CHAPTER 21

From Novice to Nurse: Searching For Patient Care Information as Strategic Exploration

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Introduction

Nursing librarians partner with educators to ensure that students gain the skills, knowledge, and aptitudes needed to be both professional nurses and lifelong learners. Research and the search for best practices drive the current health care environment, requiring nurses to prove their competency with information skills for everything from job promotion to care improvement projects. The literature has consistently shown that nurses need information regarding medications, treatments, diseases, clinical procedures, and other point-of-care evidence, as well as patient education materials.\(^1\) Despite this expectation, nurses lack time, search skills, and access to resources necessary for their information needs.\(^2\) Nursing librarians can anticipate what students will need to know as practitioners, using the needs and information-seeking practices of nurses to guide learning objectives for students. Nursing librarians can work closely with faculty to plan instruction to ensure students know how to search efficiently and effectively, setting them up for future success as nurses.

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The healthcare environment

Nursing educators readily partner with nursing librarians, especially for courses on evidence-based practice (EBP) that require the use of library resources and searching skills. EBP is defined as the “conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients” and entails “integrating individual clinical expertise with the best available external clinical evidence from systematic research.”

EBP is described as a cycle with five steps that both begins and ends with a patient: ask a clinical research question (often about patient treatments), acquire the evidence with a thorough search, appraise the strength of the evidence, apply that evidence in patient care, and assess its effectiveness. This directly relates to information literacy, making it the perfect tool for health librarians to connect to practitioners, faculty, and students. By teaching Searching as Strategic Exploration from the ACRL Framework for Information Literacy for Higher Education, nursing librarians can ensure that students and EBP practitioners can deftly navigate and analyze the literature to determine the best practices for patient care.

Teaching searching in nursing

The nursing curriculum. EBP is so widely accepted in the nursing community that several nursing associations have incorporated these skills into the framework of the nursing curriculum. The Searching as Strategic Exploration frame ties directly to EBP, as shown in the following examples:

- The Essentials of Baccalaureate Education for Professional Nursing Practice: Essential III on Scholarship for EBP states that baccalaureate graduates should be prepared to “participate in the process of retrieval, appraisal, and synthesis of evidence in collaboration with other members of the healthcare team to improve patient outcomes.”

- Graduate-Level Quality and Safety Education for Nurses (QSEN) Competencies: The EBP competency requires that graduate students know how to identify and employ “efficient and effective search strategies to locate reliable sources of evidence” for focused clinical questions and that they “value development of search skills for locating evidence for best practice.”

EBP and the required search skills apply to all levels of nursing, from students to practicing nurses. Nursing librarians must consider the expectations for each and familiarize themselves with any curriculum standards that apply to their institutions.
**Challenges.** Faculty experience the same time, skill, and access barriers in incorporating EBP into the curriculum. The curricula in many nursing schools revolve around clinical skills and caring for specific patient groups, leaving little dedicated time for EBP and searching. In one bachelor of science program, for example, junior nursing students take one EBP course and struggle to apply the concepts since they have little clinical experience. We have also experienced the phenomenon of a single EBP course where we have been asked to teach the search process. It is encouraging that many faculty recognize the librarian's role in EBP as “the search expert who knows where and how to search;” however, additional outreach opportunities exist because faculty do not always connect librarians’ search expertise to their ability to apply those skills in teaching.

Both EBP and literature searching have been identified as threshold concepts for nursing students. Students encounter a disconnect between learning and practicing EBP and hold oversimplified views of EBP. They have trouble with the practical aspects of searching databases for evidence and understanding the need to use more advanced search skills. This suggests there are opportunities for librarians and faculty to collaborate around these threshold concepts.

**Our experience**

**Transforming our teaching.** As new librarians with limited instruction experience, we dealt with our own set of challenges while our faculty and students faced barriers with EBP and literature searching. Although we knew how to search well, we recognized that our instructional approach was not as effective for students as it could be. We taught through traditional point-and-click demonstrations of how to use the catalog and databases. This approach mirrors parts of the second standard of the ACRL Information Literacy Competency Standards for Higher Education, namely that students should be able to construct effective search strategies and retrieve information online. In our minds, if we showed the students these processes and they could replicate them, they succeeded in meeting the standard and we succeeded as teachers.

