

SENSE-MAKING AND INFORMATION-SEEKING BEHAVIOUR IN SCHOLARLY AND EVERYDAY CONTEXTS: A THEORETICAL SYNTHESIS OF USER-CENTRED INFORMATION MODELS

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ABSTRACT

Information seeking is not merely a technical activity of retrieving documents from repositories or databases; it is a deeply human process shaped by cognition, emotion, social context, and lived experience. Over the last several decades, information science has moved away from system-centered approaches toward user-centered and process-oriented models that seek to understand how people recognize information needs, navigate uncertainty, and make sense of their environments. This article presents a comprehensive theoretical synthesis of major information-seeking and information-behaviour frameworks developed from the early 1980s to the early twenty-first century, with particular emphasis on the sense-making tradition, behavioral models of searching, and conceptual frameworks of information practices. Drawing strictly on foundational works by Dervin, Ellis, Kuhlthau, Wilson, Case, Krikelas, McKenzie, Godbold, Ikoja-Odongo and Mostert, and related contributions, this study integrates these perspectives into a unified interpretive framework for understanding how individuals interact with information in academic, professional, and everyday life settings.

The study conceptualizes information seeking as a dynamic process in which users confront gaps in understanding and attempt to bridge these gaps through interaction with formal and informal information sources. Dervin's sense-making theory provides the philosophical and epistemological foundation, emphasizing the centrality of human meaning-making and the subjective experience of information needs (Dervin, 1983; Dervin, 1999). Ellis's behavioral models contribute detailed empirical descriptions of how users engage in activities such as starting, chaining, browsing, differentiating, monitoring, and extracting during information seeking (Ellis, 1989; Ellis, 1993; Ellis and Haugan, 1997). Kuhlthau's process-oriented approach adds an affective dimension, highlighting the role of uncertainty, anxiety, confidence, and clarity across stages of information seeking (Kuhlthau, 1991). Wilson's model of information needs situates these individual processes within broader environmental and social contexts (Wilson, 1981), while Case's principle of least effort offers insight into why users often prefer accessible, familiar, and convenient sources over theoretically optimal ones (Case, 2002). Contributions by Krikelas, McKenzie, Godbold, and Ikoja-Odongo and Mostert further extend the analysis beyond searching toward broader information behaviour, including everyday life practices and the influence of situational constraints.

Using a qualitative meta-analytic methodology grounded in conceptual synthesis, this article identifies recurring theoretical constructs, convergences, and tensions among these models. The results demonstrate that despite their diverse origins and emphases, all major theories converge on the view that information seeking is iterative, context-dependent, and shaped by both internal cognitive states and external social structures. The discussion critically evaluates these findings, explores their implications for contemporary digital environments, and identifies gaps in existing theories, particularly in relation to power, inequality, and the evolving role of algorithmic systems. The article concludes by arguing that a sense-making oriented, user-centered, and socially situated framework remains essential for designing equitable and effective information systems in an increasingly complex information landscape.

KEYWORDS

Information seeking, sense-making, information behaviour, user-centered models, information needs, scholarly

communication, everyday life information.

INTRODUCTION

The study of information seeking and information behaviour occupies a central position in information science because it directly addresses how human beings interact with knowledge, uncertainty, and meaning in their everyday and professional lives. Long before the rise of digital platforms and algorithmic search engines, scholars recognized that understanding how people look for, interpret, and use information is fundamental to the design of libraries, information systems, and communication infrastructures. Early research in this area was often dominated by system-oriented perspectives that focused on optimizing retrieval mechanisms, indexing, and relevance algorithms. However, as the field matured, it became increasingly clear that such approaches were insufficient for capturing the complexity of human information activity. Users do not simply input queries and receive answers; they experience confusion, curiosity, anxiety, and insight, and they operate within social, cultural, and institutional contexts that shape their choices and actions (Wilson, 1981; Case, 2002).

The shift toward user-centered approaches in information science is closely associated with the development of theories that emphasize information needs, sense-making, and behavioural patterns. Among the most influential contributions to this paradigm shift is Brenda Dervin's sense-making theory, which reconceptualized information as something that is constructed by individuals as they attempt to bridge gaps in understanding (Dervin, 1983). Rather than viewing information as an objective commodity that exists independently of users, sense-making positions information as a tool for navigating discontinuities in lived experience. This theoretical move had profound implications for both research and practice, as it directed attention toward the subjective, situational, and contextual dimensions of information seeking (Dervin, 1999).

At roughly the same time, David Ellis and his collaborators were developing behavioural models of information seeking based on empirical studies of academic and professional researchers. These models identified recurring activities such as starting, chaining, browsing, and monitoring, which together form patterns of interaction with information sources (Ellis, 1989; Ellis, 1993). By focusing on what people actually do when they seek information, rather than on what systems are designed to provide, Ellis's work provided a concrete operationalization of the user-centered paradigm. Subsequent studies extended these models to different disciplinary and industrial contexts, demonstrating their broad applicability (Ellis and Haugan, 1997; Ellis, Cox, and Hall, 1993).

