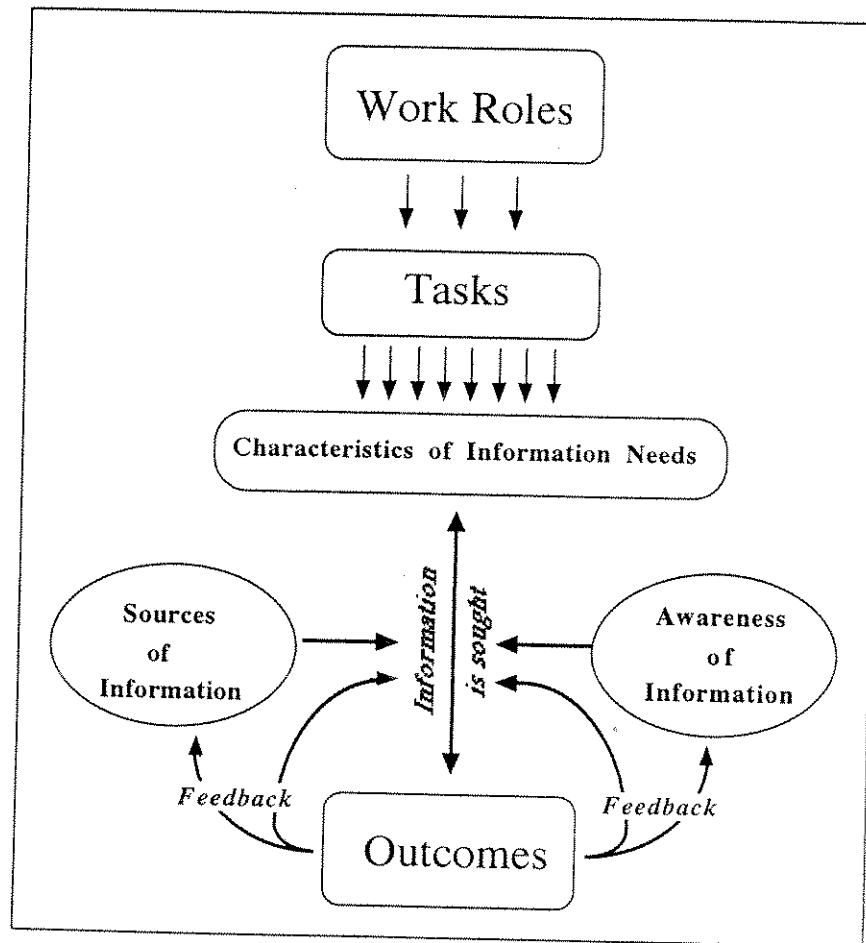
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## INTRODUCTION

Library and information scientists have long been interested in how people go about finding and using information in the course of their daily work. This long-standing area of research evolved from a more generalized interdisciplinary interest in the work of scientists and the nature of scientific communication, generating a large body of literature that dates from the 1940s–1960s. Parallel to this interest in science, other early studies focussed on the work of technical experts, such as engineers, in an attempt to understand how information and information seeking was involved in an individual's work-life and personal productivity. More recent work has broadened the scope of this investigation to include scholars in a variety of disciplines, and other types of professionals, including ministers, doctors, lawyers, computer scientists, administrators, and social workers, to mention a few. Accordingly, in the last two decades, the literature about information seeking activities has grown substantially, to the point that Hewins (1990) noted that there were several hundred studies in just the three year period preceding her review of the area.

Unfortunately, although they may be valuable in their own right, many of these studies remain unconnected by any larger framework or theoretical perspective. With this in mind, we undertook a review of the literature on the information seeking of three professional groups (engineers, health care professionals, and lawyers) to determine whether there were common themes, findings, or theoretical perspectives among the various studies. Drawing upon the themes evident in the literature, and bearing in mind the limitations of earlier models, an original model of the information seeking of professionals was developed (Figure 1). Because the model has arisen out of a careful consideration of the research literature on different groups of professionals, it is intended to be generalizable across the professions, thus providing a platform for future research in this area.

