

# When Is “Enough” Enough? Modeling the Information-Seeking and Stopping Behavior of Senior Arts Administrators

Lisl Zach

School of Library and Information Science, Louisiana State University, 267 Coates Hall, Baton Rouge, LA 70803.  
E-mail: lzach@lsu.edu

Among managers, those who are responsible for non-profit organizations in general and arts organizations in particular have been an understudied group. These managers have much in common with their for-profit counterparts, but their environment also differs in significant ways. The goal of this exploratory research effort was to identify how senior administrators in fine arts museums and symphony orchestras go about identifying and acquiring the information they want to complete a range of management tasks. Deciding when and where to look for information, obtaining the “right” information at the time it is needed, evaluating its credibility and utility, and determining when “enough” information has been collected are challenges facing this group of information users every day. A multiple-case studies design involving a replication strategy was selected to structure the research process. Data were collected from 12 arts administrators using a pretested interview protocol that included the Critical Incident Technique. Patterns in the data were identified, and the data were further reviewed for disconfirming evidence. The study resulted in a list of the types and sources of information that arts administrators use as well as a list of the factors or “stopping criteria” that influence them to end their information-seeking process. A model describing the way in which arts administrators go about acquiring the information they want was also developed. The main findings of the study are (a) arts administrators do not consider information seeking to be a discrete management task, (b) they rely heavily on direct personal experience to fill their information-seeking needs, and (c) they are “satisficers” when it comes to seeking information. Based on Simon’s alternative to rational choice theory, satisficers are people who are willing to pursue a “good enough” option rather than the best possible option (maximizers) (Simon, 1956). Since arts administrators have not been studied in the context of LIS research before, understanding more about where they go for information, what factors influence the level of effort they are willing to invest in seeking information, and how they decide when

they have “enough” information provides insights into the information-seeking behavior of a new user group. Furthermore, although this research effort is focused on specific users in a specific field, the results from this study may be compared to what we already know about other user groups to confirm and expand existing models of information-seeking behavior.

## Introduction

For more than 25 years, researchers in organizational behavior have recognized that managers are inundated with information (Mintzberg, 1973). Managers are constantly receiving input from all types of sources—from their colleagues and customers, from their competitors, and from their personal experiences interacting with the world around them (Auster & Choo, 1996). This input comes through all types of channels—from casual conversations in hallways to detailed research reports. It is part of the manager’s job to choose from “an enormous amount of potentially relevant information” to complete his required tasks in a timely and efficient manner (Kotter, 1982). Given the importance of information in managers’ jobs, it is striking that the LIS field has not produced more studies of this user group (Katzer & Fletcher, 1992).

When Mintzberg wrote his landmark book, *The Nature of Managerial Work* in 1973, he suggested that “managers’ jobs are remarkably alike” regardless of where they work. He also believed that information seeking and processing are key activities for any manager. Since then, many researchers have studied the nature of managers’ information seeking in the context of their job performance (Drucker, 1974; Kanter, 1989; Kotter, 1982; Learned, 1982; March, 1994; Rockart, 1979; Simon, 1977). Most of this research has focused on managers working in the for-profit sector; recently, however, management in the nonprofit sector has become an area for investigation (Austin, Altpeter, & Edwards, 1998; Dees, 1998; Drucker, 1989; Drucker, 1990; Gray, 1992; Ryan, 1999; Wolf, 1999).

It has long been the culture of arts organizations to believe that, if they presented a high-quality product, the audience would come and the financial support needed for

---

Received December 8, 2003; revised January 28, 2004; accepted January 28, 2004

© 2004 Wiley Periodicals, Inc. • Published online 24 August 2004 in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/asi.20092

the institution to survive would be provided (Baumol & Bowen, 1966; Williams, 1992). In recent years it has become increasingly clear that that is no longer true (American Symphony Orchestra League, 1992), and many arts organizations have discovered that standard business practices are necessary to ensure institutional survival (Purser, 1987). This has involved a number of changes to internal operations, including the introduction of more professional management techniques into these organizations (Cavendish, 1986; Fitzgibbon & Kelly, 1997). Arts organizations must compete with numerous entertainment options for the time and money of potential patrons (National Endowment for the Arts, 2001; Voss & Voss, 2000). Staff working in these organizations have begun using a wide range of information, especially in the areas of marketing and audience development (Rentschler, 1998; Scheff & Kotler, 1996). Given the financial challenges facing many arts organizations today, obtaining the right information for making business decisions may be one of the most important activities performed by any arts administrator.<sup>1</sup>

The goal of this exploratory research effort was to study how senior administrators in fine arts museums and symphony orchestras go about identifying and acquiring the information they want in the day-to-day performance of their jobs. Investigating this particular group not only adds to the body of knowledge the LIS field is accumulating about the information-seeking behavior of disparate users, but also leads to a better understanding of the role information-seeking plays in these managers' jobs. As part of this effort, the types and sources of information used by arts administrators were identified. In addition, *stopping criteria* that influence administrators to end the information-seeking process as well as factors that influence the *level of effort* administrators invest in information seeking were investigated. Finally, categories of *information-seeking styles* were defined to illustrate the ways in which administrators go about the information-seeking process. A model describing the information-seeking process of senior arts administrators was also developed.

This study built on what researchers in the LIS field already know about information seeking and source selection by various user groups in other environments. The existing studies provide a point of comparison between those user groups and arts administrators. To the extent that there are similarities, a stronger argument can be made that specific behaviors cut across disciplines and types of users; to the extent that differences exist, further study is warranted. The proposed model of information-seeking behavior draws from stages of the information search process developed by Kuhlthau (Kuhlthau, 1993). Especially useful was her discussion of the thoughts associated with search closure, which tracked closely with a number of issues mentioned in the interviews. Also key to the

---

<sup>1</sup>This group includes individuals who may have one of several job titles: Director, Executive Director, General Manager, Managing Director, or President, although they are described generically as "arts administrators" rather than "executives" or "managers." The term "senior administrator" is meant to refer to the top administrative position in each organization.

model is the concept of "satisficing" described by March (March, 1994) and discussed specifically in terms of organizational information behavior by Choo (Choo, 1998). Based on Simon's alternative to rational choice theory, satisficers are people who are willing to pursue a "good enough" option rather than the best possible option (maximizers) (Simon, 1956). Other models of information seeking behavior (Dervin, 1992; Katzer & Fletcher, 1992; Leckie, Pettigrew, & Sylvain, 1996; Taylor, 1991; Wilson, 1997) were used to provide a general context for the study.

## Theoretical Framework

Information seeking is a key issue in LIS research, and there are hundreds of references to information-seeking behavior in the literature. One common finding of the many studies focusing on the information needs of such disparate groups of professional users as scholars, scientists, engineers, health-care providers, lawyers, managers, or artists is the importance of identifying the information needs of each group in terms of its own particular information environment (Auster & Choo, 1996; Bates, 1996; Brown, 1999; Cobbledick, 1996; Ellis & Haugan, 1997; Kuhlthau, 2001; Leckie et al., 1996; Meho & Tibbo, 2003; Stam, 1989). A lesson learned from this literature is that task and discipline influence information-seeking behavior, so that any investigation of information-seeking behavior must be done in the context of the information needs of the individual users (Kuhlthau, 1991).