Students were not always able to replicate the processes we demonstrated, nor did they seem engaged in the classroom. Realizing this, we chose to participate in several professional development opportunities relating to our teaching role, both locally and at the ACRL 2013 conference. Topics included active learning, classroom assessment techniques, learning styles, and the threshold concepts. We found ourselves among faculty and librarians who asked bigger pedagogical questions, such as how students learn best, what
knowledge gaps exist, how to try new instructional approaches, and how to assess those changes.

As ACRL developed and published the Framework, we shifted our teaching practice in several ways that aligned with this new approach. We put the student at the center of our teaching, pinpointing what was unfamiliar to them and what they needed to know. We realized that students varied in their knowledge practices and dispositions along the ACRL Framework distinctions between novice and expert learners; in addition, each student was on a unique learning trajectory based on a set of search practices, skills, and experiences. We realized we needed to modify instruction to reach all levels of learners.

The nursing student as a learner. The students themselves are a key component to the process of learning to search. Several studies have examined the link between higher emotional intelligence and students’ performance in the clinical setting or in the classroom, and while some found smaller correlation between the two, Fernandez et al. found that emotional intelligence could be a “significant predictor of academic achievement” for some students.

Recognizing and working with students’ affective needs are just as important as responding to their cognitive needs in learning. Students’ affective domain can dictate how they listen and learn in the classroom, respond to the challenge of a muddy task, manage the anxiety and emotion of unfamiliar content, cope with stress, and seek help. Students who are frustrated with assignments or frustrated by concepts they do not understand may give up more easily when presented with the challenge of searching for their topic, rather than developing and testing a strategy for their searching. Librarians can present themselves as allies to students and lead them through the challenge of searching by demonstrating strategy while quelling the negative emotions they have about research.

The Searching as Strategic Exploration frame states that “experts realize that information searching is a contextualized, complex experience that affects—and is affected by—the cognitive, affective, and social dimensions of the searcher.” The students we teach are not yet at the expert level; however, we as instructors can help novice searchers recognize and reflect on what this means in terms of their search experiences.

Nursing students learn to care for specific types of patients through skill-based learning in which there is often a clear right or wrong approach to the technique. They practice their skills and patient interactions until they have learned the correct procedure. Students are expected to pass a National Council (of State Boards of Nursing) Licensure Examination (NCLEX) before they enter practice, and this exam is built around questions with clear correct or incorrect answers.

On the contrary, the search for literature is not straightforward. Rather than one correct approach, there are many search options and resourc-
es to choose—some more effective than others, and often depending on the information need. Students as novice searchers can be overwhelmed by the complexity of this task, and unfamiliar and complex searching can trigger emotional stress. In 1980, Shane described “Returning-To-School Syndrome” as a three-phase emotional journey nursing students go through; while phase one is the honeymoon phase, phase two causes conflict in which students are “stranger[s] in a strange land” and “no longer trust [their] own experience and knowledge to provide [them] with appropriate responses” to their concept of what nursing is. In this phase, students often feel lost, alone, and incompetent.

As instructors, we can recognize this potential for frustration and find ways to make students more comfortable with the gray areas of searching, but this task is “neither easy nor painless.” Students may come to us with feelings of insecurity, frustration, or hostility about professors, courses, the curriculum, or even their own abilities, and we can earn their trust if we actively listen to their concerns, provide solutions or suggestions as we can, and act as advocates for them when needed. Librarians can help students to feel less alone by simply listening and sharing, whether convincing students of their own abilities or telling them other students share their struggles. Librarians can make use of the students’ existing research frustrations (whether in one-on-one sessions or group office hours) by first allowing students to vent, then changing their perspective about themselves or about research. Resolving their emotional turmoil, students move to the third phase of Shane’s syndrome, in which they experience reduced levels of anxiety and focus on what they can get out of the program rather than what is required of them.