FIGURE 1  
A model of the information seeking of professional



It is not the intent of this paper to present the model in great detail, since its evolution and components are discussed at length elsewhere (Leckie, Pettigrew & Sylvain, 1996). Nevertheless, a brief introduction to the model seems warranted. The purpose of this paper, therefore, is threefold: (1) to provide an overview of the major components of the model, (2) to demonstrate an application of the model through a case study of community health nurses, and (3) to discuss the linkages of the model with a role theoretic perspective.

### MODELLING THE INFORMATION SEEKING PROCESSES OF PROFESSIONALS

Even a cursory review of the literature reveals that attempts to model the information seeking activities of various types of professionals are as diverse as the professions they represent. Some models consider the individual as the starting point, others look at the organizational context, and yet others present information seeking only as it relates to one or two key work activities. Yet despite the incredible diversity in conceptual frameworks and graphic representations, certain common assumptions or themes are evident in many of these models. What are these significant themes, and how might they be presented in a generalized model of the information seeking of professionals?

First, the provision of various types of service or expertise to their clients is the primary activity shared by all professionals. However, professionals work within specific environments that differ greatly in organizational structure, mission, goals and social culture. Thus, as Wilson and Streatfield (1977) noted in their now famous study of a government department, in order to investigate the information seeking behaviours of professionals, the broader working context in which professional practice is conducted must be closely examined and understood.

Second, a solid understanding the work milieu is not sufficient on its own. To develop insights into a professional's information seeking processes, the details of that individual's work must be examined in depth. The need for certain kinds of information, the process of retrieving it, and the uses to which it is put arise out of the ways in which professional practice is carried out on a daily basis.

Third, related to the previous point, an examination of the detailed elements of professional work reveals that professionals have complex responsibilities and are expected to perform successfully in a number of dimensions (for example, technically, managerially, interpersonally). These dimensions, or roles, are often quite distinct and are further complicated by associated tasks that must be carried out (for example, the managerial role prompts a scheduling task, or an accounting task). Together, these roles and tasks generate information needs which must be met in order to move the work ahead.

Finally, many studies of diverse professional groups have concluded that frequently, professionals are frustrated in their search for relevant and necessary information. Frustration results because a large number of complex and interacting variables may influence information seeking processes. As the information need arises, factors such as the corporate culture, individual habits, availability of information systems and sources, commitment to professional development etc. converge to affect the outcome. Although there are certain variables that generally have been found to be critical (such as accessibility, and ease with which retrieval can be accomplished), the ways in which these variables come together is somewhat different from individual to individual,

lending a certain air of unpredictability to the information seeking behaviour. Thus successful modelling of information seeking must incorporate enough flexibility into the model to allow for the complexity and unpredictability of information seeking processes.

#### A PROPOSED MODEL OF THE INFORMATION SEEKING OF PROFESSIONALS

Bearing in mind the previous points, the basic supposition of our model (Figure 1) is that the roles and related tasks undertaken by professionals in the course of daily practice prompt particular information needs, which in turn give rise to an information seeking process. Existing empirical studies demonstrate that professionals lead complicated work lives and must assume a multiplicity of roles in the course of their daily work. Five professional roles that are frequently mentioned are: service provider, administrator or manager, researcher, educator (i.e. public relations or outreach), and student (i.e. professional development).

Embedded within these roles are *specific tasks* (such as assessment, counselling, supervising, report writing, public speaking), constituting the second layer of the role/task component in the model. The research shows that information seeking is highly related to the enactment of a particular role and its associated tasks. However, the *characteristics of each information need* are somewhat different, being shaped by a number of intervening variables. These differences can ultimately affect the information seeking outcome. Drawing from the literature, some of the influences on the character of professionals' information needs include: individual demographics (age, profession, specialization, career stage, geographic location), context (situation specific need, internally or externally prompted), frequency (recurring need, or new) and predictability (anticipated need, or unexpected).

Beyond the nature of the need itself, the way in which information is sought is also influenced by other important factors. In the model, the first constellation of such factors has been labelled as *sources*. Professionals seek information from an endless number of sources, such as colleagues, librarians, handbooks, journal articles, and their own personal knowledge and experience. These sources of information can be broadly characterized by types of channels or formats, including: formal (for example, a conference, a journal) or informal (conversation), internal or external (source within organization or outside), and oral or written (i.e. written including paper copy and electronic text). The sources available, and the individual's preference for certain channels, will affect information seeking.