Another major development in the field was Carol Kuhlthau's process-oriented model of information seeking, which integrated cognitive and affective dimensions into a coherent framework. Kuhlthau showed that users move through stages characterized by changing levels of uncertainty, optimism, confusion, and confidence as they progress from initial problem recognition to the formulation and resolution of an information need (Kuhlthau, 1991). This work highlighted the emotional labor involved in information seeking and challenged purely rational or mechanistic accounts of user behaviour.

Complementing these perspectives, T. D. Wilson's model of information needs situated individual seeking behaviour within broader social, environmental, and psychological contexts (Wilson, 1981). Wilson argued that information needs arise not only from cognitive gaps but also from roles, tasks, and pressures embedded in social systems. Donald Case further elaborated this perspective by articulating the principle of least effort, which suggests that users tend to choose information sources that require the least expenditure of time, energy, and cognitive resources, even if these sources are not the most authoritative or comprehensive (Case, 2002). This principle provides a powerful explanation for the persistence of informal, easily accessible sources in both everyday life and professional settings.

In addition to these foundational theories, a growing body of research has sought to broaden the scope of information seeking to encompass a wider range of information behaviours. Krikelas offered early conceptual distinctions between different types of information needs and sources, emphasizing the diversity of motivations that drive information seeking (Krikelas, 1983). McKenzie proposed a model of information practices in everyday life that recognizes the importance of social networks, serendipity, and non-purposeful information encounters (McKenzie, 2002). Godbold and Ikoja-Odongo and Mostert further advanced this line of thinking by arguing for holistic frameworks that integrate seeking, using, sharing, and avoiding information as part of a unified behavioural system (Godbold, 2006; Ikoja-Odongo and Mostert, 2006).

Despite the richness of this theoretical landscape, there remains a need for comprehensive syntheses that bring these diverse models into dialogue with one another. Much of the existing literature focuses on particular theories or empirical contexts, leaving unanswered questions about how different conceptualizations of information seeking relate to each other and how they can be integrated into a coherent understanding of information behaviour. Moreover, the rapid

transformation of information environments through digital technologies raises new challenges that cannot be adequately addressed by isolated theoretical perspectives.

The purpose of this article is therefore to provide an extensive, theoretically grounded synthesis of major information-seeking and information-behaviour models, drawing strictly on the foundational works listed in the provided references. By systematically analyzing and integrating these theories, the article seeks to clarify their underlying assumptions, identify points of convergence and divergence, and articulate their implications for contemporary information science. The central research problem guiding this inquiry is how to conceptualize information seeking in a way that captures both the subjective experience of users and the structural conditions of information environments. Addressing this problem requires not only a careful reading of existing theories but also a critical examination of their strengths, limitations, and potential for integration.

This synthesis contributes to the literature by offering a unified framework that respects the diversity of theoretical traditions while highlighting their shared commitment to understanding information seeking as a human, contextual, and meaning-driven process. In doing so, it aims to provide scholars, practitioners, and system designers with a deeper and more nuanced foundation for research and innovation in the field of information science.

Methodology

The methodological approach adopted in this study is qualitative, interpretive, and meta-analytic in nature. Rather than collecting new empirical data from participants or information systems, the study systematically analyzes and synthesizes existing theoretical and empirical literature drawn exclusively from the reference list provided. This approach is appropriate because the research objective is not to test a specific hypothesis about information seeking behaviour but to develop a comprehensive theoretical understanding that integrates multiple perspectives. Conceptual synthesis has long been recognized as a valid and valuable method in social science and information science, particularly when dealing with complex, multidimensional phenomena such as information behaviour (Case, 2002).

The first stage of the methodology involved a close reading of all the referenced works, with particular attention to their conceptual frameworks, definitions of information and information needs, descriptions of user behaviour, and methodological assumptions. Dervin's sense-making writings were analyzed to identify their epistemological and methodological implications for the study of information seeking (Dervin, 1983; Dervin,

1999). Ellis's various publications were examined to extract the core behavioural categories and the empirical grounding of his models (Ellis, 1989; Ellis, 1993; Ellis and Haugan, 1997; Ellis, Cox, and Hall, 1993). Kuhlthau's work was analyzed for its processual and affective dimensions (Kuhlthau, 1991), while Wilson's and Case's contributions were examined for their contextual and motivational insights (Wilson, 1981; Case, 2002). The works of Krikelas, McKenzie, Godbold, and Ikoja-Odongo and Mostert were similarly reviewed to capture broader perspectives on information behaviour and everyday life information practices (Krikelas, 1983; McKenzie, 2002; Godbold, 2006; Ikoja-Odongo and Mostert, 2006).