Another affective challenge is that students can see EBP courses as “dry and boring” or as a “distraction” from more clinically oriented courses. They are unfamiliar with the excitement of strategic searches for evidence or the relevance of EBP for patient care, and they decide not to make the emotional investment in learning. We have bridged this divide by planning instruction around clinical case scenarios, which link clinical practice to the search process and demonstrate how health information has a direct impact on patient care.

Search as Exploration for novice through expert searchers

Nursing librarians encounter a diversity of student backgrounds and skill levels during instruction, so it can be helpful to review the curriculum and expectations of each program and tailor library instruction to the appropriate
level (e.g., BSN, PhD, etc.). Students begin their nursing programs as freshmen or sophomores, often knowing little about nursing, the library, or the relevance of health information to their future work. Orienting students to the library and to the varieties of health information is a student-centered approach to beginner instruction. The use of case studies with patient stories provides a much-needed context for presenting students with the different types and uses of health information, including background information, reference sources, information for patients, drug information, and recent research. It also provides an opportunity to introduce a variety of health information resources, including the library catalog, websites, clinical tools, and databases, as well as a basic understanding of different search approaches.

Within the structure of the case study, librarians can have students compare the process of searching for patient information in MedlinePlus to the experience of finding drug information in a clinical tool. Students could then explore the same topic in a database like PubMed or the Cumulative Index of Nursing and Allied Health Literature (CINAHL). Not only will they be introduced to the variety of information producers, they will begin to connect information needs with specific search tools.

**Students learning about EBP.** Upper-level undergraduates and those enrolled in accelerated bachelor programs will either be starting or already immersed in their clinical experience, so librarians can capitalize on this by directly linking library instruction and search practices to clinical questions students have identified in practice. This way, instruction, much like EBP, will begin with both a patient and a specific question. Students can be directed to complete their clinical questions in PICO format, a recognized question framework that often includes a patient population, an intervention, a comparison, and one or more outcomes. Optionally, the format can also include timeframe, type of study, and setting, or PICOTTTS. The components of the PICO act as a beginning search strategy, formulated before any mention of where to search. Note that some nursing faculty assign students to formulate PICO questions to bring to library instruction sessions; if so, librarians should take a little time to review them and address students’ questions before teaching.

After question formulation, librarians can show students that searching is a systematic, strategic exploration with the goal of finding the most current and best available evidence on a topic. Librarians can prepare a sample search scenario to demonstrate searching for the most important components of the search first and then adapting it as needed. One way to do this would be to introduce students to the gold standard of searches: the Cochrane systematic review. These reviews provide high levels of evidence because they are collections of all the available research on a given topic, and they depend on well-planned and well-executed search strategies for specific clinical questions.
Having students read the methods section of a systematic review introduces them to the ideas of purposefully searching several databases and considering inclusion and exclusion criteria to narrow or limit a search.

Librarians can lead discussions about bias, asking students to consider how the selection of a particular resource over another would affect retrieved results and how publication bias occurs when published literature does not represent all the available studies. Similarly, searching haphazardly would introduce a search bias in that students would not retrieve all of the available studies on a particular topic. Overall, the idea of the gold standard exercise is not to have students replicate these high-level practices but to reassure them that a search can follow a systematic process, much like other clinical skills. Librarians can consider creating a search skills checklist to reinforce their instruction and to help students build lasting confidence in their search skills.

**Students performing EBP.** Graduate students face much higher expectations in terms of EBP than do undergraduates or even practitioners. Many faculty want students to create their own evidence reviews, guidelines, or even systematic reviews as part of their coursework and as firsthand experiences of the EBP process. In the healthcare field, these types of reviews regularly take months to years to complete when working as a team, but in graduate school they are often condensed into one semester (or less). Graduate students have a wide range of skill levels and knowledge and may benefit from a basic refresher on searching as well as step-by-step guidance on how to complete these complex projects.

