INSIDE THE INFORMATION SEARCH PROCESS: REFLECTIONS ON THE
USER'S PERSPECTIVE OF INFORMATION SEEKING

Carol Collier Kuhlthau, Professor Emerita
Library and Information Science, Rutgers University

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Abstract
Kuhlthau reflects on her work in the development of the Information Search Process (ISP), a six stage model of the users' holistic experience in the process of information seeking. The ISP model, based on two decades of empirical research, identifies three realms of experience: the affective (feelings), the cognitive (thoughts) and the physical (actions) common to each stage. Central to the ISP is the notion that uncertainty, both affective and cognitive, increases and decreases in the process of information seeking. A principle of uncertainty for information seeking is proposed that states that information commonly increases uncertainty in the early stages of the search process. Increased uncertainty indicates a zone of intervention for intermediaries and system designers.

**Reflections on the development of the ISP**

The development of the ISP as a conceptual framework is the result of more than two decades of research that began with a qualitative study of secondary school students and the emergence of an initial model that was verified and refined through quantitative and longitudinal methods with diverse library users and further developed in case studies of people in the workplace. From these findings a principle of uncertainty for information seeking emerged that states that information commonly increases uncertainty in the early stages of the search process. Increased uncertainty creates a zone of intervention for intermediaries and system designers. I have charted the progression and development of the ISP citing selected research reports from 1985 to 2006 with a short description of the significance of each piece. In addition I have listed three books that summarize the work and incorporate applications for practice.

As I look back on my work on the ISP I reflect on critical decisions along the way that sustained my research agenda and resulted in the development of a useful model of information seeking behavior. Of course these were not readily apparent at the start. Rather they evolved and unfolded as part of an intriguing research journey. There are six guides that I have taken in this work beginning with the first study in 1983 and continuing on today:

- Start with a real problem
- Stay with the problem to verify and test the findings in variety of contexts
- Develop concepts from the findings
- Apply the framework of LIS

- Design applications for implementation
- Look to the future

**Start with a real problem**

     My research into the user's perspective of the process of information seeking began in the early eighties with my experience with students as a secondary school librarian.  I noticed a recurring problem.  No matter how well students were oriented to the library and its' resources or how bright they seemed, there was a common pattern of behavior when they came to the library for the first few days of their research.  Students almost invariably became confused and uncertain in the early stages of a research project, often expressing annoyance at the assignment, the library and themselves.  This led to research that grounded the initial model of the ISP as a process of construction.

     In my doctoral studies I was introduced to George Kelly's Personal Construct Theory in which he analyzes the experience of constructing meaning from new information.  Information is assimilated in a series of phases, beginning with confusion.  Confusion increases as inconsistencies and incompatibilities are confronted between the new information and the constructs the person already holds.  As confusion mounts, it frequently causes doubt.  The disruption caused by the new ideas may become so threatening that the new information is discarded and construction of new meaning is abandoned.  At this point, Kelly proposes an alternative to move the process of construction along.  The person may form a tentative hypothesis to move toward incorporating the new construct into the existing system of personally held constructs. I wondered whether from the user's perspective information seeking is a process of construction as described in Kelly's personal construct theory and whether what I was observing with my students was a natural phase in this process.  This was the research problem that got me started on my scholarly journey and is a problem that still fascinates me today.

     In that initial study, I found that students' information seeking did indeed involve construction that was experienced as a series of stages with thoughts that shifted from vague to clearer and feelings that changed from anxious to more confident as the search progressed. I charted the thoughts, actions and feelings in each stage.  One of my data collection methods was a timeline in which students describe their thoughts, actions and feelings during a search. I adopted the timeline to display three layers of experience in each stage and to capture the sense of process. The stages were named for the main task undertaken to move on to the next stage: task initiation, topic selection, focus exploration, focus formulation, information collection and search closure.  The model incorporated thoughts, actions and feelings common to each stage.

**Stay with the problem to verify and test in variety of contexts**

     After I joined the Rutgers faculty I had many opportunities to look at a whole range of interesting research areas.  But this problem kept coming back to my attention. Had my study uncovered a unique situation of construction in information seeking or was the experience more pervasive?  Would I find similar patterns in the experience of other students and other library users?  At that time I made what proved to be a good decision, to stay with the problem to investigate it further. While some people have questioned my

decision to work on one idea, I felt I was on to something and I wanted to see it through to verify developing findings and to test in other contexts. At the time, I had no idea it would take me so far in my understanding of information seeking behavior.