"Information seeking [is] a process in which humans purposefully engage in order to change their state of knowledge" (Marchionini, 1995). While expanding knowledge for its own sake may be an ideal, in reality individuals often look for information only to achieve a practical goal. Although managers in a business environment have increasingly easy access to vast amounts of data, they often think that they do not have the information they need to do their jobs (Katzer & Fletcher, 1992). However, how to identify what information is necessary to achieve any given goal in a business environment remains a difficult question to answer (Drucker, 1995; Rockart, 1979). One approach that has been suggested is the Critical Success Factors technique (Bergeron & Begin, 1989; Rockart, 1982). This approach uses a process that ties successful task completion to specific input requirements (Rockart, 1979). By aligning the manager's information needs with the completion of the tasks necessary to achieve specific goals, it becomes possible to discuss whether the information-seeking process has been successful. This is consistent with the concept that to study the information-seeking behavior of any user group, it is necessary to identify the major components of the environment in which it functions. These include the characteristics of the group members, the settings in which they operate, the types of problems they encounter, and the range of solutions or outcomes they will accept (Taylor, 1986).

If determining the information need is the natural starting point of the information-seeking process, then determining when the need is met should be the natural stopping point.

However, in practice information seeking is rarely that simple. Decision makers almost always overacquire or underacquire information (Connolly & Thorn, 1987), because it is very difficult to think ahead to the outcome of the decision to calculate in advance the value of additional information (Busemeyer & Rapoport, 1988). Since underacquiring information often carries with it a higher risk, many people will seek more information than they need just “to make sure.” Because of this tendency, external constraints such as time and budgetary limitations may be the most common factors influencing a person’s decision to stop looking for more information. This can lead to inefficiency or to potentially more serious consequences such as missed deadlines; it may also result in dissatisfaction on the part of the information seeker (Wilson, 1981).

However, just as research on information-seeking behavior is best done in the context of the individual user’s information needs, so is research on the factors that influence a user to stop looking for information. Understanding how much is “enough” is “essential for making sense of the information around us” (Kuhlthau, 1993, p. 165). When the factors are not externally imposed, they are likely to result from the person’s own thinking about his information needs. For example, Blair (1996) reported the findings from a study in which lawyers searched for only enough information to win the case; other information went unused even if it might have been relevant. Such internally constructed stopping rules have been investigated extensively in cognitive psychology, but have not been applied systematically to the information-seeking process (Pitts, 1999).

Although the literature on relevance is full of discussions over how best to measure the success of the information-retrieval process, relatively little research has been done on identifying or classifying the reasons that users give for stopping the information-seeking process (Harter, 1998). Kraft and Lee (1979) proposed three possible stopping rules that a user might apply to determine when he has enough information to complete the information-seeking process. These rules are the *satiation rule*, the *disgust rule*, and the *combination rule*, all of which focus on the issue of the perceived relevance (or nonrelevance) of the information retrieved (Cross & Kraft, 1981; Waller & Kraft, 1981). On the other hand, Cooper’s (1976) *utility theory* posits that users stop looking for new material at the point at which the effort of the new search outweighs the benefit of the new information. However, this theory is subject to the problem cited above—that it is difficult to predict the benefit of the new information without actually having it. The utility approach is similar to a traditional cost/benefit or cost/effectiveness analysis; evaluating the information-seeking process in these terms is difficult, since it is hard to establish objective values or weights for the variables involved.

The basic concept of determining clear criteria for what information is needed or wanted and then discontinuing the search process when these criteria are achieved can be applied in the context of information seeking (Lancaster, 1977). This approach to information seeking is known as

*satisficing*. According to March, satisficing “specifies the conditions under which search is triggered or stopped” and as such is “less a decision rule than a search rule” (March, 1994). In the model described by March, a search is initiated when performance falls below some predetermined goal, for example, when the information available does not meet the needs of the user. In this situation, search is increased until the goals are met and decreased when performance exceeds the needs. March identified the following three characteristics of a satisficing model of information seeking:

- A satisficing search is “thermostatic” in that it is turned on or off as the need arises; formal information seeking is never done without a proximate cause or specific question in mind.
- The process is “active in the face of adversity”—decisions are often made when a “roadblock” is encountered.
- Input is considered sequentially—first one piece of information will be collected and evaluated; if that is not enough, then a second piece will be collected, and so on, until a satisfactory outcome is achieved. Satisficing information seekers do not collect everything available on a topic and then sort through it to find the “best” information; they stop when they find something that is “good enough.”

The sequential nature of the satisficing approach to information seeking is based on Simon’s (1977) management theory describing the various stages of decision-making activity, in which the information needs vary as the user moves through the process. This phenomenon is related to the LIS concept of situational relevance, in which the same piece of information may be useful at one stage of a user’s information-seeking process but not at another, depending on the state of the user’s knowledge at the moment he encounters it (Wilson, 1973).

Similar to the concept of the user in an evolving state-of-knowledge is the idea of the user facing a gap in his understanding of his environment. In Dervin’s model for determining what will satisfy a user’s information needs, the focus is on the user’s “mandate to construct sense in constantly changing life situations” (Dervin & Nilan, 1986). According to this theory, the user needs new information to fill a gap that prevents him from moving forward with a task. Although often described in terms that would not resonate with managers, e.g., “being dragged down a road not of your own choosing,” the Situation-Gap-Use model does provide a way of looking at the nonstructured information seeking often pursued by managers.

## Research Questions

The broad research question that defined the scope of this study was: What is the nature of the information-seeking process used by senior arts administrators? Because the broad research question being addressed was too general to provide specific guidance for prestructuring the study, the following set of foreshadowing questions was developed:

- What causes administrators to seek information?
- What sources do they use in acquiring that information?

- What factors (*stopping criteria*) influence administrators to determine that they have “enough” information to end the information-seeking process?
- What other factors (if any) contribute to the *level of effort* invested in seeking information?
- Does the *information-seeking style* of administrators relate to the *level of satisfaction* experienced in the information-seeking process?

Since there are no existing studies of the information-seeking behavior of arts administrators or the sources they use for the information they want, the first two foreshadowing questions were included to construct the basic framework for the study. These questions were informed by the researcher’s previous professional experience in providing information to one set of arts administrators. The next two questions were derived primarily from the existing literature on information-seeking and stopping behavior. The final question addresses a possible relationship not found in the literature on managerial information-seeking styles.

## Methods

### Sample

A multiple-case studies design involving a literal and theoretical replication strategy was selected to structure the research process. A sample pool of arts administrators was drawn from two of the disciplines within the arts field: symphony orchestras and art museums. These disciplines represent different traditions in arts administration and attract administrators with different educational and professional backgrounds; the two disciplines were chosen to represent multiple types of art administrators. The sample group included seven orchestra administrators and five museum administrators (See Appendix A). The sample comprised experienced practitioners in their fields: the average number of years in the field was 28. What little research that has been done on arts administrators as a group has shown that they are notably well educated (DiMaggio, 1988). This conclusion was confirmed in this study: all but one administrator had at least one advanced degree, two had PhD degrees.