The second group of influential factors on information seeking has been labelled *awareness*. Direct or indirect knowledge of various information sources (whether a colleague, an online database or a handbook) and the perceptions formed about the process, or about the information retrieved, play a crucial role in the overall information seeking process. Thus the individual's general

awareness about information sources and/or content can determine the path that information seeking will take. Based on a review of the literature, some of the important variables that are involved in an individual's overall level of awareness were found to be: accessibility (relative ease of access), familiarity and prior success (results obtained from strategy or source), timeliness (found when needed), and cost (relative cost-effectiveness).

The result of information seeking has been labelled an *outcome*. An outcome is the end-point of the work-related requirements of specific roles and tasks. The optimal outcome is that the information need is met and the professional accomplishes the task at hand, such as diagnosing an ailment, or completing a technical report. Some of the common outcomes of information seeking identified in the literature include: providing a service or product, completing paperwork, realizing operational goals, and achieving professional development goals.

It is possible, however, that the outcome of the information seeking is that the need is not satisfied and further information seeking is required. This is conceptualized as a *feedback loop* on the model. As a second round of information seeking is undertaken, the configuration of factors that come into play may alter. Whereas previously the individual may have sought information informally, because this was perceived to be timely, through feedback it was discovered that the information gathered, was, in fact, not very accurate. Therefore, in the next round of information seeking, it is likely that a completely different mix of source and awareness factors will be involved.

The feedback loop also illustrates that an information seeking outcome is not a one-dimensional event. It is possible that an outcome from one task associated with a particular role (such as advising clients in the counselling role) may unexpectedly benefit the professional in another role (such as planning for new services in the managerial role). Information seeking activities and related outcomes, therefore, may have a much broader impact on professional practice than has been recognized.

In order to test the model, data from a small pilot study of community health nurses was used. The study is described in the following sections.

#### PILOT STUDY: BACKGROUND

We used the general model to analyse data from a recent pilot study<sup>1</sup> of the role of visiting nurses in linking the elderly with community resources. The objectives of the pilot study were: (1) to learn about the work world of visiting nurses and the different work roles the nurses play, (2) to determine whether one of those work roles is linking elderly patients with local resources by providing community information, and, if so, (3) to explore how the nurses need, seek, and use this information. Community information was defined as any information about community resources relating, for example, to health care, financial

assistance, housing, transportation, education, and recreation that the nurses use to help an elderly patient cope with day-to-day problems. It was hypothesized that visiting nurses, that is, community health nurses who provide care to their patients in the patients' own homes, do need and use community information. Visiting nurses see their elderly patients frequently over a fixed period and these patients often have little contact with other people. Thus, these nurses are in a key position to provide their elderly patients with community information and to link them with community services. Visiting nurses were chosen for study because little research has focused on how they need, seek and use information. The few studies of nurses have centred around their clinical information needs (see, for example, Blythe & Royle, 1993; Urquhart & Crane, 1994) and virtually no research has addressed visiting nurses' needs for community information or their role in linking the elderly with community resources.

#### METHODOLOGY

Glaser and Strauss's (1967) grounded theory approach and Flanagan's (1954) critical incident technique were used to conduct in-depth interviews with nine visiting nurses employed by a not-for-profit health care agency in southwestern Ontario. The interviews were audio-recorded and lasted for thirty minutes. After a nurse responded to general questions about the nature of her work she was asked to recount a recent incident in which she used community information as she cared for an elderly patient. The incident was defined as a situation in which the nurse needed to link a patient with sources of help that her agency did not provide. Since a literature review indicated that the term "community information" is not used in the nursing field, terms such as "help" and "linking" were used instead. Additional methods of data collection included a field diary for recording observations and contexts when interacting with the participants, and a theory notebook for generating propositional statements to explain phenomena as used by Chatman (1992). Following the grounded theory approach, data was analysed as it was collected, and coding was combined with the generation of theoretical ideas (Strauss, 1987). A rich, detailed picture of the participants' work environment and how they need, seek and use community information emerged from the data that lends strong support to the general model and to the applicability of role theory for understanding professionals' information seeking.

