The Expert Searcher's Experience of Information

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The Expert Searcher’s Information Experience

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Abstract
Expert searchers engage with information in a variety of professional settings, as information brokers, reference librarians, information architects and faculty who teach advanced searching. As my recent research shows, the expert searcher’s information experience is defined by profound discernment of critical concepts about information, and a fluid ability to apply this knowledge to their engagement with the information environment. The information experience of the expert searcher means active and intentional participation with the processes and players that created that information environment. Expert searchers become an integral and seamless part of their information environment and also play a role in facilitating the information experiences of others.

In this chapter, after discussing my understanding of the concept of information experience, I outline how I used threshold concept theory to explore the information experience of expert searchers. Through the findings, I identify four threshold concepts in the acquisition of search expertise that provide new perspectives on the information experience of the expert searcher. These new perspectives have implications for search engine design and how advanced search skills are taught. Finally, I consider how the fresh insights about the expert searcher’s experiences contribute to wider understanding about information experience.

Keywords
information experience; expert searcher; expertise; search experience; threshold concepts
Introduction
The search experience of expert searchers is a fundamental component of how they engage with
information and forms the framework of their wider information experience. In this chapter, I
discuss what it means to be an expert, and address the practices and traits of professional
searchers, some of whom become experts at searching. I draw on my recent research that
explored the experiences involved in the acquisition of search expertise and what this adds to our
understanding of the information experience. My study showed that professional searchers
engage with the information environment in a profound way and that they play a role in
facilitating the information experiences of others; in addition, their knowledge of certain critical
concepts transforms their information experience. This experience is deeply integrative,
involving cognitive, affective and interpersonal elements. In addition, a profound ontological
shift is experienced by the professional searcher who attains search expertise. This element of
identity shift in the expert’s information experience is essential in understanding its integrative
nature and, in addition, informs understanding of the information meta-experience, which forms
the larger context for the experience in which self and identity are broadly engaged and affected.
These concepts are discussed to show how they affect the expert searcher’s information
experience and provide insights into broader information experience.

Author’s perspective on information experience
Search experience may be thought of as a subset of information experience and, for the
information professional, search activities are a fundamental part of engaging with information.
As a researcher and educator in information science, I have studied experiences that are
transformative in some way – that enable learning or ways of thinking not previously possible.
In exploring the experiences involved in acquiring search expertise, my study is differentiated
from information behaviour research. Whereas information behaviour research considers skills,
techniques and participant traits, my research included a wider range of concepts related to
information experience. This positioning of the research made it possible to gather data on, and
gain understanding of, the expert searcher’s broader information experience, including its
underlying concepts and holistic properties.
How I think about information experience has been shaped by this recent research and also by
my previous experiences as an information architect, search interface designer and instructor.
My interest in search experiences has spanned many years and a variety of instructional settings,
including seminars at universities and conferences, on-site workshops at corporations and government agencies, and distance learning courses.

I first became intrigued with how people engage with information when I was a trainer in the late 1980s, conducting both beginning and advanced workshops in online searching for librarians, attorneys, chemists, financial analysts, and a variety of researchers and consultants. My interest continued during a second career phase as an information architect, designing web-based search interfaces, interpretive algorithms and help systems.

The third phase of my interest developed when I started teaching advanced searching to graduate students and observed vast differences in how they approached hands-on search exercises and conceptualized search strategies. Some students struggled whilst others displayed expert-like search abilities. Through designing search interfaces and creating environments for discovery of concepts critical to better search results, I have learned much about the information experience in varied environments. I remain deeply curious about how people experience information, from how they determine what they need to how they explore and search for it.

What it means to be an expert

Extensive studies have explored the novice-expert continuum and many different professions have attempted to understand their essential skills by examining those in the profession who excel. Researchers in a wide range of disciplines have studied experts in order to understand what expertise is within a given profession or discipline, how long it takes to acquire it (Gladwell, 2008, p. 38-41), and how experts as exemplary models can influence others (Collins, 2005).