Because of the researcher’s familiarity with the orchestra field, administrators from this discipline were selected first and used to populate the *literal replication* phase of the design. To identify a group of orchestras to include in the initial sample pool, the researcher contacted the Andrew W. Mellon Foundation, which has been conducting a project to study the current dynamics of the orchestra field since 1997.<sup>2</sup> Fourteen orchestras are participating in that study, whose participants were selected based on meeting certain criteria of organizational structure, financial stability, and commitment to innovative management practices (The Andrew W. Mellon Foundation, 1998). By using this group

of orchestras as the starting point, the researcher was able to identify a sample pool without the danger of bias based on her previous acquaintance with any individual administrator. Of the 14 orchestras in the Mellon Foundation sample, one orchestra was eliminated because the administrator had already participated in an earlier phase of this research study; two more were eliminated because they were going through a leadership transition. Finally, the smallest three orchestras were eliminated because structural differences in the ways orchestras operate once they drop below a certain budget size may have a significant impact on the nature of the senior administrator’s job, making it hard to compare with that of administrators at larger organizations. This left a sample pool of eight orchestras of relatively equal size and sophistication. The design of this sample is consistent with the strategy of *homogeneous sampling*, in which the desired outcome is the description of some particular subgroup in depth (Patton, 1987).

The sample pool for museum interviews was identified after the initial orchestra interviews were conducted. This is consistent with the multiple-case study design, in which the later cases are selected to meet the requirements of *theoretical replication*. To make comparisons across the two disciplines meaningful, only organizations of a similar administrative staff size and level of sophistication could be chosen.<sup>3</sup> A second factor that influenced participant selection was access to the organization. Since the researcher did not have the same level of access to museum administrators as to orchestra administrators, an entry strategy had to be developed and appropriate contacts needed to be identified and asked to help identify interview candidates. Two sources of referrals were used to gain access to museum administrators: (a) the orchestra administrators already being interviewed for the study, and (b) personal contacts known to the researcher who serve as museum board members.

### Data Collection and Analysis

Data were collected from 12 arts administrators using a pretested interview protocol that included 25 questions and required approximately 1 1/2 hours to complete (see Appendix B). The Critical Incident Technique was used to help administrators focus on four areas: their reasons for seeking information, the information sources they use, the factors that influence their decision to stop looking, and their general information-seeking style. The interviews were audiotaped and transcribed for referential adequacy. Data collected as part of this study were reported using an alphanumeric ID number (A-1 through A-12) to refer to each participant. From the 12 interviews, 20 critical incidents involving one or more information-seeking tasks were identified and analyzed. Although some of the participants had

<sup>2</sup>The Orchestra Forum was initiated in January 1997; the first report from the project was issued in 1998.

<sup>3</sup>Budget size alone is not necessarily a good selection criterion for arts organizations in different disciplines; because of high fixed labor, collection, or facilities costs, some very small organizations can have disproportionately large budgets.

difficulty thinking of specific examples initially, the subsequent questions in the interview protocol produced a wide array of descriptions. While the critical incident descriptions do not reflect all the issues facing arts administrators, they do include tasks that ranged from simple to complex and that took from minutes to months to complete. The critical incidents were categorized into one of five organizational areas, based primarily on the way in which the administrators had characterized them, and assigned an alpha-numeric ID number reflecting that categorization. A complete list of the critical incidents is shown in Table 1.

The main approach to data analysis involved a detailed content analysis of the interview transcripts. As the first step in this sequential process, the notes from each interview, made both during the interview and immediately after it, were reviewed, and the highlights or new concepts were identified. Next, the transcript from each interview was reviewed and coded with the support of QSR NVivo. As the process went on, each new interview was compared to the previous ones for confirming or disconfirming evidence; earlier interviews were reanalyzed in the light of new concepts identified in later interviews. Because the multiple-case studies design encouraged the researcher to analyze the data from earlier interviews before scheduling and conducting the later ones, the analysis process itself influenced the emphasis placed on certain questions during the later part of the fieldwork. As a final check in the analysis process, each

TABLE 1. List of critical incident descriptions.

| Organizational area                | Critical incident description                 | ID# |
|------------------------------------|---|-----|
| Financial<br>(F-1 and F-2)         | Negotiate lease for new space                 | F-1 |
|                                    | Structure financing for building project      | F-2 |
| Institutional<br>(I-1 through I-6) | Develop case statement for endowment campaign | I-1 |
|                                    | Eliminate politically-driven event            | I-2 |
|                                    | Increase community involvement                | I-3 |
|                                    | Lend paintings to nontraditional exhibit      | I-4 |
|                                    | Select design for building project            | I-5 |
|                                    | Support long-range planning process           | I-6 |
| Marketing<br>(M-1 through M-4)     | Develop new product offerings                 | M-1 |
|                                    | Develop thematic programming initiatives      | M-2 |
|                                    | Restructure existing concert series           | M-3 |
|                                    | Revise summer programming format/mix          | M-4 |
| Operations<br>(O-1 through O-4)    | Acquire additional office space               | O-1 |
|                                    | Handle recording archives                     | O-2 |
|                                    | Plan major anniversary season                 | O-3 |
|                                    | Upgrade security personnel                    | O-4 |
| Programming<br>(P-1 through P-4)   | Mount major retrospective exhibit             | P-1 |
|                                    | Mount nontraditional exhibit                  | P-2 |
|                                    | Select guest artist                           | P-3 |
|                                    | Schedule specific concert                     | P-4 |

interview was reviewed specifically to look for evidence that ran contrary to the interpretation being developed; no disconfirming evidence was found that could not be explained by specific intervening conditions. This process confirmed the decision that data collection was indeed complete and that saturation had been reached. Use of these techniques also helped to guard against the possibility of researcher bias and reactivity.

Member checks were used to confirm the essential facts and evidence presented in the case report as well as to solicit comments about the researcher's interpretations and conclusions (Yin, 1994). A preliminary draft of the entire dissertation was sent to five administrators, selected based on the number of times they were quoted in the study, who had agreed to provide feedback on the accuracy and plausibility of the findings drawn from the data. All the administrators confirmed the plausibility of the findings and expressed support for the conclusions of the study.

## Model Overview

During the analysis of the interview data, a predictable pattern of information-seeking behavior was identified that provided the framework for developing the model shown in Figure 1. The consistency of the pattern described by the administrators assures a high degree of confidence in the model. Whether engaged in formal or informal information seeking, the administrators passed through four basic stages:

- Initiation
- Assessment
- Exploration
- Completion

### Initiation

As described by the participants, the information-seeking process is initiated when a task to be done or a decision to be made is identified, usually as the result of some outside stimulus. Almost immediately, administrators move into an assessment phase and begin to delimit the task and/or decision to provide a structure for the subsequent process. However, this may not result in the identification of an explicit information need. Many of the administrators interviewed regarded information seeking as an *inexplicit*<sup>4</sup> activity that is incidental to the decision-making process; as a result, many of the descriptions used to illustrate the process referred to "how I made the decision" rather than to "how I looked for information."

Administrators identified 20 critical incidents that ranged from relatively simple tasks or decisions to more complex ones taking months to complete and involving many sub-tasks or decisions. Eight of the twelve administrators

<sup>4</sup>Mintzberg (1973) uses the term "nonexplicit" to refer to the intuitive processes that managers use.