By staying with the problem I was able to verify and refine the model in various contexts. The model was verified in longitudinal case studies and large scale studies of diverse samples of library users. Further studies have examined the implementation of a process approach in education contexts and investigated the ISP in the workplace.

I used a combination of methods to gather data from users regarding their perspective of the process of information seeking. Longitudinal methods enabled me to view changes in the process. Each of my studies had a longitudinal component of data being gathered at more than one point in time. I carried this a bit far, with one case study that extended over 15 years. This approach provided comparative evidence that was interesting for understanding change in the process of information seeking over time. I also used a combination of qualitative and quantitative methods that proved to be an important component of the research. Initially, I had used qualitative methods to open the process for examination. But when quantitative methods enabled verification of the initial model in a large sample of diverse users, I realized the power of using a combination of methodologies. I clearly remember the excitement of discovery when I first looked at the statistical report that showed similar patterns to those I had found earlier in the initial qualitative study. A combination of qualitative and quantitative methods has been an important aspect of this research further amplified by incorporating longitudinal components within it.

After this extensive research, I was able to refine the model and expand it as a more general model of information seeking behavior known as the Information Search Process (ISP). The ISP presents a holistic view of information seeking from the user's perspective in six stages: initiation, selection, exploration, formulation, collection and presentation. The six stage model of the ISP incorporates three realms of experience: the affective (feelings) the cognitive (thoughts) and the physical (actions) common to each stage. The model of the ISP describes users' experience in the process of information seeking as a series of thoughts, feelings, and actions. Thoughts that begin as uncertain, vague, and ambiguous become clearer, more focused, and specific as the search progresses. Feelings of anxiety and doubt become more confident and certain. Through their actions, people seek information relevant to the general topic in the beginning stages of the ISP and pertinent to the focused topic toward closure. Affective aspects, such as uncertainty and confusion can influence relevance judgments as much as cognitive aspects, such as personal knowledge and information content.

Formulation of a focus or a personal perspective of the topic is a pivotal point in the ISP. At that point, feelings shift from uncertain to confident; thoughts change from vague to clear and interest increases. The ISP describes common experiences in the process of information seeking for a complex task that has a discrete beginning and ending and that requires construction and learning to be accomplished. The model reveals a process in which a person is seeking meaning in the course of seeking information. From the user's perspective the primary objective of information seeking is to accomplish the task that initiated the search, not merely the collection of information as an end in itself. The ISP presents seeking information as a means to accomplish a complex task.

**Model of the ISP**

As I have said, the model of the ISP is articulated in a holistic view of information seeking from the user's perspective in six stages.  They are defined as follows:

- *Initiation*, when a person first becomes aware of a lack of knowledge or understanding and feelings of uncertainty and apprehension are common.
- *Selection,* when a general area, topic, or problem is identified and initial uncertainty often gives way to a brief sense of optimism and a readiness to begin the search.
- *Exploration,* when inconsistent, incompatible information is encountered and uncertainty, confusion, and doubt frequently increase and people find themselves "in the dip" of confidence.
- *Formulation,* when a focused perspective is formed and uncertainty diminishes as confidence begins to increase.
- *Collection,* when information pertinent to the focused perspective is gathered and uncertainty subsides as interest and involvement deepens.
- *Presentation,* when the search is completed with a new understanding enabling the person to explain his or her learning to others or in someway put the learning to use.

Model of the Information Search Process

| | Initiation | Selection | Exploration | Formulation | Collection | Presentation | Assessment |
|---|---|---|---|---|---|---|---|
| Feelings (Affective) | Uncertainty | Optimism | Confusion Frustration Doubt | Clarity | Sense of direction / Confidence | Satisfaction or Disappointment | Sense of accomplish-ment |
| Thoughts (Cognitive) | vague ⟶ | | | focused ⟶ | increased | interest | Increased self-awareness |
| Actions (Physical) | Seeking | relevant Exploring | information ⟶ | seeking | pertinent Documenting | information | |

(Kuhlthau, 2004, p. 82)

In the first stage, *initiation,* a person becomes aware of a gap in knowledge or a lack of understanding, where feelings of uncertainty and apprehension are common. At this point, the task is merely to recognize a need for information.  Thoughts center on contemplating the problem, comprehending the task, and relating the problem to prior experience and personal knowledge. Actions frequently involve discussing possible avenues of approach or topics to pursue.