The concept of higher levels of evidence and the steps to create that evidence are still foreign to most students at this level, despite many having had an introduction to EBP as undergraduates, so they must quickly learn what these types of evidence are while implementing their own research. Macbeth describes this problem where students are expected to know what they are trying to learn. Students can feel rushed through the process, whether working as part of a team or solo, which can cause them to focus on simply getting the assignment done rather than understanding the purpose of each task or truly learning the steps.

In courses where EBP projects are common, librarians can take simple steps to make the process easier for students. They can assist graduate students in creating a search plan for their assignment. Smaller projects like a search protocol, evidence table, or evidence appraisal could fit into a variety of graduate courses, allowing students to get the full range of EBP experiences without feeling overwhelmed. Throughout these courses, librarians can provide highly detailed instruction for students as they perform the steps of EBP and explicitly discuss what distinguishes EBP from other searching strategies. Librarians should also teach search management strategies and describe the use of any specialized software or technology for the assigned project.
The librarian can step in as co-faculty or as a collaborator for graduate-level classes and offer supportive materials or consultations to assist students. Providing consultations in addition to office hours can help students feel more comfortable doing literature searching on their own topics and, in turn, refer their friends to the library as well. By becoming informed about program requirements and becoming more of a partner for graduate students, librarians can make intimidating theses and course projects more comfortable and achievable for students.

**Addressing unique learning trajectories.** Students within a program arrive at library instruction sessions with different levels of knowledge and interest in search practices. Some students may be attending school after years of nursing in the workforce, while others may be working their way through college as traditional students. To address varying skill levels, librarians can structure the session to first identify what students currently know and do, then use that as a basis to build on the knowledge practices and dispositions of the Searching as Strategic Exploration frame. This can be done through pre-work in a flipped classroom style or through an in-class activity at the beginning of the session. For example, task students with searching a given clinical question and documenting the search, including the sources used, the search strategy, and the length of time of both the search and the scan of results. If possible, have them record it visibly in the room, such as on a whiteboard. If not, gather the information and share it, if possible in aggregate form, and use the responses to generate a discussion of identified patterns, areas of strengths and weaknesses, consequences of chosen methods, and personal feelings toward searching (e.g., address fears and over- or under-confidence).

Alternately, ask students to write about or discuss their previous search experiences and how that may or may not differ from EBP. Areas to highlight would include scope, search comprehensiveness, and purpose. When we incorporated similar exercises into our instruction, we found that some students reconsidered searching with natural language; others stated that they would include controlled vocabularies such as PubMed’s Medical Subject Headings (MeSH) in their future searches.

**Our recommendations**

There are both challenges and opportunities in teaching Searching as Strategic Exploration to nursing students, but it is certainly worthwhile to assist students in developing and fostering mental flexibility and persistence when faced with an information need. Doing so requires working directly with nursing faculty and students, as well as continually developing professionally as a librarian.
Working with faculty

**Demonstrate your abilities to faculty.** For librarians who want to be seen as experts in strategic searching, one of the best ways to gain recognition is to assist faculty with their own research. Once librarians are seen as experts, they can become part of the process of teaching students about EBP. Some librarians even act as co-faculty for EBP courses or as adjunct faculty in their discipline. Librarians can partner with faculty, nurses, or even student groups to perform and publish evidence reviews. With more practice working through the review process, librarians can pay close attention to the steps they follow and the tricks they use, and they can teach these shortcuts to students.

**Revisit instruction goals and assess.** Instruction can meet the learning objectives set by faculty and librarians, but it should be student-centered and tailored to the discipline. Practical, evidence-based assignments with a clinical focus can help nursing students understand the relevance of library instruction to their future and unify the goals of the nursing faculty and the librarian. Collaborate with faculty to develop instruction and assignments at the appropriate level and in the appropriate format for all involved—faculty, librarians, and students. Assess instruction and, if possible, assignments to determine how well students are grasping the covered material and to tweak troublesome portions. Use a variety of assessment techniques, from formal graded assignments to informal classroom techniques, like the muddiest point. Librarians who integrate group activities or hands-on learning opportunities can easily monitor the progress of students and identify challenges the students face. Librarians can also ask faculty for permission to review final coursework, such as posters, papers, or portfolios, to identify the types and variety of evidence students included. If librarians have made an effort to integrate research skills at different levels of learning, assessment provides useful feedback on whether or not the identified learning objectives at each level are on target or need to be moved to a lower or higher level within the curriculum.