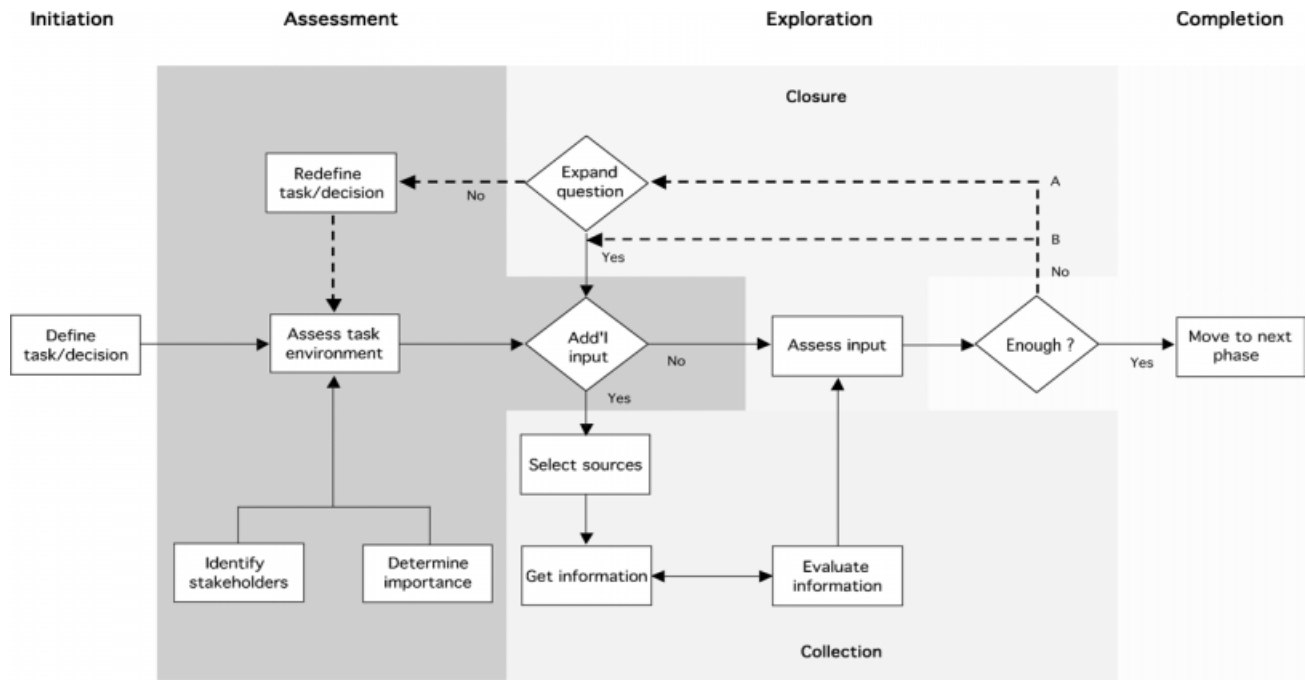


FIG. 1. The information-seeking process of senior arts administrators.

mentioned discussing an issue with a team of colleagues or close advisors, usually senior staff members, as a common approach they used to define a task or decision and identify the steps that needed to be taken to deal with it. Such small-group discussions also provide opportunities to evaluate what is already known about a situation and to determine what other input needs to be acquired to complete the task or make the decision. This kind of discussion ideally happens early in the process but can also happen at later stages as part of a feedback loop. The concept that unstructured “brainstorming” is a useful approach to defining the parameters of specific tasks appeared in three of the critical incident descriptions:

I find my greatest learning in fact to be not about just asking a question, but by having a dialogue, and then by having the dialogue it allows you to spin off into other places, and by spinning off into other places, you have a far better idea than the original germ of an idea that you started out with. . . . (A-8)

Brainstorming or some other form of small group discussion was seen as an effective way not only of defining the obvious issue but also of anticipating possible consequences of implementing various options. Both the importance and the difficulty of evaluating the potential impact of tasks or decisions before the process goes forward were mentioned by seven of the administrators. One administrator noted that because many of the tasks or decisions he faced were complex, and each option open to him might produce unanticipated consequences, the process of identifying an explicit information need was very difficult.

### Assessment

Once the initiating event has occurred, the process moves into an assessment phase during which the administrator evaluates the factors that may influence the types and amount of input he requires. At this point, the administrator also evaluates the existing resources (including information) on hand and identifies what types of additional input (if any) he needs.

### Identifying Stakeholders

Part of the iterative process described by administrators for defining the issue and evaluating the potential impact of a task or decision is geared toward identifying all the people who are likely to have an interest in the outcome. This may include not only individuals directly involved with the process but also other constituent groups who may be affected by any changes the initiative entails. Because arts organizations function in what is often a highly political environment in which they depend on public opinion as well as on outside sources for support, this step of identifying stakeholders becomes a very important determinate of what input is collected and from whom. Furthermore, since information is often collected to reinforce a recommendation, as well as to make the initial determination about a course of action, the ultimate audience for the information needs to be considered. In five cases, administrators described seeking information as a way of building support or consensus among the board or other constituent groups for a particular decision even when they already knew the answers to the specific questions being asked.

### *Determining Importance*

The perceived importance of the task or decision being addressed is an essential component in the administrator's decision to seek information and in the level of effort he will invest in the process. Administrators try to determine the relative weight or impact of the situation before getting involved in information seeking. However, this evaluation is often intuitive, based on their perceptions of how the results of specific actions may affect the organization. All the administrators agreed that the perceived importance or potential impact of the task or decision being addressed played a major role not only in determining how much effort would be invested in information seeking but even whether any information would be sought at all.

### *Identifying the Need for Additional Input*

At the end of the assessment phase, a decision point is reached. If, based on his assessment of the task environment, an administrator concludes that he does not need additional input, he moves directly from the assessment phase to the closure section of the exploration phase (as shown in Fig. 1). If he does need additional input, he enters the collection section of the exploration phase.

### *Exploration*

The exploration phase that follows assessment may be very straightforward or may take several iterations to complete. If the administrator moves directly to the closure section, the path will take him directly to assessing the input he already has and determining whether it is enough to complete the task or make the decision. If he concludes that it is, the process is complete. If he concludes that it is not, the administrator may go back to the assessment phase via loop A and redefine the task or decision based on what he has learned. Alternatively, he may follow loop B and reevaluate his need for additional input, which would bring him back to the point at which he made the decision to forego seeking more information. He could then move through the process of selecting additional sources, getting information, evaluating it, and arriving at (or returning to) the stage of assessing all the input he has. At that point, the administrator may be ready to move to the next phase of the process, or he may want to repeat some or all of the previous stages.

### *Collection*

In the administrators' information-seeking process, entering the collection section is the result of a decision that additional input is necessary to bring the process to closure. The collection path involves selecting specific sources of information, getting the information, and evaluating it for accuracy and completeness.

## **Selecting Sources and Getting Information**

In general, the administrators interviewed had a very clear sense of the questions they wanted answered and how they wanted information presented to them; in this they appeared to be more "data literate" than some executive groups (Drucker, 1992). Although personal contacts (colleagues, constituents, and staff) were the most frequently mentioned sources of information, arts administrators did not acknowledge convenience as a factor in determining where they would go for information as have managers in previous studies (Davenport & Prusak, 1998; Isenberg, 1984; Mintzberg, 1973). One administrator agreed that ease of access could be a consideration, but only in combination with a belief in the authority of the source. Two other administrators, however, dismissed the notion of convenience completely: "I don't care about convenience. I'm much more interested in reliability and the objectivity" (A-1).