In the second stage, *selection*, the task is to identify and select the general topic to be investigated and the approach to be pursued. Feelings of uncertainty often give way to optimism after the selection as been made and there is a readiness to begin the search. Thoughts center on weighing prospective topics against the criteria of task requirements, time allotted, personal interest, and information available. The outcome of the possible choices is predicted, and the topic or approach judged to have the greatest potential for success is selected. Typical actions are to confer with others or to make a preliminary search of information available and then to skim and scan for an overview of alternative topics. When, for whatever reason, selection is delayed or postponed, feelings of anxiety are likely to intensify until the choice is made.

The third stage is *Exploration* characterized by feelings of confusion, uncertainty, and doubt which frequently increase during this time. The task is to investigate information on the general topic in order to extend personal understanding. Thoughts center on becoming oriented and sufficiently informed about the topic to form a focus or a personal point of view. At this stage in the ISP, an inability to express precisely what information is needed can make communication between the user and the system awkward. Actions involve locating information about the general topic, reading to become informed, and relating new information to what is already known. In this stage the information encountered rarely fits smoothly with previously-held constructs, and information from different sources frequently seems inconsistent and incompatible. People may find the situation quite discouraging and even threatening, causing a sense of personal inadequacy as well as frustration with the system. Some actually may be inclined to abandon the search altogether at this stage. Exploration is considered the most difficult stage in the ISP when the information encountered can increase uncertainty prompting a dip in confidence.

The fourth stage in the ISP, *Formulation*, is the turning point of the ISP, when feelings of uncertainty diminish and confidence increases. The task is to form a focus from the information encountered. Thoughts involve identifying and selecting ideas in the information from which to form a focused perspective of the topic. A focus in the search process is comparable to a hypothesis in the process of construction. The topic becomes more personalized at this stage if construction is taking place. While a focus may be formed in a sudden moment of insight, it is more likely to emerge gradually as constructs become clearer. During this time, a change in feelings is commonly noted, with indications of increased confidence and a sense of clarity. People often express an awareness of being involved in finding meaning such as purposefully engaging in "focusing and narrowing," in seeking "a thread," "a story," "answers to all my questions," "a central theme" or "a guiding idea." The four criteria used to select a topic may be again employed to choose a focus: Task; What am I trying to accomplish? Time; How much time do I have? Interest; What do I find personally interesting? Availability; What information is available to me?

*Collection* is the fifth stage in the ISP when interaction between the user and the information system functions most effectively and efficiently. At this point, the task is to gather information related to the focused topic. Thoughts center on defining, extending, and supporting the focus. Actions involve selecting information relevant to the focused perspective of the topic and making detailed notes on that which pertains specifically to the focus. General information on the topic is no longer relevant after formulation. The

person, with a clearer sense of direction, can specify the need for pertinent, focused information to intermediaries and to systems, thereby facilitating a comprehensive search of available resources. Feelings of confidence continue to increase as uncertainty subsides, with interest in the project deepening.

In *presentation,* the sixth stage, feelings of relief are common with a sense of satisfaction if the search has gone well or disappointment if it has not. The task is to complete the search and to prepare to present or otherwise use the findings. Thoughts concentrate on culminating the search with a personalized synthesis of the topic or problem. Actions involve a summary search in which decreasing relevance and increasing redundancy are noted in the information encountered.

**Develop concepts from the findings**

The next important decision that I made on this research journey was to draw out the main ideas in the research and to develop concepts from the findings. This meant extending the research agenda further into an area of conceptual theory development but continuing with an eye on what it would mean for the practice of librarianship.

My studies were among the first to investigate the affective aspects or feelings in the process of information seeking along with the cognitive and physical aspects. Prior to the introduction of the ISP the affective dimension of information seeking had not been fully recognized in library and information services and systems. One of the important findings of this research was the discovery of a sharp increase in uncertainty and decrease in confidence after a search had been initiated. A person "in the dip" commonly experienced uncertainty, confusion and anxiety until a focus or a personal perspective had been formed. I have come to understand that this point, when librarians frequently first encounter students (other library users as well) and is the most difficult stage of the search process.