**Integrate research skills in the curriculum and the classroom.** There is so much to teach about searching health information sources that it is impossible to fit it into one session. Students would best be served by having research skills integrated throughout the program. One example of this is the University of Pittsburgh’s integration of EBP skills throughout the entire nursing program, from year one to post-doctoral work, as described by Burke et al. Nursing librarians can use the knowledge practices of the Searching as Strategic Exploration frame to link skills to appropriate points in the curriculum. For example, students can build on their ability to match information needs and search strategies to appropriate search tools. Beginning students can search e-books for background information, while more advanced students...
can search for practice guidelines in specific sites like the National Guidelines Clearinghouse. Librarians can use this approach to make the introduction to health information easier and to build a tiered-approach to teaching the mechanics of searching and the refinement and management of results.

**Working with students**

**Support students with time and understanding.** Simply recognizing that students are grappling with full course loads, clinical skill building, and the balance between academic, personal, and sometimes professional lives will enable librarians to empathize with those who seek their help. Librarians should schedule office hours at a time and in a location that is convenient for the students, whether in the School of Nursing or online. Be willing to dedicate time each week to meet with students, identify what their current search skills are, and help them build from there. Librarians can also partner with student-led health clinics, student interprofessional education groups or case competitions, and other student health initiatives to increase awareness of services and to emphasize support for students.

**Give an abundance of examples.** Nursing students are familiar with a style of learning in the clinical setting where they get instant feedback on whether their work is correct or incorrect. When class time prohibits reviewing student searches in real time, the use of plentiful examples can show students how to search and help them feel more comfortable. A useful technique is to demonstrate a failed search and discuss as a class how and why it failed, as well as how to improve it. Add interest and applicability through the use of non-health examples, such as by teaching the use of the “or” operator by having students stand as birthday months (e.g., October or November or December) are called out, thus demonstrating the concept of more results.

**Incorporate reflection to enhance understanding.** Including class time for reflection on search experiences helps students build their understanding of the search process. Encourage students to try new search strategies and to compare them to previously used strategies. Think out loud to show students how you approach a topic. For example, perform a search in PubMed using MeSH, note the publication dates of resulting articles, and then rerun the search with a combination of MeSH terms and keywords to show how the results would then include more recent literature because of indexing time. At the end of the session, ask students to jot down one or two ways they plan to improve their searches in the future to help them solidify what they learned and to promote behavior change.

**Encourage self-efficacy.** Nursing students need to build enough confidence in their individual skills so that they feel comfortable applying them
in the workforce. Although many nurses work in teams, especially on EBP or quality improvement projects, they will need to search for evidence for their individual patients. Those who work in schools, home health, and other settings may work entirely on their own. It is crucial for librarians to help students develop the strategies that will allow them to adapt their knowledge to any future situation. Librarians can emphasize that first attempts at searching are rarely perfect and then equip students with skills to work past the troublesome parts of searching for health information. They can instill the belief that students have the knowledge and ability to find the information they need and encourage persistence in searching with a strategic approach.

Developing professionally as a librarian

Finally, we recommend that librarians carve out time to attend professional development opportunities, especially those that relate to effective instructional approaches. Experiment with different teaching techniques, technologies, and class exercises. Many times, nursing faculty are using different approaches to teaching and assessment than those traditionally used in library instruction, and adopting these can help students feel more familiar with the content and structure of the library session. Examples include utilizing stories and cases, prebriefing and debriefing students, creating opportunities for deliberate practice, encouraging reflection and metacognition, and more. Invite other librarians to watch you teach or to co-teach with you to give you feedback, and, when possible, assess student learning and use those assessments to reflect on and revitalize your instruction.

Notes

5. Ibid.


11. Ibid., 60.


13. Ibid.


17. ACRL, *Framework for Information Literacy for Higher Education*.


19. Ibid.

20. Ibid.