The focus of novice-expert research is the exploration of one or more of: what novices and experts do in similar ways; how and where their thoughts and behaviours diverge; and how and where they diverge within their own groups. Defining “expertise” is often the starting point in order to set a benchmark for measurement and yet there are differences in views about what qualifies as “expertise” or an “expert”. Experience is the first qualification but that, by itself, is not sufficient for expertise, no matter how much of it a person has. David Berliner (1994) wrote one of the more eloquent descriptions of the difference:

Originally, the root word for experience and expertise was the same… Guilds and unions, through their apprenticeship systems, portrayed the senior members of their associations as experts. It was obvious, however, that some of those experienced individuals were
superior to others, and therefore not everyone who was experienced deserved to be called an expert in his work. (p. 1)

In one novice-expert study that involved information professionals, the researcher concluded “expertise—regardless of the specific domain—is an outcome of skill and knowledge acquired after years of training and practice” (Perrone, 2004, p. 3). However, most research represents expertise as less linear than this. Perrone also argued that motivation and attitude are critical to the development of expertise. The development of expertise is represented by a model originated by Hubert and Stuart Dreyfus that encompasses five stages: novice, advanced beginner, competent, proficient and expert (Dreyfus, 2004). This robust model, drawing on the researchers’ varied backgrounds in philosophy and industrial engineering, has been built on by researchers in multiple disciplines.

Studies involving experts in other fields—including chess, music and physics—emphasize that there is much more to acquiring expertise than knowledge acquisition. Ericsson, who has written extensively on expertise and whether or not it can be achieved through what he calls “deliberate practice” (2000), found that experts approached problem-solving by being highly selective about what they retrieved from their memory, then encoded it in representations that facilitated alternative courses of action. He emphasized that although experts did indeed have a larger and more complex storehouse of knowledge than non-experts, there were radical, qualitative differences in this knowledgebase and in how the experts selectively drew on it. Berliner (1994) delineated specific characteristics of experts, which provided insights for my research on expert searchers and their information experience.

What it means to be an expert searcher: Creating context

Bridging the discussion from what it means to be an expert to what it means to be an expert searcher, seminal research models for information seeking behaviour shed light on the behavioural facets of information experience and also help focus on the information environment in which the expert searcher thrives. Considerable research related to information seeking has been based on Kuhlthau’s information search process (ISP) model (Kuhlthau, 2003). The ISP model describes stages in the process of information seeking (initiation, selection, exploration, formulation, collection and presentation) and also the “common experiences in the process” (2004, p. 31), including affective, cognitive and physical experiences. Since the activity of browsing is prevalent during search experiences, Bates’s berrypicking model (1989) is
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particularly relevant to understanding how the search process evolves and how searchers engage with the information environment.

**Practices & traits of professional searchers**

Researchers and professional organizations such as the Medical Library Association (MLA, 2005) have tackled the question of what attributes and practices define a professional searcher. As the role continues to evolve, examination of the abilities that distinguish the professional searcher is ongoing. Tenopir (2010) points out, “Librarians play more of an educator or trouble-shooter role. But in some areas, intermediaries are still (or again) relevant—particularly in corporate or government agencies where search experts are an important part of research teams, competitive intelligence operations, patent searching, and so forth” (p. 1).

Researchers such as Fidel (1983) began in the early 1980s to study search behaviours among information professionals. Bates (1979) proposed the idea of “search tactics”, her term for moves “made to further a search” (p. 205). The key takeaway from Bates’s research about the professional searcher’s information experience is that she has a deep understanding of the information structures involved and considerable control over the outcome of the search, in part through monitoring the experience. In short, the professional searcher is in the driver’s seat throughout the experience, not a passenger along for the ride; she is fully and actively engaged, a participant who is alert, thinking, feeling and affecting the information environment.

**Models of the search experience**

The search experience is a component of the larger information experience for the information professional and, as such, examining theoretical models of the search experience is insightful. The Net Lenses Model (Edwards, 2006) outlined four categories for the Web search experiences of university students. The model represents the range of search abilities and experiences similar to those described by Bates (1989). Significantly for my research, Edwards speculated that categories might exist “above or below those already identified”, stating specifically, “There may also be an aspect of the searching experience, not displayed by the university students, that experts in information searching, such as information brokers or information science workers/librarians with years of searching experience would display” (2006, p. 192).
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As the findings of my research show, the information experience of the expert searcher integrates (Tucker, 2012):

- active and intentional participation in information processes;
- engagement with information content;
- interaction with players in the environment (such as search engines and content creators);
- the ability to extract and manipulate information; and
- playing a role in the information experiences of others, as professional searchers are often intermediaries, facilitators and instructors who impact how others experience information.