#### FINDINGS: WORK ROLES, TASKS AND INFORMATION NEEDS

To learn about the nurses' work environment and their different work roles each participant was asked "How long have you worked for your agency?" and "What do you do as a visiting nurse?" On average the nurses worked for their agency for 8.8 years with responses ranging from three years to twenty-two. Answers to the second question indicated that the nurses do work in several capacities.

As one nurse said "[You're] kind of a jack of all trades and master of none. You do a little bit of everything and not a lot of any one thing" (P03, L99-102).<sup>2</sup> Another nurse explained, "Sometimes I'm a nurse, sometimes I'm a counsellor. It's a very wide gamut of services that we provide (P02, L35-37). The nurses' major work role is providing direct patient care, which involves such tasks as handling IVs, taking blood pressures, changing dressings and performing health assessments. Other roles include that of administrator, counsellor, educator, and student. The participants talked about these roles in terms of the tasks they associated with each. For example, as administrators the nurses described how they schedule patients, write up patient charts and write discharge plans. As counsellors they said they helped patients and their families deal with the psycho-social problems usually associated with illness. As educators they described how they teach patients and community groups about maintaining healthy lifestyles and public health matters. Finally, as students they said they take courses and attend workshops to upgrade their academic credentials and to keep abreast of developments in their field.

A key finding from the study was that the nurses do need and use community information because of tasks that arise from their roles as direct care provider and counsellor. The nurses said they used this information to help their patients cope with many different types of medical and psycho-social problems. In total, the nurses identified twenty-two different community service providers with whom they linked their elderly patients. Examples of the different types of help they diagnosed their patients as needing include homemaking services, transportation, counselling services, meal delivery programs, attendant care, financial assistance/advisory, and advocacy. The nurses explained that they often refer elderly patients to more than one service because these patients are typically treated for more than one medical or psycho-social problem and each problem may require different types of help. For example, one nurse described how she linked an elderly man in bereavement with a peer support group, a volunteer counselling service, and a public reference librarian who helped him find educational material recommended by the nurse. Another participant described how she linked an elderly woman suffering from blindness, hearing loss, late menopause, depression, and back pain with six different sources of help, including a paratransit service and the Canadian Hearing Society. As we found in our general review of the research literature on professionals, the information needs of the nurses in our study could be classified according to urgency, complexity, and as recurring or unanticipated.

#### SOURCES OF COMMUNITY INFORMATION

We used the general model to group the sources from which the nurses cited obtaining community information according to type of channel and format. Formal sources included community resource directories and brochures which

the nurses said they carry in their medical bags or cars, telephone books, and inservicing which is when local service providers give presentations to the nurses about their programs and services. Informal sources included conversation with colleagues, nurse managers, and other seniors. For example, a nurse who needed to know where a meal delivery service could be obtained said she asked another elderly patient whom she knew was receiving it. These sources could also be grouped as occurring within or outside the agency, and as oral or written. Other important sources cited by the nurses were their dayplanners, personal experience and their own knowledge. All participants said they used a section in their dayplanner for recording the names, addresses, phone numbers, and personal contacts of service providers with whom they often referred their patients. Drawing upon their own professional knowledge and that acquired through experience was also mentioned by several nurses. As one nurse remarked "If you had an experience, been there or seen something in action, then it stays in your mind and you say [to yourself] that [what] was good for one person may be good for another" (P03, L796-801). A different nurse explained how "Some of it is natural. It's something you get from years of being a nurse [and] it's just naturally here. You don't have to think about it too much" (P07, L906-912). A third nurse, while pointing to her own head, said "I guess you just get used to it [making referrals]. You pick up a little at a time and then you compute it away" (P04, L489-492). The nurses also described this keeping of information in their heads as "having your own knowledge base" (P05).

#### EFFECT OF WORK ENVIRONMENT ON NURSES' INFORMATION SEEKING

An underlying supposition of our model is that a professional's work environment affects his or her information seeking. Besides shaping the professional's information needs, the work environment largely determines the array of sources from which the professional may seek information and it contains factors that will affect whether and how the professional seeks needed information. Thus, to interpret the pilot study data according to the model component "awareness of information" it is necessary to have an accurate picture of the participants' work world.