Criteria that were identified as important to administrators when deciding where to go for information are shown below, together with the number of times each criterion was mentioned (in parentheses):

- Trust in Source (4)
- Credibility (2)
- Reliability (2)
- Objectivity (1)

This finding differs significantly from that of Auster and Choo, who suggested that ease of use, accessibility, time and effort to acquire, and cost were the primary factors used by executives in selecting an information source (Auster & Choo, 1991).

## **Evaluating Information**

Although administrators do much of their information seeking by using their personal networks to get information directly from primary sources, e.g., to get opinions about persons or things, they also rely heavily on secondary source material, such as financial or audience reports, assembled and presented by others. The understanding that personal contacts can be unreliable leads administrators to look for ways of validating the extrinsic credibility of the sources they use for getting information.

Six administrators said that knowing the source of their information allowed them to evaluate whether they could use it or not. For an administrator, "knowing" the source could mean literally knowing the person from whom the information came or it could mean understanding the process through which the data for a particular report had been obtained.

### *Closure*

As shown in Figure 1, regardless of whether the administrators followed the path through a formal information-collection process or made an initial decision that no

additional input was required, they reached a point at which they assessed the input they had and then often tested the approach they had chosen with others before determining whether they had enough comfort with the results to move on to the next stage.

### *Assessing the Input*

What administrators referred to as their characteristic method for this internal assessment is seen most clearly in cases for which the only input sought was something that the administrator already knew or to which he had immediate access, such as the opinion of a trusted advisor. In the formal collection process, especially in cases that involved information seeking by others, the administrators often described an iterative process of getting information and evaluating it to see if it appeared accurate and complete before going through the assessment step to determine whether they had enough input to move on to the completion stage. Regardless of how the administrator arrived at this point, the assessment step was highly subjective—almost every administrator described it in close to the same terms:

I get information and sort of can spend some time with it, in not a formal method of analyzing it, but really looking at it and things jump out at me and say, this doesn't make sense, so I ask more questions about it. (A-8)

Five of the administrators described the importance of spending time just living with the input as an important part of the assessment process. This allowed information to “percolate” in the background until some new input either clarified or changed the way in which the administrator was looking at the issue. Often the new input came in the form of a second opinion from another source. Six of the administrators specifically wanted to find confirmation for their own instinctive reactions by discussing them with others.

### *Expanding the Question*

If the issue has not been resolved for an administrator during the period of reflection and consultation, he may want to go back and gather more information. An approach mentioned by three administrators in their descriptions of assessing the input was that of using the initial question as a jumping-off point for a later, more focused investigation:

Because once I have the information, most likely it will not be sufficient and then we just open the process. And then we will either need to analyze the information or get more information, but then it becomes more specific. (A-1)

In the process of assessing the input, lack of certainty or lack of comfort about a possible course of action led five administrators to expand the original question or even redefine the issue. This occurred when the input they had was not internally consistent or did not provide a satisfactory answer to

the question that had been identified. In these cases, administrators identified the need to go back and repeat earlier steps to achieve more clarity about the underlying issues or more comfort with the input they were receiving. In other situations, an administrator might go back through the process simply to develop a higher level of comfort with the issue.

What the administrators were describing is a phenomenon identified by many researchers—the role information plays in reducing uncertainty. Shannon and Weaver (1964) identified uncertainty as “the critical link between information and decision making.” By assessing the information they had, both by turning it over in their own minds and by checking the reactions others have to it, they were weighing whether the information available was sufficient to reduce the uncertainty they had about the issue enough to move on to the next phase of the process, which was often to make a decision. However, sometimes having information can make one more uncertain about the answer to a given question, especially when the question begins to appear to be less straightforward than initially perceived (Yovits & Foulk, 1985):

I think sometimes when you look for certain information it actually raises new questions about . . . what the issue really is. And I think that happens and then you have to go off in another tangent to find out how you solve that part of it. (A-3)

### *Completion*

Reaching the decision to move to the next phase marks the completion of the information-seeking process. This iterative process can take minutes or months, depending on the nature of the task/decision involved and the environment in which the process is being performed. However, the optional loops (represented by the dashed lines in Fig. 1) shown in the model are an important feature of the arts administrators' process. It is by following these optional loops that the administrators display their tendency to use satisficing as a way of determining whether they have enough information to move on to the next phase, i.e., completing the task or making the decision for which the information is being sought.

### *Enough?*

As anticipated, the factors that influenced the decision to move on to the next phase of the process and those that influenced the effort invested in seeking information were essentially the same. Administrators generally continued their information seeking consciously or subconsciously until they reached an arbitrary level of comfort with the input they had acquired; the level of comfort they needed to achieve was in turn a function of the task environment: for more important issues, the level tended to be higher; for simple issues, the threshold was often quite low. Time constraints played a role in stopping behavior but were not the primary

factor, especially for issues that had a high potential impact on the organization.

### Stopping Criteria

As discussed above, the administrators may reach the point of making the decision to complete the information-seeking process several times during the course of exploring an issue; they may then cycle through some or all of the steps one or more times before attaining the desired level of comfort with the results of the process. Sometimes it may be that additional information is necessary to provide greater clarity or understanding of the issue, but often it is that the administrator simply wants more time to process the input before taking the final step.

No administrator in the study applied predetermined criteria to make the decision to move forward to the next phase. The decision was made when the administrator felt satisfied with the input he had or the decision was forced by external time constraints. Sometimes the two primary factors—comfort and time—were in conflict with each other, in which case the administrators often resorted to satisficing. Administrators also agreed that the type of task or decision influenced when they would stop the exploration process. However, the essential element of the decision to move on was the feeling that the administrators had, for whatever reason, enough comfort to feel that they could complete the task or make the decision, even if they knew that there might be more information available.

Figure 2 depicts the factors influencing the decision to end exploration and move to the next phase. Among these factors, the pressures of time often offset the possible need for additional information; a concept of the diminishing returns of further information seeking, based on the diminishing

relevance or increasing redundancy of any new information being acquired, was implicit or explicit in most of the critical incident descriptions:

The goal [of the information-seeking process] is to make the decision . . . [so] when the curve starts to go down . . . you'll continue to get more information here, but it isn't going to, after a certain point, materially . . . impact the quality of the conclusion. (A-4)

### Level of Effort

The *level of effort* invested in the information-seeking process was closely related to the criteria administrators used to determine when they were ready to move to the next phase of the process. A matrix of the factors identified by administrators is shown in Table 2, together with the number of times each was mentioned (shown in parentheses). These factors are classified by whether the administrators felt that they came from external (organizational) pressures or internal (personal) characteristics. The level of influence of the

TABLE 2. Factors influencing *Level of Effort* invested in information seeking.

| Type level       | Organizational             | Personal        |
|------------------|----------------------------|-----------------|
| Strong influence | Importance (5)             | Experience (9)  |
|                  | Potential impact (5)       | Familiarity (3) |
|                  | Down-side risk (4)         |                 |
|                  | Organizational culture (3) |                 |
| Weak influence   | Alignment to mission (2)   | Curiosity (1)   |
|                  | Lost opportunities (2)     | Priorities (1)  |
|                  | Who is asking (1)          |                 |

