



Classic

Kuhlthau's Classic Research on the Information Search Process (ISP) Provides Evidence for Information Seeking as a Constructivist Process

A review of:

Kuhlthau, Carol C. "Inside the Search Process: Information Seeking from the User's Perspective." Journal of the American Society for Information Science 42.5 (1991): 361-71.

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Abstract

Objective – To extend understanding of purposeful information seeking and to present a model of the information search process (ISP) from the perspective of the user.

Design – Review of theoretical foundation, summing up of qualitative and quantitative data from a series of five foundational studies, and presentation of ISP model.

Setting – Summarised research was conducted primarily in high school and college environments where subjects were investigating an assigned topic. A small proportion of public libraries were used in the fifth study within the reviewed series.

Subjects – The ISP model as presented in this 'classic' article is based on studies involving a total of 558 participants. The first study involved 26 academically advanced high school seniors, and the 2 subsequent studies involved respectively 20 and 4 of the original participants following their completion of 4 years of college. The final 2 studies involved respectively 147 high, middle and low achieving high school seniors, and 385 academic, public and school library users.

Methods – This paper presents the foundation for the ISP model by reviewing the relationship between Kelly's personal construct theory, Belkin, Brooks, and Oddy's investigation of cognitive aspects of the constructive information seeking

process, and Taylor's work on levels of information need ("Question-negotiation") and value-added information ("Value-added"). This is followed by a review of Kuhlthau's five foundational studies, which investigated the common information seeking experiences of users who were seeking to expand knowledge related to a particular topic or problem.

The first of these studies was a small-scale exploration in which participants were given two assignments. Questionnaires, journaling, search logs, and reflective writing were used to collect data throughout the process of assignment completion. Data collection was augmented by case studies involving in-depth interviews and construction of timelines and flowcharts with six study participants. The six-stage ISP model was developed from qualitative content analysis of participants' perceptions and experiences (Kuhlthau, "Library Research Process").

In the second study, the same questionnaire was used to determine how students' perceptions of the ISP had changed over time. Post-college responses were compared to responses given in high school and statistical significance was determined through *t* Tests (Kuhlthau, Perceptions). Four of the original 6 case study participants were interviewed in the third study, in which interview data and search process timelines were compared with high school case studies (Kuhlthau, Longitudinal).

In the fourth and fifth studies, large-scale field studies were conducted to verify the ISP model. Process surveys elicited participants' thoughts and feelings at initiation, midpoint, and closure of a search task. Data were analysed using descriptive and inferential statistics including measures of significance and analysis of variance (Kuhlthau, Information Search; Kuhlthau et

al.). Following a summation of these 5 research studies, this article details and discusses the ISP model.

Main results – Based on the data from the five studies, the ISP presents a constructivist approach to information seeking and incorporates affective, cognitive, and physical dimensions at each of six information searching stages: initiation, topic selection, pre-focus exploration, focus formulation, information collection, and presentation. Individuals become aware of an information need at *initiation*. Feelings of uncertainty and apprehension are common as wide-ranging task exploration begins. At *topic selection* a general topic is selected and users frequently experience initial optimism, which is commonly followed by confusion and doubt as *pre-focus exploration* commences and users struggle to extend personal knowledge through initial investigation of the general topic. A turning point occurs during *focus formulation* as constructs become clearer and uncertainty decreases. During *information collection* the user is able to articulate focused need and is able to interact effectively with intermediaries and systems. Relief is commonly experienced at *presentation* stage when findings are presented or used. Although stages are laid out sequentially, Kuhlthau notes that the ISP is an iterative process in which stages merge and overlap. Central to this model is the premise that uncertainty is not due merely to a lack of familiarity with sources and technologies, but is an integral and critical part of a process of learning that culminates in finding meaning through personal synthesis of topic or problem.

Conclusion – Kuhlthau provides evidence for a view of information seeking as an evolving, iterative process and presents a model for purposeful information searching which, if understood by users,

intermediaries and information system designers, provides a basis for productive interaction. While users will benefit from understanding the evolving nature of focus formulation and the affective dimensions of information seeking, intermediaries and systems are challenged to improve information provision in the early formative stages of a search. Although Kuhlthau identifies this research on the ISP as exploratory in nature, this article affords methodological insight into the use of mixed methods for exploring complex user-oriented issues, presents a model that effectively communicates an approximation of the common information-seeking process of users, and provides ongoing impetus for exploring the user's perspective on information seeking.

Commentary

This article effectively sums up the empirical basis for the ISP model by reviewing methods and data from the initial small-scale exploratory study that resulted in the development of the ISP, the two longitudinal studies that tested the model, and the two large-scale field studies that verified the model. This series of foundational studies provides evidence for a recursive, iterative process of information seeking and provides a strong basis from which the author presents six ISP stages and proposes potential application to reference and user services. This article has uniquely contributed to LIS literature and to user studies in particular by drawing attention beyond cognition and to the investigation of affective elements influencing information seeking. Evidence is provided for the view that uncertainty plays an integral role in the process of information searching and sense-making.

Although Kuhlthau's utilisation of actual library users, the large sample size, and her strategic research program lends strength to

the ISP model, it is important to note that this model is rooted in the academic context. The vast majority of participants were responding to an imposed information need in the form of a school or college assignment. A small number of participants were public library users and, while findings revealed a similar approach to information seeking, the searching task of these participants was not described. Subsequent research utilising the ISP model reveals an ongoing emphasis on academic settings; however, this classic article has also been widely cited by researchers exploring information seeking behaviours within a range of populations, particularly professional populations seeking information within the context of work-related needs. Furthermore, as demonstrated by Vakkari, Kuhlthau's work has influenced information access and retrieval research by drawing attention to the complexity of information searching behaviour and to the need for more user responsive information retrieval systems.

In addition to its significant impact on research, this classic article has made three critical contributions to LIS reference work. (1) Information searching has been clearly situated within the context of a dynamic constructivist process involving a series of information encounters rather than a single reference incident. For reference librarians, 'help with process' has gained equal footing with 'help with sources.' (2) The ISP model formalised a holistic view of users that incorporated the contribution of thoughts, actions, and feelings to the searching process, and a view of the user as one who processes information within the context of a given information need at a specific moment of time. And (3), by advancing the view that different levels of service best serve the diverse and changing needs of users, this classic article provides a foundation for expanding the traditional emphasis of reference services from locator for physical access to advisor for intellectual

access within the context of evolving information needs.

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