Nevertheless, the centrality of the information experience—or any experience—is that it is one’s own. Indeed, when we speak of “experience” we think first of what occurs within the boundaries of the individual. What the expert searcher experiences in the information environment is deeply embedded both in his professional calling and in extensive linking to others, for example through collaboration, instruction and information sharing.

Characteristics of a searcher’s information experience

In our lives we encounter, digest and deflect information constantly. Stewart Brand is often quoted for saying that “information wants to be free” (1985, p. 49) but, in this same passage, he states—just as profoundly—that “the right information in the right place just changes your life” (p. 49). With this perspective of life-changing information experiences in mind, I researched transformative experiences in the acquisition of search expertise; the framework that enlightened this work was threshold concept theory (Meyer & Land, 2003). Expert searchers are rare, just as chess masters and experts in any discipline are rare. Yet it is beneficial to study those who are moving along the trajectory toward expertise or attempting to develop it. I selected as participants eleven highly experienced professional searchers (averaging 32 years of experience) and nine highly proficient novice searchers who were intent on becoming professional searchers. The novices were graduate students in library and information science who had demonstrated exceptional ability in an elective online searching course. The purpose was to understand the development of search expertise and how the information experience evolves as the searcher moves in the direction of expertise. Grounded theory methodology was used to elicit evidence of
learning experiences and the conceptual knowledge involved in the development of search expertise. The study used semi-structured interviews, plus search tasks with think-aloud narratives and talk-after protocols.

**Threshold concepts: Overview**

Threshold concept theory provided a fitting framework for identifying critical understandings in the experiences of developing search expertise. A threshold concept has five defining characteristics (Meyer & Land, 2003):

- **Transformative**: causing a shift in perception and identity.
- **Irreversible**: unlikely to be forgotten or unlearned.
- **Integrative**: exposing something previously hidden or where the connectedness was not understood.
- **Troublesome**: initially counter-intuitive or uncomfortable.
- **Bounded**: having “terminal frontiers” that border other thresholds into new conceptual areas.

Threshold concepts also have properties of ambiguity and of impact on the person’s manner of discourse about the new knowledge. Moreover, a component of ontological shift is critical in identifying a threshold concept and characterizing its transformative aspects: “Reduced to its essential, this simply means that we are what we know” (Cousin, 2009, p. 202).

**Threshold concepts: Expert searchers**

Four threshold concepts were identified for the experience of becoming an expert searcher. The first three were *information environment*, *information structures* and *information vocabularies*. The fourth, called *concept fusion*, was the ability to integrate these three concepts. Each of these threshold concepts represents critical understandings; however, *information environment*, *information structures* and *concept fusion* are essential for providing insight into the expert searcher’s information experience and thus they are the focus of this discussion.

**Information environment**

Information environment as a threshold concept for search expertise is a profound discernment of the total information setting and the ability to apply this understanding to the search experience. For example, the processes in the creation of a data source—such as the practices of a publisher, aggregator, content creator or tagger—are known, understood and accommodated in
search decision-making. In addition, outlier sources such as grey literature may be used and alternative resources enlisted in the scope of the search. Bates’s berrypicking model (1989) provides an apt and vivid metaphor to explicate this threshold concept. An essential part of the nature of berrypicking is that searchers adapt the strategy to their need at the moment. For the expert searcher, this would mean extending the model to explain that she understands how the berries came to grow on the bush, why they grew where they did, where there might be clusters of berries hidden away under foliage, and even who planted the bush, tended it, enriched the soil, and how this impacted its growth and harvest. This profound knowledge is integrative, and impacts the searcher’s decisions and activities during a search.

Information environment manifested three of the characteristics of threshold concepts (transformative, irreversible and bounded), and elements of a fourth (troublesome). It is most strongly transformative—occasioning a “significant shift in the perception of a subject”—and irreversible, “unlikely to be forgotten… or unlearned” (Meyer & Land, 2006, p. 7). This was clearly evident in the searchers’ grasp of information provider practices. One participant described a major shift in his “understanding or appreciation for what went into a database” [ID17]; another referred to the concept as “understand[ing] the landscape” [ID16]. One searcher who works primarily in intellectual property described his information experience as being the “little bit taller searcher” [ID19] and being able to see the larger information environment:

> Let’s say there is someone who invented something, they filed a patent, they did an extensive search, they don’t find anything. Then the patent office uses the same sources – they don’t find anything either, and they allow the patent. [But] there is this short piece of prior art out there that’s a fact, but no one has found it. In [the] same way the dogs just walked down the trail and didn’t even know that the deer was there. It doesn’t mean that a good searcher, of course, [who] is a little bit taller searcher can’t find it. [ID19]

The novice-expert literature describes the perspective of the “little bit taller” person who is able to view the total information environment in this way as someone who “perceives situations as wholes rather than in terms of aspects” (Benner, 2001, p. 27).