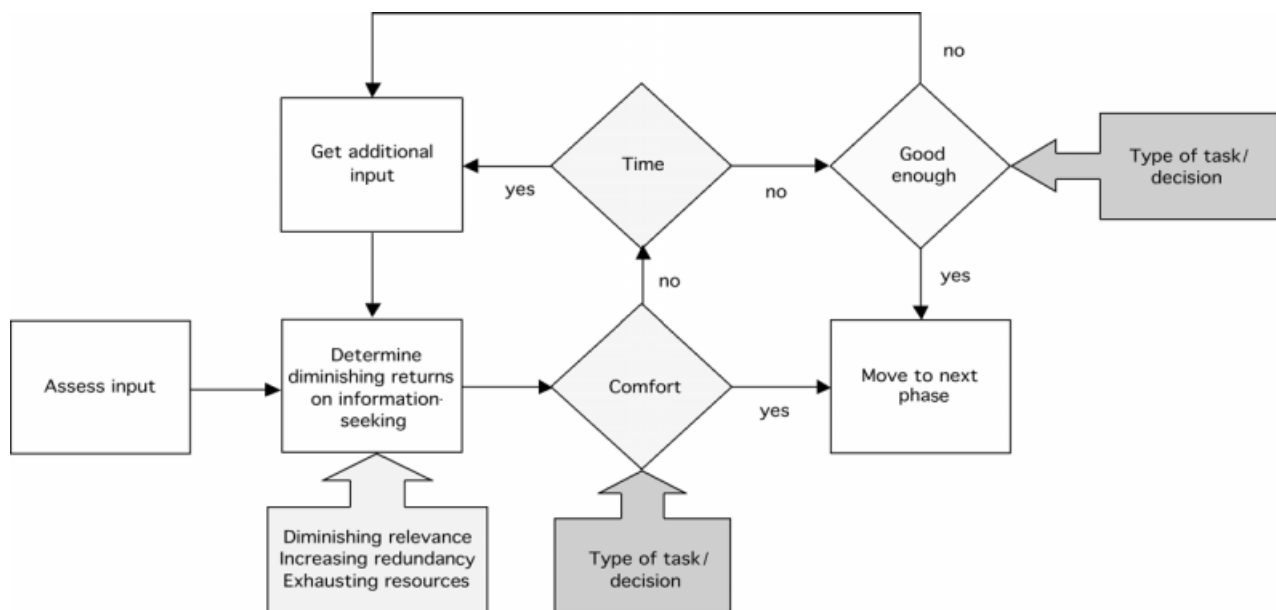


FIG. 2. Factors influencing the decision to end exploration.

factors was determined not only by the number of mentions (shown in parentheses) but also by the affect of the administrators when describing each factor.

Experience was identified as the primary determinant of the level of effort an administrator would spend seeking information. This is consistent with the previous discussion of experience as a source of information. Personal factors other than experience were considered to play a smaller role in influencing the level of effort. The perceived importance or potential impact of the task or decision were the most frequently mentioned external factors influencing administrators. Importance and impact, which were mentioned together by three administrators, were defined operationally by the administrators as the degree to which the organization would be affected by the outcome of the task or decision. Downside risk was defined as the consequences if the wrong decision were made; in three cases, this was described in terms of the financial implications of the decision.

### *Moving to the Next Phase*

The ultimate indication that an administrator has enough comfort based on the information and other input he has collected is that he moves on to the next phase of the process, i.e., completing the task or making the decision. Because administrators are outcome-oriented, this is also an indication that they are satisfied with the results of their information-seeking process. However, satisfaction per se proved to be an elusive concept when addressed in terms of information seeking.

Unlike some other user groups, such as academic researchers or lawyers, arts administrators do not think of themselves as conducting information seeking as a discrete step in a larger process. They may acknowledge that they deliberately look for information under certain conditions, but their normal decision-making process is such that they often conclude it without formally articulating an explicit information need. Therefore, when looking back at the results of the process, they are not able to, or interested in, evaluating whether the process was satisfactory in and of itself. Their only interest is in the result of the process: if they were able to move on to the next phase of the process, then they were satisfied; if not, they continued the process until they were ready to move on or until they decided to defer completing the task or making the decision. Sometimes, as noted above, the desired level of comfort with the available input will come quickly; sometimes it will come only eventually, often as the result or by-product of a convergence of factors beyond the information-seeking process itself.

### **Conclusion**

Based on the data collected from the interviews, the information-seeking process followed by museum administrators and orchestra administrators was essentially the same regardless of type and amount of information wanted. The main findings of the study are (a) arts administrators do not

consider information seeking to be a discrete management task, (b) they rely heavily on direct personal experience to fill their information-seeking needs, and (c) they are “satisficers” when it comes to seeking information. The finding that arts administrators do not characteristically engage in a formal information-seeking process to support managerial activities has important implications. These administrators perceive themselves to be following a highly intuitive process based on personal experience or expertise to meet their information needs, but that process has not been explicitly structured or evaluated. This approach may serve well in familiar situations, in which the pertinent factors are internal or commonly known, or in situations where replicating past results is desirable. However, the intuitive approach may be of more limited success in situations where the complexity and/or the potential impact of the task or decision are high.

The inexplicit information-seeking style identified in this research provides little opportunity for identifying the need for new, external information. This is a style that reflects a traditional arts organization’s approach to decision making, but is not well suited for introducing organizational change. Furthermore, since feedback and evaluation are not built into the information-seeking process, the potential for organizational learning is limited. Addressing this issue may greatly strengthen the ability of arts administrators and organizations to pursue successful strategies in a dramatically changing environment.

### **Directions for Future Research**

Although several conclusions have been drawn from this exploratory research study, much of the value lies in the directions for future research suggested by the themes that emerged during the data collection and analysis. As is the goal of all exploratory research, this study provided both an in-depth understanding of the nature of a specific activity and the context in which to frame future research questions.

Because this study is based primarily on interviews with very experienced managers in major arts organizations, the possibility exists that the findings of the current study are biased by the sample. To confirm these findings, it would be necessary to expand this study to a broader sample of administrators within the museum and orchestra fields, focusing specifically on those in smaller organizations and with less experience. To demonstrate the transferability of the findings, it will be necessary to test the proposed model of information-seeking behavior in other arts disciplines—opera, dance, theatre, and a broader range of museums.

Although technology did not play a large role in the information-seeking behavior of the arts administrators in this study, a new generation or type of manager may perceive the value of technology as a tool for information seeking differently; indications of such a trend were apparent (although only weakly) in the data. A second area for future research is to investigate the extent to which the attitudes towards information seeking have a generational component.