Central to the model of the ISP is the concept of uncertainty. Uncertainty was not a new concept in information science but affective uncertainty had not been extensively studied or developed as an important attribute of the concept. The axiom that information reduces uncertainty is not necessarily the user's experience in information seeking. In some situations, new information actually increases uncertainty. Prior to the formulation stage, users are likely to experience heightened uncertainty in the face of incompatible, inconsistent information since it requires thought, construction and interpretation. It seems helpful for people to learn that uncertainty increases during the exploration stage of the ISP rather than thinking that increased uncertainty is a symptom that something has gone wrong. Uncertainty from the user's perspective is a natural experience in the search process. If unexpected, the presence of uncertainty and particularly any increase in uncertainty can heighten anxiety and frustration, perhaps to the point of quitting.

Kelly's personal construct theory provided the example of a way to present a conceptual framework with a central principle and a number of explanatory corollaries. I thought it would be useful, and perhaps a bit amusing, to state uncertainty as a principle for library and information science. The principle of uncertainty for information seeking is:

Uncertainty is a cognitive state that commonly causes affective symptoms of anxiety and lack of confidence. Uncertainty and anxiety can be expected in the early stages of the ISP. The affective symptoms of uncertainty, confusion and frustration are associated with vague, unclear thought about a topic or question. As knowledge states shift to more clearly focused thoughts, a parallel shift occurs in feelings of increased confidence. Uncertainty due to a lack of understanding, a gap in meaning, or a limited construct initiates the process of information seeking.

The principle of uncertainty is further elaborated by six corollaries: process corollary, formulation corollary, redundancy corollary, mood corollary, prediction corollary, and interest corollary. Each corollary is an important related concept drawn from the findings of the studies of the ISP.

**Six Corollaries of the principle of uncertainty**

1. Process Corollary

The process of information seeking involves construction in which the person actively pursues understanding and meaning from the information encountered over a period of time. The process is commonly experienced in a series of thoughts and feelings that shift from vague and anxious to clear and confident, as the search progresses.

2. Formulation Corollary

Formulation is thinking, developing an understanding and extending and defining a topic from the information encountered in the early stages of a search. The formulation of a focus or a guiding idea is a critical, pivotal point in the ISP when a general topic becomes clearer and a particular perspective is formed as the person moves from uncertainty to understanding.

3. Redundancy Corollary

The interplay of seeking what is expected or redundant and encountering what is unexpected or unique results in an underlying tension of the ISP. Redundant information fits into what the user already knows and is readily recognized as being relevant or not. Unique information is new and extends knowledge and does not match the person's constructs requiring reconstruction to be recognized as useful. Too much redundant information leads to boredom, whereas too much unique information causes anxiety. The lack of redundancy in the early stages of the ISP may be an underlying cause of anxiety related to uncertainty. Uncertainty may decrease as redundancy increases.

4. Mood Corollary

Mood, a stance or attitude that the person assumes, opens or closes the range of possibilities in a search. According to Kelly, an invitational mood leads to expansive, exploratory actions, whereas an indicative mood fosters conclusive actions that lead to closure. The person's mood is likely to shift during the ISP. An invitational mood may be helpful in the early stages and an indicative mood in the later stages. A person in an invitational mood would tend to take more expansive, exploratory actions, while a user in an indicative mood prefers conclusive actions that lead to closure.

5. Prediction Corollary

The ISP is a series of personal choices based on the person's predictions of what will happen if a particular action is taken. People make predictions derived from constructs built on past experience about what sources, information and strategies will be relevant and effective. These predictions lead to the choices they make in the stages of

the ISP. People develop expectations and make predictions about the sources used or not used, the sequence of source use, and the information selected from the sources as relevant or irrelevant. Relevance is not absolute or constant but varies considerably from person to person.

6. Interest Corollary

Interest increases as the exploratory inquiry leads to formulation in the ISP. Motivation and intellectual engagement intensify along with construction. Personal interest may be expected to increase as uncertainty decreases. The person's interest and motivation grows as the search progresses. Interest is higher in later stages after the person has formed a focus and has enough understanding of the topic to become intellectually engaged.

## Apply the framework of LIS

From the beginning of my work on the ISP, I have been influenced by other researchers in the field of information science and in other related fields as well. I have found this field to be a rich dynamic environment for creative innovative work. My work on the ISP did not occur in a vacuum. It evolved and developed within a fruitful field of library and information science. During more than twenty years of study of this area I have read, listened to, discussed, and thought about many more LIS scholars' ideas than I can possible credit here.

I have also listened to many bright, experienced librarians who have kept this work grounded in the practice of librarianship. This work is based in the basic services of reference and instruction that enable people to seeking meaning in complex information environments and to continue to learn throughout their lives.