In the second stage, the key concepts and constructs identified in these works were compared and contrasted. This involved mapping similarities and differences in how each theory conceptualizes information needs, user motivations, search activities, and contextual influences. For example, Dervin's notion of "gaps" in understanding was compared with Kuhlthau's stages of uncertainty and clarity, and with Wilson's emphasis on problem situations and environmental triggers (Dervin, 1983; Kuhlthau, 1991; Wilson, 1981). Ellis's behavioural categories were examined in relation to McKenzie's information practices to explore how formal and informal seeking activities intersect (Ellis, 1989; McKenzie, 2002).

The third stage involved interpretive integration, in which the findings from these comparisons were synthesized into a coherent narrative about the nature of information seeking and information behaviour. This required careful attention to the theoretical assumptions underlying each model. For instance, sense-making theory is grounded in constructivist epistemology, which views knowledge as actively constructed by individuals, whereas some behavioural models are more empirically descriptive and less explicitly philosophical (Dervin, 1999; Ellis, 1993). By making these assumptions explicit, the synthesis aims to avoid superficial integration and instead develop a deeper understanding of how different theories complement or challenge one another.

Throughout this process, all claims and interpretations were grounded in the cited literature. No external sources or speculative frameworks were introduced. This strict adherence to the provided references ensures that the synthesis remains faithful to the intellectual traditions it seeks to integrate. At the same time, the interpretive nature of the methodology allows for critical reflection and theoretical elaboration, which are necessary to achieve the depth and comprehensiveness required for a publication-ready research article.

Results

The synthesis of the referenced literature reveals a rich

and interconnected set of theoretical insights into information seeking and information behaviour. Although each model and framework emphasizes different aspects of the phenomenon, several core themes emerge consistently across the literature. These include the centrality of information needs as experienced gaps in understanding, the iterative and processual nature of information seeking, the influence of affective and motivational factors, and the role of social and environmental contexts.

One of the most striking results of the synthesis is the convergence between Dervin's sense-making theory and Kuhlthau's process model. Dervin conceptualizes information needs as gaps that arise when individuals encounter situations they cannot adequately understand or navigate (Dervin, 1983). These gaps are not merely cognitive deficits but experiential discontinuities that disrupt a person's ability to move forward in a particular situation. Similarly, Kuhlthau describes the initial stages of information seeking as characterized by uncertainty, anxiety, and vague feelings of confusion, which motivate users to seek information in order to achieve clarity and confidence (Kuhlthau, 1991). Both models therefore emphasize that information seeking is triggered by subjective experiences of uncertainty and that the goal of seeking is not simply to acquire data but to restore a sense of coherence and control.

Ellis's behavioural models provide empirical support for this processual view by documenting the specific activities through which users attempt to bridge their gaps in understanding. The categories of starting, chaining, browsing, differentiating, monitoring, and extracting represent a repertoire of strategies that users deploy as they move through the information seeking process (Ellis, 1989; Ellis, 1993). These behaviours are not necessarily linear; rather, users may move back and forth among them as their understanding evolves. This finding aligns with Dervin's and Kuhlthau's emphasis on the non-linear, iterative nature of sense-making and search.

Another important result is the recognition that information seeking cannot be fully understood without considering the broader context in which it occurs. Wilson's model situates information needs within the interplay of personal, social, and environmental factors, arguing that roles, tasks, and organizational structures shape both the emergence of needs and the strategies used to address them (Wilson, 1981). For example, an academic researcher's information seeking behaviour is influenced not only by intellectual curiosity but also by institutional expectations, disciplinary norms, and resource availability. Ellis's comparative studies of researchers in different fields further demonstrate how disciplinary cultures affect information seeking patterns, with physical scientists and social scientists exhibiting different emphases on browsing, chaining, and

monitoring (Ellis, Cox, and Hall, 1993).

Case's principle of least effort adds another layer to this contextual analysis by highlighting the constraints of time, energy, and cognitive capacity that users face (Case, 2002). Even when users are highly motivated to find accurate and comprehensive information, they tend to prefer sources that are easily accessible and familiar. This principle helps explain why informal sources such as colleagues, friends, or easily searchable online resources play such a prominent role in both everyday and professional information seeking. McKenzie's model of everyday-life information practices corroborates this insight by showing how people often rely on social networks and serendipitous encounters rather than systematic searching (McKenzie, 2002).

The synthesis also reveals a broadening of the conceptualization of information behaviour beyond intentional searching. Krikelas distinguished between immediate and deferred information needs, as well as between internal and external sources, thereby highlighting the diversity of ways in which people encounter and use information (Krikelas, 1983). Godbold and Ikoja-Odongo and Mostert build on this foundation by advocating for models that encompass seeking, using, sharing, and avoiding information as interconnected components of a larger behavioural system (Godbold, 2006; Ikoja-Odongo and Mostert, 2006). This holistic perspective challenges narrow definitions of information seeking and underscores the importance of studying information behaviour in its full complexity.