## References

- The Andrew W. Mellon Foundation. (1998). Report on the Orchestra Forum. New York: Author.
- American Symphony Orchestra League. (1992). The financial condition of symphony orchestras. Washington, DC: Author.
- Auster, E., & Choo, C.W. (1991). Environmental scanning: A conceptual framework for studying the information seeking behavior of executives. In J.M. Griffiths (Ed.), *Proceedings of the 54th ASIS Annual Meeting (ASIS '91)* (pp. 3–8). Medford, NJ: Learned Information.
- Auster, E., & Choo, C.W. (1996). How senior managers acquire and use information in environmental scanning. In E. Auster & C.W. Choo (Eds.), *Managing information for the competitive edge* (pp. 253–270). New York: Neal-Schuman.
- Austin, D.M., Altpeter, M.A., & Edwards, R.L. (1998). Managing effectively in an environment of competing values. In R.L. Edwards, J.A. Yankey, & M.A. Altpeter (Eds.), *Skills for effective management of non-profit organizations* (pp. 5–24). Washington, DC: NASW Press.
- Bates, M.J. (1996). Learning about the information seeking of interdisciplinary scholars and students. *Library Trends*, 45(2), 155–164.
- Baumol, W.J., & Bowen, W.G. (1966). *Performing arts, the economic dilemma: A study of problems common to theater, opera, music, and dance*. New York: Twentieth Century Fund.
- Bergeron, F., & Begin, C. (1989). The use of Critical Success Factors in evaluation of information systems: A case study. *Journal of Information Systems*, 5(4).
- Blair, D.C. (1996). STAIRS redux: Thoughts on the STAIRS evaluation, ten years after. *Journal of the American Society for Information Science*, 47(1), 4–22.
- Brown, C.M. (1999). Information seeking behavior of scientists in the electronic information age: Astronomers, chemists, mathematicians, and physicists. *Journal of the American Society for Information Science*, 50(10), 929–943.
- Busemeyer, J.R., & Rapoport, A. (1988). Psychological models of deferred decision making. *Journal of Mathematical Psychology*, 32, 91–143.
- Cavendish, E.A. (1986). From impresario to arts administrator: Formal accountability in nonprofit cultural organizations. In P. DiMaggio (Ed.), *Nonprofit enterprise in the arts: Studies in mission and constraint*. New York: Oxford University Press.
- Choo, C.W. (1998). *The knowing organization: How organizations use information to construct meaning, create knowledge, and make decisions*. New York: Oxford University Press.
- Cobbedick, S. (1996). The information-seeking behavior of artists: Exploratory interviews. *Library Quarterly*, 66(4), 343–372.
- Connolly, T., & Thorn, B.K. (1987). Predecisional information acquisition: Effects of task variables on suboptimal search strategies. *Organizational Behavior and Human Decision Processes*, 39, 397–416.
- Cooper, W.S. (1976). The paradoxical role of unexamined documents in the evaluation of retrieval effectiveness. *Information Processing & Management*, 12(6), 367–375.
- Cross, G., & Kraft, D.H. (1981, October). Stopping rules, relevance distributions, and retrieval performance. Paper presented at the ORSA/TIMS Joint National Meeting, Houston, TX.
- Davenport, T.H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Boston: Harvard Business School Press.
- Dees, J.G. (1998). Enterprising nonprofits. *Harvard Business Review*, 76(1), 55–67.
- Dervin, B. (1992). From the mind's eye of the user: The sense-making qualitative-quantitative methodology. In J.D. Glazier & R.R. Powell (Eds.), *Qualitative research in information management* (pp. 61–84). Englewood, CO: Libraries Unlimited.
- Dervin, B., & Nilan, M. (1986). Information needs and uses. In M.E. Williams (Ed.), *Annual Review of Information Science and Technology* (Vol. 21, pp. 3–33). Medford, NJ: Learned Information, Inc.
- DiMaggio, P. (1988). Managers of the arts: Careers and opinions of senior arts administrators of U.S. art museums, symphony orchestras, resident theatres, and local arts agencies. Washington, DC: Seven Locks Press.
- Drucker, P.F. (1974). *Management: Tasks, responsibilities, practices*. New York: Harper & Row.
- Drucker, P.F. (1989). What business can learn from nonprofits. *Harvard Business Review*, 67(4), 88–93.
- Drucker, P.F. (1990). *Managing the non-profit organization: Practices and principles*. New York: Harper Collins.
- Drucker, P.F. (1992, Dec. 1). Be data literate—Know what to know. *The Wall Street Journal*, p. 16.
- Drucker, P.F. (1995). The information executives truly need. *Harvard Business Review*, 73(1), 54–62.
- Ellis, D., & Haugan, M. (1997). Modeling the information seeking patterns of engineers and research scientists in an industrial environment. *Journal of Documentation*, 53(4), 384–403.
- Fitzgibbon, M., & Kelly, A. (1997). *From maestro to manager: Critical issues in arts and cultural management*. Dublin: Oak Tree Press in association with the Graduate School of Business, University College of Dublin.
- Gray, C.M. (1992). *Information for management, planning, and decision-making in nonprofit organizations: Toward a comprehensive model*. Unpublished doctoral dissertation, Brandeis University, The F. Heller Graduate School for Advanced Studies in Social Welfare.
- Harter, S.P., & Hert, C.A. (1997). Evaluation of information retrieval systems: Approaches, issues, methods. In M.E. Williams (Ed.), *Annual Review of Information Science and Technology* (Vol. 32, pp. 3–94). Medford, NJ: Learned Information, Inc.
- Isenberg, D. (1984). How senior managers think. *Harvard Business Review*, 62(6), 81–90.
- Kanter, R.M. (1989). The new managerial work. *Harvard Business Review*, 67(6), 85–92.
- Katzer, J., & Fletcher, P.T. (1992). The information environment of managers. In *Annual Review of Information Science and Technology* (Vol. 27, pp. 227–263). Medford, NJ: Learned Information, Inc.
- Kotter, J.P. (1982). What effective general managers really do. *Harvard Business Review*, 60(6), 156–167.
- Kraft, D.H., & Lee, T. (1979). Stopping rules and their effect of expected search length. *Information Processing & Management*, 15(1), 47–58.
- Kuhlthau, C.C. (1991). Inside the search process: Information seeking from the user's perspective. *Journal of the American Society for Information Science*, 42(5), 361–371.
- Kuhlthau, C.C. (1993). *Seeking meaning: A process approach to library and information services*. Norwood, NJ: Ablex.
- Kuhlthau, C.C. (2001). Information search process of lawyers: A call for 'just for me' information services. *Journal of Documentation*, 57(1), 25–43.
- Lancaster, F.W. (1977). *The measurement and evaluation of library services*. Washington, DC: Information Resources Press.
- Learned, E.P. (1982). *Problems of a new executive. New insights for executive achievement*. Cambridge, MA: Harvard University.
- Leckie, G.J., Pettigrew, K.E., & Sylvain, C. (1996). Modeling the information seeking of professionals: A general model derived from research on engineers, health care professionals, and lawyers. *Library Quarterly*, 66(2), 161–193.
- March, J.G. (1994). *A primer on decision making: How decisions happen*. New York: The Free Press.
- Marchionini, G. (1995). *Information seeking in electronic environments*. New York: Cambridge University Press.
- Meho, L.I., & Tibbo, H.R. (2003). Modeling the information-seeking behavior of social scientists: Ellis' study revisited. *Journal of the American Society for Information Science and Technology*, 54(6), 570–587.
- Mintzberg, H. (1973). *The nature of managerial work*. New York: Harper and Row.
- National Endowment for the Arts. (2001). *The arts in the GDP (Report No. Note #77)*. Washington, DC: Author.
- Patton, M.Q. (1987). *How to use qualitative methods in evaluation*. Thousand Oaks, CA: Sage.
- Pitts, M.G. (1999). *The use of evaluative stopping rules in information requirements determination*. Unpublished doctoral dissertation, University of Maryland Baltimore County.
- Purser, R.C.B. (1987). *The American performing arts organization: Scenario for survival*. Unpublished doctoral dissertation, Golden Gate University, San Francisco, CA.