Every day each nurse travels across a vast urban/rural area in her agency car to visit between nine and twelve patients. Her car also serves as a "portable office" which she uses to carry medical equipment and supplies and to write up patient charts and perform other administrative tasks between visits. But her car is not equipped with a cellular phone. If she needs to contact someone at the office or elsewhere she must use a pay phone, drop into the office between visits, wait until after office hours or her next monthly office meeting, or use a patient's telephone. Furthermore, every nurse has to be flexible because their schedules change with little notice.

These environmental factors have a tremendous impact on how nurses seek community information. It was learned that the nurses need sources of community information that they can access quickly at any time and in any situation. They also need information that is packaged in ways that are compatible with their personal systems so they can carry it easily on visits. For these reasons the nurses said they relied upon information that they kept in their dayplanners, locally-produced community resource directories and brochures, and colleagues and other people whom they could contact if needed. Furthermore, since the nurses often give the seniors the information and instruct them to contact the service providers themselves, they said it was imperative that their information is accurate, current, and comprehensive. Some nurses said they collected and update their own information because the information expires quickly and they do not always perceive the sources from which they obtain their information as trustworthy. Not surprisingly, the biggest barriers cited by the nurses to obtaining and using community information were not having enough time to obtain and disseminate the information to their patients, and the incompatible packaging and formatting of information obtained from external sources.

#### OUTCOMES OF INFORMATION SEEKING

The ways in which the participants described using community information can be translated into several outcomes. First, the nurses use the information to provide a service under the general activity of caring for a patient as part of their joint roles of direct care giver and counsellor. Second, using the information in this way is also a means of attaining their agency's goal of "providing information and referral" which is listed in its brochure. Third, the nurses process the information they find so they can reuse it in other situations. This processing could entail creating an entry for the service in their dayplanners or other personal information management systems. Fourth, the nurses share new information, search strategies, and referral making strategies with their colleagues. The nurses said they often learn new strategies for finding community information and referral giving whenever they use community information during a visit that helps them in future situations. Fifth, the search for one piece of community information could create a need for additional pieces such that the nurses have to revise their search strategies and the parameters of their original information needs become altered.

Data from the pilot study provided valuable insights into how visiting nurses need, seek and use community information. These insights are useful to staff at Information and Referral agencies and other institutions for designing better methods of delivering community information services and products to visiting nurses and other health care professionals. The pilot study data also illustrated how the general model can be used successfully to study the information seeking of professionals.

## ROLE THEORY THROUGH THE BACK DOOR?

Our reading of the literature, subsequent work in developing the model and the pilot study suggest very strongly that professional roles are an extremely (and perhaps the most) influential factor in information seeking. In retrospect, the linkages to role theory seem glaring, but surprisingly few studies in our discipline have chosen to use this theoretical perspective to examine information seeking. Viewed in this light, it does appear that the domain of role theory has been entered "through the back door." In other words, the applicability of role theory becomes evident only after the fact, instead of providing a central focus for the research undertaken. Perhaps the lack of interest in role theory has arisen because of an unfamiliarity with it, or from difficulties inherent in attempting to apply it to our field. It is worthwhile, therefore, to examine briefly some of the basic tenets of the role theoretic perspective.

Role theory has evolved primarily from the work of sociologists and psychologists interested in explanations of human behaviour in different contexts. The greatest period of theoretical development was the two decades after World War II, as reflected in the volume edited by Biddle and Thomas (1966). It was during this time that major theoretical concepts and ideas of the role perspective were put forward.

At that time, a "role" was typically defined as a behaviour enacted by a person in a specific social position (or status), and governed by a set of social expectations. The role was thus viewed as a linkage between individual behaviours and social structures. This conceptualization of role led to a cluster of related ideas, many of which are still in common use today, including role norms, role status, role conformity, role specialization, and role conflict. Out of this work emerged other important concepts which have greatly influenced entire disciplines. An excellent example of this is "sex roles," a notion that continues to be of great importance in psychology, sociology and anthropology.