## Design application for implementation

Most research reports include a section on implications of the work. In the practice oriented field of LIS, this is especially important. However, I decided early on that I needed to go further than merely listing implications. I had to develop ways to apply the work into the practice of librarianship. This was an important decision that I have continued to follow throughout the development of the ISP.

Based on the model of the ISP and the principle of uncertainty for information seeking, I developed the concept of a zone of intervention for applying a process approach in LIS practice and system design. The central idea in the zone of intervention is that increased uncertainty indicates a need for assistance and accommodation. The zone of intervention is a concept modeled on Vygotsky's notion of a zone of proximal development that provides a way of understanding intervention in the constructive process of another person. The zone of intervention in information seeking may be thought of in a similar way.

The zone of intervention is that area in which an information user can do with advice and assistance what he or she cannot do alone or can do only with difficulty. Intervention within this zone enables individuals to progress in the accomplishment of their task. Intervention outside this zone is inefficient and unnecessary, experienced by users as intrusive on the one hand or overwhelming on the other.

Application for implementation of the ISP can be tracked in the chart of my selected publications and is particularly obvious in the book I have written. The findings of the initial study and application with middle and secondary school students were developed in my book *Teaching the Library Research Process* first published in 1985 with the 2nd edition still in print. My book, *Seeking Meaning: A process approach to library and information services* first edition in 1993 and second in 2004, was aimed at explaining the research underlying the ISP and recommending strategies for implementation in practice. My latest book, *Guided Inquiry: Learning in the 21st Century* written with my daughters Leslie Maniotes and Ann Caspari, is a foundational text for guiding student learning through inquiry in k-12 schools based on the ISP model.

**Look to the future**

These studies were among the first to investigate the affective aspects or the feelings of a person in the process of information seeking along with the cognitive and physical aspects. Rather than a steady increase in confidence from the beginning of a search to the conclusion, as might be expected, a dip in confidence is commonly experienced once an individual has initiated a search and begins to encounter conflicting and inconsistent information. A person "in the dip" is increasingly uncertain and confused until a focus is formed to provide a path for seeking meaning and criteria for judging relevance. Advances in information technology that open access to a vast assortment of sources have not helped the user's dilemma and may have intensified the sense of confusion and uncertainty. Information systems may intensify the problem particularly in the early stages of the ISP by overwhelming the user with "everything" all at once. Increased uncertainty indicates a zone of intervention in the process of information seeking for information intermediaries

The model remains a dynamic description of the information users experience and dilemma in seeking meaning. Occasionally, the ISP has been referred to as a linear model. I would argue that it a sequential model rather than a linear model. The ISP is experienced as a sequence of one thing after another in a period of time. This is the way life is lived and experienced. Of course there may be some planning within each stage for the stages to follow and reflection in what went on before. Still one event follows another in a sequence even though recursion and planning may be evident within each of the stages. The naïve observation of linearity overlooks the depth of the holistic experience captured in the model. The model rings true for many people who are in the process of constructing meaning from a variety of sources of information because it is able to capture the sequential holistic experience of the process of constructing meaning from multiple sources of information.

Recent developments in brain science have confirmed the close relation between emotion and cognition. The future holds interesting prospects for research into the user's experience in information seeking and use. The work on the ISP has opened paths to understanding learning and creativity in rich information environments. This is only the beginning of our research journey into the challenging field of library and information science in the 21st century. I have found these approaches to be important for developing the ISP and I recommend them to others in the pursuit of a fruitful sustained research agenda.