- Rentschler, R. (1998). Museum and performing arts marketing: A climate of change. *Journal of Arts Management Law and Society*, 28(1), 83–96.
- Rockart, J.F. (1979). Chief executives define their own data needs. *Harvard Business Review*, 57(2), 81–92.
- Rockart, J.F. (1982). The changing role of the information systems executive: A critical success factors perspective. *Sloan Management Review*, Fall, 3–13.
- Ryan, W. (1999). The new landscape for nonprofits. *Harvard Business Review*, 77(1), 127–136.
- Scheff, J., & Kotler, P. (1996). How the arts can prosper through strategic collaborations. *Harvard Business Review*, 74(1), 52–62.
- Shannon, C.E., & Weaver, W. (1964). *The mathematical theory of communication* (pp. 3–28). Urbana, IL: University of Illinois Press.
- Simon, H.A. (1956). Rational choice and the structure of the environment. *Psychological Review*, 63, 129–138.
- Simon, H.A. (1977). *The new science of management decision* (Rev. ed.). Englewood Cliffs, NJ: Prentice Hall.
- Stam, D.C. (1989). Tracking art historians: On information needs and information-seeking behavior. *Art Libraries Journal*, 14(3), 13–16.
- Taylor, R.S. (1986). On the study of information use environments. In J.M. Hurd (Ed.), *Proceedings of the 49th Annual Meeting of the American Society for Information Science (ASIS '86)* (Vol. 23, pp. 331–334). Medford, NJ: Learned Information, Inc.
- Taylor, R.S. (1991). Information use environments. In B. Dervin & M.J. Voigt (Eds.), *Progress in Communication Sciences* (Vol. 10, pp. 217–255). Norwood, NJ: Ablex Publishing Corp.
- Voss, G.B., & Voss, Z.G. (2000). Strategic orientation and firm performance in an artistic environment. *Journal of Marketing*, 64(1), 67 ff.
- Waller, W.G., & Kraft, D.H. (1981). A Bayesian approach to user stopping rules for information retrieval systems. *Information Processing and Management*, 17, 349–361.
- Williams, J.M. (1992). *Internal reasons why performing arts organizations fail*. Unpublished doctoral dissertation, The American University, Washington, DC.
- Wilson, P. (1973). Situational relevance. *Information Storage and Retrieval*, 9(8), 457–471.
- Wilson, T.D. (1981). On user studies and information needs. *Journal of Documentation*, 37, 3–15.
- Wilson, T.D. (1997). Information behavior: An interdisciplinary approach. *Information Processing and Management*, 33, 551–572.
- Wolf, T. (1999). *Managing a nonprofit organization in the twenty-first century*. New York: Simon & Schuster.
- Yin, R.K. (1994). *Case study research: Design and methods*. Thousand Oaks, CA: Sage.
- Yovits, M.C., & Foulk, C.R. (1985). Experiments and analysis of information use and value in a decision making context. *Journal of the American Society for Information Science*, 36(1), 36–81.

## Appendix A: List of Participating Institutions

### Museums

- Baltimore Museum of Art, Baltimore, MD
- Cleveland Museum of Art, Cleveland, OH
- Fine Arts Museum of San Francisco, San Francisco, CA
- The Phillips Collection, Washington, DC
- The Walters Art Museum, Baltimore, MD

### Orchestras

- Chicago Symphony Orchestra, Chicago, IL
- The Cleveland Orchestra, Cleveland, OH
- New Jersey Symphony Orchestra, Newark, NJ
- The Philadelphia Orchestra, Philadelphia, PA
- Pittsburgh Symphony Orchestra, Pittsburgh, PA
- San Francisco Symphony, San Francisco, CA
- Seattle Symphony, Seattle, WA

## Appendix B: Final Interview Protocol

The purpose of this interview is to investigate how you collected the information you needed for a recent nonroutine task such as initiating a new service or program. When you answer these questions, I would like you to focus on the business side of the task, not the artistic one. I will also ask you several questions about how you go about looking for information in general.

### I. Information Seeking for a Specific Task

1. Please describe a recent task you have completed that required you to go out and look for information that you didn't already have.
2. What information did you *want* to have? [*wait for response, then follow-up*] How did you identify the information you wanted?

#### A. Information Sources

3. Where did you look for the information you wanted? [*wait for response, then prompt as necessary—identify as many as possible*]  
 Didn't look—had the information already  
 Asked someone from another, similar organization  
 Asked someone on the staff assigned to the project  
 Asked an information services professional or used a library  
 Hired consultants or research firms  
 Used the Internet or other on-line sources  
 Used informal sources (conversations with colleagues or friends, casual reading, radio listening, television viewing, etc.)  
 Used some other source [describe]
4. If you used information that you already had, do you know where or when you got that information? [*wait for response, then prompt as necessary—identify as many as possible*]  
 Had enough general knowledge and/or previous experience  
 Heard it from someone in a work-related situation  
 Read it in a work-related publication  
 Heard it from someone in a social situation  
 Came across it in casual reading/radio listening, etc.  
 Other [describe]
5. Why did you select the source(s) you used for getting the information you wanted? [*wait for response, then prompt as necessary—identify as many as possible*]  
 Confidence in the source  
 Familiarity with the source  
 Proximity of the source  
 Information was in an easy-to-use format  
 Other [describe]
6. If you got your information from a specific individual, why did you go to that person for information?\*

\*Note: Underlining indicates that question was added after initial interviews.

## B. Information Seeking and Stopping

7. In collecting information, did you identify the type and amount of information you wanted *before* you started looking or as you went along?
8. How did you determine the type and amount of information you actually needed?
  - a. before starting?
  - b. as you went along?
9. How did you decide that you had “enough” information?
  - a. Why did you stop looking for more information?
  - b. Approximately how long did you spend looking for information?
  - c. Was this typical? Appropriate? What made it different from other experiences?
10. Were you satisfied with the type and amount of information you had when you stopped looking? Why or why not?
11. Did you have to go back and look for more information after you had stopped? Why?
12. How confident did you feel about the information you collected?
13. On what did you base your confidence in the information you got?
14. If you were doing the task over, what would you do differently (if anything) in terms of the way you looked for information?

## II. General Information-Seeking Style

Now I would like to ask you about how you look for information in general, for any of the various tasks that you perform as part of your job.

15. In general, do you prefer to look at everything that you can find on a subject or do you look for specific information and stop when you have found that?
16. If you look only for the specific information you want to perform a task, how do you determine the type and amount of information you need?

17. Do you feel as if you collect more information than you use? If so, how do you decide what information you actually need?
18. Does the type and amount of information you feel you need vary depending on your experience with specific types of tasks? Can you give me some examples?
19. Are there other factors that influence the level of effort you spend looking for information? What are they?

[*wait for response, then prompt as necessary—identify as many as possible*]

20. [follow-up question if not specifically addressed in answer to No. 19:]
  - a. Does the importance of the question/task influence the level of effort you spend?
  - b. How do you measure/define task importance?
  - c. Do you use your mission statement to measure/define task importance?
21. What are the most common types of tasks for which you look for information?
22. What are the most common problems you encounter in terms of looking for the information you want to do your job? [*wait for response, then prompt as necessary—identify as many as possible*]  
Too much to choose from  
Not enough on the specific questions I have  
Can't get it quickly enough  
Don't trust it  
Other [describe]
23. Do you or your staff use any on-line sources when collecting information? If so, what were they? If you didn't use any, why not?
24. Do you think that technology in general has made looking for information easier or harder? Why?
25. Is there anything else you think I should know about the way you look for information and how you decide when you have enough?