The definition as outlined above has been heavily criticized, however. Helena Lopata suggests that a primary problem with such a definition is that the role is dependent upon a social position and is "bounded by, or limited to, the person. This is unrealistic." (1991, 1). Lopata has chosen to use a symbolic interactionist approach to roles, where the individual is regarded as part of a system of social interrelationships. As she notes, "the role cannot be limited to one person's behaviour, but must include the behaviour of others which provides the rights enabling those actions" (1991, 1). As an example, Lopata describes how the physician "not only acts, but interacts with patients, nurses, specialists and others who are active participants in the role" (1991, 1). Lopata sees this as a much more dynamic approach to the understanding of roles.

Despite the new perspectives brought by Lopata and others, it is still fair to say that much of the recent work using some aspect of the role theoretic perspective concentrates on individuals and their socio-personal roles. So, for instance, one can easily find studies of roles having to do with social institutions (parenting, the family, friendship, gender, courtship and marriage), or with role

issues that arise for individuals in those contexts (such as stress, conflict, ambiguity). It is rather more difficult to find in-depth research that considers roles in relation to the world of work, despite its obvious applicability.

Fortunately, into this gap have stepped organizational theorists who have taken a role perspective in their own research about the corporate milieu. Prime among these theorists is Henry Mintzberg, whose landmark study of managers has led to a far greater understanding of the importance of role concepts in distinguishing what managers actually do (1973, 1989). Mintzberg originally posited three major types of roles for managers: interpersonal, informational and decisional. These role categories were then broken down into more specific roles. For instance, the interpersonal category was further divided into three roles – the manager as figurehead, as leader and as liaison. In the figurehead role, as an example, certain tasks were required, such as signing official documents, and presiding over official events. One of the most interesting aspects of Mintzberg's work is his strong articulation of the connection between managerial work and information. In fact, Mintzberg actually defines three managerial roles that have to do with information – the manager as monitor, as disseminator, and as spokesman.

Despite its importance, there are limitations of role theory as conceptualized by organizational theorists. First, the role-task relationship is often not made explicit, even though it is clearly evident in many of the case studies cited in organizational research. This may stem from the fact that the term "task" is often defined by organizational theorists in a different manner from social-psychologists. Both Mintzberg (1973) and Drucker (1974) use the term task to refer to large-scale organizational goals that the manager must achieve, which is not the understanding of the term task that is evident in most library and information science literature.

A second limitation is that information is often portrayed as being related only to certain managerial roles. This undoubtedly stems from the definition of information as a strategic resource which the manager gathers and disseminates to benefit organizational operations. This approach, however, tends to overlook the importance of information in the manager's other roles, as Choo and Auster (1993) have noted. Choo and Auster comment that "Information is central to every facet of managerial work" (p. 279). Thus, library and information science research takes a slightly broader perspective, and demonstrates that information is sought and used in all of a professionals' multiple roles, to a greater or lesser extent.

The possibilities held out by a role theoretic perspective seem to be relatively untapped. If, as is evident in our model, roles are a key factor in understanding what professionals do in their work, and thus in gaining insight into the seeking and use of information, then perhaps exploring other role-related concepts, such as role stress or role conflict, would further enhance our understanding of information seeking and use in the work environment.

From this brief overview, it does seem that role theory has considerable potential to provide a conceptual framework for the understanding of the information seeking activities of professionals. In conclusion, we suggest that a general purpose model of information seeking, grounded in a role theoretic approach, could provide a platform for future empirical work, and could lead to greater theoretical refinements and insights in the study of information seeking and use.

#### NOTES

- 1 For a more detailed report of this study see: Pettigrew, K. E. [Forthcoming]. "Nurses' perceptions of their needs for community information: Results of an exploratory study in southwestern Ontario." *Journal of Education for Library and Information Science* (to appear in January/February 1997 issue). The proposal for this study won the 1995 Jane Anne Hannigan Research Award sponsored by the Association for Library and Information Science Education.
- 2 For quotations taken directly from the transcripts, the participant is identified by her number [P01->09] and the quoted section by the line numbers [L] within which it occurred.

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