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- Stay with the problem to verify and test in variety of contexts
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| | **Progression and Development of** | |
| | **Kuhlthau's Information Search Process** | |
| **Date** | **Title of Selected Research Reports** | **Significance** |
|---|---|---|
| 1985 | A Process Approach to Library Skills Instruction. *School Library Media Quarterly*, 13 (1), 35-40. | First study of the ISP with 25 HS students |
| 1985 | An Emerging Theory of Library Instruction. *School Library Media Quarterly*, 16 (1), 23-28. | Process is important in teaching research |
| 1988 | Perceptions of the Information Search Process in Libraries: A Study of Changes from High School Through College. *Information Processing & Management*, 24 (4), 419-427. | Transference of skills from high school to college: a survey study |
| 1988 | Longitudinal Case Studies of the Information Search Process of Users in Libraries. *Library and Information Science Research*, 10 (3), 257-304. | In depth case study of six students from high school through college |
| 1988 | Meeting the Information Needs of Children and Young Adults: Basing Library Media Programs on Developmental States. *Journal of Youth Services in Libraries*, 2 (1), 51-57. | Connecting cognitive-developmental stages to learning in libraries |
| 1989 | The Information Search Process of High-, Middle-, and Low-Achieving High School Seniors. *School Library Media Quarterly*, 17 (4), 224-228. | Large scale examination of the ISP high school seniors |
| 1989 | Information Search Process: A Summary of Research and Implications for School Library Media Programs. *School Library Media Quarterly*, 18 (5), 19-25. | Practical application using the model of the ISP in schools |
| 1990 | Validating A Model of the Search Process: A Comparison of Academic, Public, and School Library Users. *Library and Information Science Research*, 12 (1), 5-32. | Confirmation of the ISP in various types of libraries With Turock, George and Belvin |
| 1991 | Inside the Search Process: Information Seeking from the User's Perspective. *Journal of the American Society for Information Science*, 42 (5), 361-371. | Highly cited article on cognitive and affective aspect of information seeking |
| 1993 | Implementing a Process Approach to Information Skills: A Study Identifying Indicators of Success in Library Media Programs. *School Library Media Quarterly*, 22 (1), 11-18. | Identified inhibitors and enablers of implementing the ISP in K-12 contexts |
| 1993 | A Principle of Uncertainty for Information Seeking. *Journal of Documentation*, 49 (4), 339-355. | Explanation of the impact of emotion on the ISP |
| 1994 | Students and the Information Search Process: Zones of Intervention for Librarians. In *Advances in Librarianship*, Academic Press, 57-72. | Introduction of critical moments where students need assistance and guidance |
| 1996 | The Concept of a Zone of Intervention for Identifying the Role of Intermediaries in the Information Search Process. *Proceedings of the American Society for Information Science Annual Meeting*, 367-376. | Develops notion of a "Zone of Intervention" for library and information services |
| 1997 | Learning in Digital Libraries: An Information Search Process Approach. *Library Trends*, 45 (4), 707-723. | Information technology and the ISP, the problem of seeking meaning from abundance of information |
| 1999 | Student Learning in the Library: What Library Power Librarians Say. *School Libraries Worldwide*. 5 (2), 80-96. | Using library for inquiry learning |
| 1999 | Accommodating the User's Information Search Process: Challenges for Information Retrieval System Designers. *Bulletin of the American Society for Information Science*, 25 (3), 12-16. | Implication of ISP for information system design |
| 1999 | The Role of Experience in the Information Search Process of an Early Career Information Worker: Perceptions of Uncertainty, Complexity, Construction and Sources. *Journal American Society for Information Science*, 50 (5), 399-412. | Comparison of novice/expert use of ISP in the workplace |
| 2001 | Information Seeking for Learning: A Study of Librarians | ISP of students in science projects |

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| | Perceptions of Learning in School Libraries. *New Review of Information Behaviour Research*, 2, 31-46. | With McNally |
| 2001 | Information Search Process of Lawyers: A Call For 'Just For Me' Information Services. *Journal of Documentation*, 57 (1), 31-46. | Evidence of ISP in the workplace and need for creating meaning<br>With Tama |
| 2001 | The Information Search Process (ISP) A Search for Meaning Rather than Answers. *Doshisha Journal of Library and Information Science*, 1 (6), 31-46. | Uncovers problem of seeking meaning from information |
| 2001 | Rethinking Libraries for the Information Age School: Vital Roles in Inquiry Learning. *Proceedings of the International Association of School Librarianship Annual Meeting*, Auckland, New Zealand. | Consideration of changes in schools to prepare students for ISP in workplace |
| 2004 | Meeting the Challenge of Intellectual Access: Vital roles for librarians. Margaret Mann Lecture, School of Information, University of Michigan. | ISP in the context of education and the workplace that indicate new roles for librarians |
| 2006 | Information Literacy through Guided Inquiry: Preparing Students for the 21st Century. *Proceedings of the International Association of School Librarians Annual Conference*, Lisbon, Portugal. | Guided Inquiry for preparing students for information environment |

Books authored by Kuhlthau on research and application of the ISP:

*Teaching the Library Research Process*. 1st ed. 1985; 2nd ed.1994; paperback ed. 2002.

*Seeking Meaning: A Process Approach to Library and Information Services.* 1st ed. 1993; 2nd ed. 2004.

*Guided Inquiry: Learning in the 21st Century*. With Leslie K. Maniotes and Ann K. Caspari. 2007 in press.