Taken together, these results demonstrate that the various theories and models in the literature are not isolated or contradictory but rather complementary. They converge on a vision of information seeking as a dynamic, user-centered, and contextually embedded process of sense-making. This convergence provides a strong theoretical foundation for understanding how people interact with information in diverse settings.

Discussion

The integrated framework that emerges from this synthesis has significant implications for both theory and practice in information science. By bringing together sense-making theory, behavioural models, process-oriented frameworks, and contextual analyses, it becomes possible to develop a more comprehensive and nuanced understanding of information seeking than any single theory could provide on its own.

One of the most important theoretical implications is the recognition that information is not a static entity that exists independently of users but a relational and constructed phenomenon. Dervin's sense-making perspective makes this explicit by framing information as something that people use to bridge gaps in

understanding within specific situations (Dervin, 1983; Dervin, 1999). This view challenges traditional notions of information as objective and highlights the need for research methods that capture users' subjective experiences. Kuhlthau's work reinforces this point by demonstrating that feelings of uncertainty, anxiety, and confidence are integral to the information seeking process (Kuhlthau, 1991). Ignoring these affective dimensions would result in an incomplete and potentially misleading picture of user behaviour.

The behavioural models developed by Ellis and his colleagues offer a valuable complement to these more phenomenological perspectives by providing concrete descriptions of what users actually do when they seek information (Ellis, 1989; Ellis, 1993; Ellis and Haugan, 1997). However, one limitation of purely behavioural approaches is that they may overlook the underlying meanings and motivations that drive these actions. By situating Ellis's categories within a sense-making and process-oriented framework, it becomes possible to interpret behaviours such as browsing or chaining not merely as mechanical steps but as strategies for coping with uncertainty and constructing meaning.

Contextual models, particularly those proposed by Wilson and Case, further enrich this integrated perspective by highlighting the structural and environmental factors that shape information behaviour (Wilson, 1981; Case, 2002). The principle of least effort, for example, provides a powerful explanation for why users often rely on easily accessible sources even when more authoritative information is available. This insight has profound implications for the design of information systems and services. If users are guided by considerations of effort and convenience, then systems that are difficult to navigate or that require extensive training are unlikely to be widely adopted, regardless of their technical sophistication.

The everyday-life information practices described by McKenzie, Godbold, and Ikoja-Odongo and Mostert point to another important dimension of information behaviour that is often neglected in system-centered research (McKenzie, 2002; Godbold, 2006; Ikoja-Odongo and Mostert, 2006). Much of what people learn and know comes not from formal searches but from casual conversations, social media, and serendipitous encounters. These practices are deeply embedded in social relationships and cultural norms, and they cannot be fully understood through models that focus exclusively on deliberate searching. Integrating these insights into a broader framework of information behaviour helps to bridge the gap between academic research and the lived experiences of users.

Despite these strengths, the integrated framework also reveals several limitations and areas for future research. One limitation is the relative lack of attention to issues of

power, inequality, and access in the foundational models. While Wilson acknowledges the influence of social and environmental factors, much of the literature focuses on relatively privileged user groups such as academic researchers and professionals (Wilson, 1981; Ellis, 1993). Future work could build on these theories to examine how information seeking and sense-making are shaped by socioeconomic status, education, and cultural background.

Another challenge arises from the rapid evolution of digital information environments. Many of the referenced studies were conducted before the widespread adoption of the internet, social media, and algorithmic recommendation systems. While the core principles of sense-making, least effort, and contextual influence remain relevant, their manifestations may have changed in important ways. For example, the ease of online searching may reduce some barriers to access while introducing new forms of information overload and algorithmic bias. Extending the integrated framework to account for these developments represents an important direction for future research.

Conclusion

This article has provided an extensive theoretical synthesis of major models of information seeking and information behaviour based strictly on a set of foundational references in the field. By integrating sense-making theory, behavioural models, process-oriented frameworks, and contextual analyses, it has developed a comprehensive understanding of information seeking as a dynamic, user-centered, and socially embedded process. The synthesis demonstrates that despite their diverse origins and emphases, the major theories converge on the view that information seeking is driven by subjective experiences of uncertainty and shaped by both internal and external factors.

The implications of this integrated perspective are far-reaching. For researchers, it offers a rich conceptual toolkit for studying information behaviour in a wide range of contexts. For practitioners and system designers, it underscores the importance of creating information environments that are responsive to users' needs, emotions, and constraints. Ultimately, by grounding the study of information seeking in a deep understanding of human sense-making and social context, the field of information science can better fulfill its mission of supporting individuals and communities in their pursuit of knowledge and understanding.

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