**Information structures**

Information structures as a threshold concept means that concepts such as document structures, index structures and retrieval algorithms are fully understood, and that the searcher integrates this knowledge into the information experience. Information structures are present at different
levels: document structures, for example, may include the components within an individual page, record or object within a database, such as fields, segments, subfields, metadata, XML markup or other tagging; there might also be weighting of these segments or other value-added features applied by indexers or by automated processing. This conceptual knowledge is ingrained in the expert searcher and permeates the information experience. Grasping underlying structures of information content had a transformative effect on the searchers’ perspective and information experience. Participant ID12 referred to the “behind the scenes” structures when she described an “ah-ha moment”:

Most of my ah-ha moments are where I gain an understanding of the behind the scenes part of the search. I gain more clarity on how to formulate the search. [ID12]

Perspectives about the transformative experience of understanding information structures extend far back in the LIS research literature. Marcia Bates’s seminal article, *Invisible substrate of information science*, described it this way: “People who come into this field… go through a transformation… they shift their primary focus of attention from the information content to the information form, organization, and structure” (1999, p. 1045). This continues to be true for information professionals searching in a Web 2.0 environment.

The troublesome characteristic of threshold concepts was evident in the searchers’ reports of learning about document fields and also in how to unpack an information need into separate concept blocks. The participants who were instructors commented on the struggles their students had with ideas such as the conceptual weighting of different fields or segments within document records, for example, “searching within certain fields that have more impact, like descriptor and title” [ID15].

As with the information environment threshold concept, references from participants illustrate the irreversibility characteristic. The following comment makes it clear that the information structures concept, once fully grasped, informed the participant’s searching from there on: “I think it was when I got to the point that I understood the structure of the databases super well that I didn’t have to think about the details anymore” [ID14].

Structures of various types have been identified as threshold concepts in different disciplines. For example, this took the form of spatial awareness in product design (Land, Meyer, & Smith, 2008) and of atomic structure (Park & Light, 2009).
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**Concept fusion**

Concept fusion was the integration of critical concepts that characterize how an expert searcher interacts with information. This holistic information experience was described by research participants as being a “magical thing”, “almost organic” or having “synergy”. The ability to fuse concepts was further defined by three attributes: visioning (knowing and anticipating the next moves); dancing (being light on one’s “search feet”, ready to quickly change direction); and profound ontological shift (not just “I search” but “I am a searcher”). The information experience of search experts was also defined by several key traits and praxes that emerged from the research. Most prominent were the traits of extreme perseverance, being willing to adventure and knowing when to stop.

Of the concepts described above, I believe visioning to be a particularly noteworthy finding from the research and unique as far as I have been able to determine. Visioning activity occurs during the information experience and manifests, for example, as anticipating the next moves in a search or determining in advance the criteria for when to stop. Both of these praxes were key in identifying experts in my study. The visioning activity during the information experience may be similar to the activities found in De Groot’s research on chess masters discussed earlier. His finding was that expert chess players did not think further ahead than lesser players and they actually considered fewer moves, but only good moves (as cited in Perrone, 2004, p. 2). De Groot’s research and my own pointed to the crucial aspect of selectivity in anticipating and deciding on next actions. Participants in my study articulated the visioning practice thus:

[I’m] thinking about what’s possible… almost finding a sense of the answer. [ID16]

I run scenarios in my head. I’m working on the problem even when I’m not looking at the problem. [ID09]

When you play golf you have to be conscious and think about where your arms are at the top of the swing and the angle of your spine and all these other details. But when you are swinging a golf club you can’t actually think of all that stuff in the time that you are actually swinging. That is true for searching too. It eventually got to the point where I was good enough at understanding the structure of the databases enough… so I could focus on modifying my search in real time to get closer to the thing you want. [ID14]
The component of domain expertise

In some settings the skill set of the professional searcher requires the component of subject domain expertise. For example, in patents, pharmaceutical or medical research, knowledge of the specialized terminology and in-depth understanding of the underlying structure of the literature are particularly valuable (MLA, 2005).

In contrast, expert searchers excel in universal abilities but may or may not have subject domain expertise. An encompassing view of searchers and their knowledge levels may be represented as shown in Figure 1, using levels of: (1) generic knowledge (GK) of searching (x-axis); and (2) subject domain knowledge (SK, y-axis). Four searchers are indicated in the figure:

- A new LIS student doing a search in a database where subject knowledge would be important might have average GK and average SK—the lower-left quadrant in the figure.
- A reference librarian with strong generic searching knowledge working in a database outside his/her subject area would be GK-high and SK-average.
- An attorney with little search experience who is searching in a legal database would have SK-high and GK-low.
- A competent law librarian would have both high SK and high GK.

Figure 1. Model of Subject and Generic Knowledge (Tucker, 2012).
For an expert searcher, having the component of subject domain knowledge (the law librarian in the figure above) means that she is able to experience information within that domain as a native and, when functioning as an intermediary and searching on behalf of another’s research need, to bypass issues of translation for the domain’s lexicon.

The information experience when acquiring expertise

The experience of acquiring search expertise helps to shape a searcher’s information experience. This is particularly true of critical learning experiences—“ah-ha” moments—and times when the searcher realizes his own achievements through the recognition of others or through self-reflection.

One participant [ID21] reported the first time she phoned a search vendor’s customer support line and realized she understood their system better than the person on the other end of the line. She was matter-of-fact about realizing that the experience indicated she had achieved a level of expertise. For others, a similar realization came through recognition from other professionals:

I began to be invited to be a speaker at those conferences then I began to realize that if I talk about this then I must be considered an expert. [ID15]

In these cases, a change in perceived identity accompanied the realization that expertise was being acquired—an indicator of a threshold learning experience.

A role in the information experiences of others

Expert searchers—as well as professional searchers who do not necessarily attain the expert level—are key players in facilitating and having an impact on the information experiences of others. For example, reference librarians are involved in helping people find information but they also engage in instruction when tutoring a library patron during a reference interaction so that the patron learns about information sources, search strategies or how to evaluate the quality of website content.

Reference librarians & researcher-searchers

Experiences in which the searcher acted as an intermediary were the type most often cited by participants as furthering their learning to search in more expert-like ways. This included experiences as reference librarians, embedded research assistants and information brokers. There were striking aspects of the information experience that participants noted when they were
in one of these roles, as well as traits and attitudes that became evident to them through these experiences.

Among the most prevalent traits were adventuring and exploring; participants demonstrated strong willingness to explore new avenues during the search tasks—one referred to it as “experimentation” [ID21]. Another participant elaborated, “There might be many different approaches and there may be many different strategies, and giving that sort of poetic license to interpret what you think your client is looking for” [ID16].

Another trait was “enjoying the hunt” and the enthusiasm that accompanied the pursuit was clearly an important component in the information experience:

I enjoy the process. There’s something about being able to facilitate the connection between person and information. The fact that I find it fun motivates me and has definitely taught me a lot because anytime you’re doing your search, you learn from the process. [ID12]

In addition, persistence and patience were qualities that permeated the experiences the participants reported and were demonstrated during the search tasks:

I think one thing that I don’t think I emphasized enough is by far the most important is perseverance. I think whenever I go into an online search, it’s knowing, “Okay, this is going to take time.” I have to approach it in an optimistic way, I like to think of it as a mystery, and I have to get to the bottom of it no matter how much time it takes. [ID06]

**LIS faculty & teacher-librarians**

Of the eleven highly experienced searchers in my study, ten had experience in teaching others to search; of these, seven had been in academic instructional settings.

I really learned how people used search engines… when I started teaching. Seeing what was to me seemed intuitively obvious from a designer standpoint was not the least bit intuitive from the other side of the fence. [ID04]

Similarly, one student participant, teaching in high school, remarked:

Working in a school library, I experienced teaching online database searching. I always learn a lot more by teaching than actually by studying. [ID06]

Some of the data brought to mind the chicken-and-egg conundrum of “Which came first?” Participants gave examples of how helping others in their learning to search also helped them develop as searchers—then, practically in the same breath, shared how they needed to be good
searchers in order to help or to teach others. It became clear that each experience fueled the other. For example, one participant had worked in customer service for a major database aggregator:

I had to be a good searcher because I was helping other people. Doing the customer service job was like a test every day. It makes you explain the concepts behind something over and over again. [ID14]

When this participant moved from customer service into a trainer position, she noted further impact:

I think part of becoming a better searcher would be having to teach it. I was doing training classes then and not just doing searches for people. So that really brings forth what I was trying to be an expert at. [ID14]

**Mentors, colleagues and collaboration**

The professional searchers in my study described experiences in which collaboration with colleagues and mentors helped define and anchor their information experience, even many years later. One participant, whose subject domain expertise was in chemistry and who had over 30 years of experience, still remembered learning from colleagues about business information sources when working at a research institution “think-tank” [ID05]. Participants who had worked as information architects or database content developers described experiences in which collaboration was a critical piece, referring to “pick[ing] up nuggets from different people” [ID04].

Participants highlighted experiences when search strategies (or components thereof) were shared, either formally or informally (Fidel, 2012, p. 99). This practice continues, particularly among medical librarians, as evidenced by wiki-based collections of search filters. It is akin to jazz musicians sampling from the compositions of others. Collaborative searching such as this differs from collaborative learning, although there is clearly an opportunity for learning when search strategies are shared in this way. Typically such searches are complex or tied to experiences when the searcher is learning about a new system or database content.

Collaboration frequently takes place in larger public libraries where reference librarians may consult with each other on thorny questions. One participant noted she is the go-to person when colleagues are collaborating on reference requests; her statement points to the shared information experience of expert searchers when guiding others toward resolution of a search question.
Mentors played a key role in the information experiences described by the participants. “That’s where I really learned the art of research,” stated a participant who had 40 years of experience and subject domain knowledge in electrical engineering. Participants described not only having collaborative experiences but also enjoying them:

I really like to collaborate with other people and to understand how they approach it that may be different. They may know a resource or a search trick that I’m not aware of and so I think it’s really helpful to get different perspectives. [ID12]

It was clear that the information experience of these searchers involved engagement in the community of professional searchers; it was not an isolated experience.

**Insights from the expert’s information experience**

The perspectives of expert searchers and their ways of engaging with and experiencing information provide rich ground to understand the information experience more widely. First, the expert has delved deeply into the information environment and knows the origins of the content created—whether by commercial enterprises or individuals—and the processes involved in its maintenance and evolution. This includes understanding the underlying structures of information as well as how to apply this knowledge to the search, in the moment, exemplifying full engagement and marking the expert searcher’s information experience. Second, the expert plays a key role in the information experiences of others and, in fulfilling this role, her own experience is impacted; she is facilitator, designer, intermediary and teacher. She understands the process of discovery inherent in learning to navigate information structures and the information environment, as well as the transformation that occurs when critical concepts are grasped.

These insights may have implications for how advanced search skills are taught and for evolving search engine design. For teaching advanced search skills, the identification of threshold concepts in the experience of acquiring search expertise provides guidance for designing curriculum (Davies & Mangan, 2005; Cousin, 2007; Land et al., 2006).

Because the expert searcher engages with information at a profound level, there are insights to be gained about the broader information experience from this exploration. First, it provides a way to understand how the information experience evolves when critical concepts about the information environment have been grasped. Essentially, the expert’s experience demonstrates possibilities for the information experience when deep conceptual knowledge is present and the
actor is a wholly informed, affectively engaged participant. The facets of information structures and the extended environment of content creation suggest potential areas for exploring the information experience more fully. Second, there is a parallel with the characteristics of concept fusion—visioning, dancing and profound identity shift—in that they delineate an information experience on a par with that of a jazz musician, improvising yet fully knowledgeable of the idioms, and engaged in collaboration. The expert searcher does many of the same things: plans a strategy for the overall shape of what’s ahead; has total fluency in the idioms, progressions and underlying structures; collaborates with others; is discerning of the environment; and is flexible, and ready to change directions and improvise as needed. The holistic nature of the expert’s information experience extends far beyond information behaviour: it is possible precisely because it is integrative and draws on cognitive, affective and interpersonal facets, such as collaborative learning, domain knowledge and responsiveness to changing context, complexities and nuance in the information environment.

**Conclusion**
Expertise “continues to develop” (Berliner, 1994, p. 4); so, too, does the information experience of an expert searcher, which this research associates with four threshold concepts: information environment, information structures, information vocabularies and concept fusion. The information environment is also evolving and at an increasing pace, impacting an evolving information experience. Understanding the integrative nature of the information experience of the expert searcher gives a glimpse of the depth of engagement with information that takes place when critical concepts are grasped.
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References


