



## Practice-Based Article

# Growing Together: Scaffolding Systematic Review Training for Early Career Health Sciences Librarians

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## **ABSTRACT**

This article describes a scaffolded training model developed to prepare early-career health sciences librarians to provide systematic and scoping review services. Two librarians, one in their first year and one in their second year of professional practice, participated in a one-year training process prior to joining the library review services team. The model combined formal external specialization activities, including online courses and webinars, with an internal mentoring framework emphasizing supervised practice searches, consultation observations, and feedback from colleagues. Progression through the scaffold was individualized and completed at the librarian's own pace. By the conclusion of the training period, both librarians reported increased confidence in conducting review consultations, refining research questions, and developing complex search strategies. Formalizing similar models may support sustainable review services and workforce development in academic health sciences libraries.

## **KEYWORDS**

systematic reviews, scoping reviews, review services, training, early career librarians, health science librarians, scaffolded training

## **BACKGROUND**

Systematic review training is a tedious and complicated process. For many early-career health science librarians, exposure to the reviews process happens during their first job, where they undertake the bulk of learning and training under guidance from colleagues. Without any previous exposure during their library program, this process can feel intimidating.

At Vanderbilt University's Eskind Biomedical Library (EBL), our health sciences team identified a need to streamline systematic review training for new team members. EBL serves both an R1 (a doctorate-granting institution with the highest research output) university and a major hospital, resulting in a large number of review requests from teaching faculty and medical providers annually. These requests are serviced by a

team of six full-time health science librarians, who assist review teams all the way through to the publication phase of their research project.

The new scaffolded training process was implemented in April 2024, beginning with us as two early career librarians. Both of us arrived with different levels of familiarity with the systematic review process and worked with our colleagues to refine the scaffolded learning approach. The scaffolded training model was originally designed by our supervisor and was then progressively co-developed with us, whose feedback informed each refinement as the model was being utilized. Now the model is a fully formed scaffold that has informed the entirety of the EBL systematic review training processes for new staff.

## METHODS

Our EBL team selected a scaffolded model to enable incoming librarians to engage meaningfully with continuing educational materials, peer mentors, and practice opportunities within the systematic review training process. The scaffolded training was designed to allow us to move forward and backward through the training process, much like moving up and down a ladder. This method enables continuous learning and improvement in systematic review skills throughout our librarianship careers.

Our scaffolded model for systematic review training focuses on four main levels of skill development or enhancement:

- Level One: Observe
- Level Two: Acquire
- Level Three: Practice
- Level Four: Perform

Each of these focus areas was selected with criteria specific to EBL's needs in mind, including considerations such as the types of research requests that we are likely to encounter. At the EBL, librarians are often asked to either consult for best-practice advice or collaborate as co-authors on systematic reviews of biomedical and/or clinical care topics. Therefore, it is essential for the librarians to be well-versed in the Cochrane Handbook standards to effectively instruct our research teams (Higgins et al., 2024). These standards were then woven throughout Level Two: Acquire. EBL's patron base was also a driving factor when designing the training levels. As a library that services both a medical centre and a university, building lasting relationships through research consultations is crucial. Therefore, we dedicated an entire level to observing how to conduct an effective reference interview with patrons during "Level One: Observe".

Additional important focus areas in each scaffold level include:

- Time allotment for training
- Staffing availability/ bandwidth
- Mentorship availability/ bandwidth
- Library funding
- Current library review service models offered

Our scaffold was developed by our librarians and tailored to the needs of our librarians and patron base, allowing for the best educational and workplace outcomes. The next section provides further detail on each scaffold level.

**Level One: Observe**

The first step of the scaffolded process is centred around building foundational knowledge. While some new librarians have a basic understanding of systematic reviews from their library and information science, or LIS, program, others may not have had that exposure. Starting from scratch is the best way to ensure that all new librarians are on the same standing.

This foundational knowledge began with observing colleagues. During the piloting phase of this first step, we sat in during review consults and were permitted to ask questions and take notes while observing more experienced peers. At EBL, systematic review consult requests are common, and we could expect to sit in on one to three consults per week. Most consults were done in person, though a few were online at the request of the principal researcher for the project.

In these sessions, we received a copy of our peer's notes in addition to the ones we took. This allowed us to look back and reflect on the consultation once the meeting had ended. We directed any questions on the structure, scope or direction of the project to our colleague who led the session.

Communication between the lead researcher and the more experienced librarian colleague included us so that we could track communication between research teams and librarians. This communication also included the research team's feedback on the final search string that our colleague presented for their topic. Observing this back-and-forth exposed us to the types of questions and requests that often come from researchers during this process.

At the end of this phase, we had a strong understanding of systematic reviews, the role of a librarian on review teams, and the structure of a review consultation. Promotion from this step of the scaffold to the next depended on our colleague's views of our knowledge base and on how confident our understanding was of the consultation process as a whole.

**Level Two: Acquire**

The second step of the scaffold included obtaining more specialized knowledge on the systematic review process. This was done predominantly through a formalized external specialization process. While there are several systematic review specializations available, we chose to use the Medical Library Association's, or MLA's, Systematic Review Service Specialization, or SRSS, Level One certification course. This decision was made based on recommendations from colleagues and membership in the larger MLA organization.

**External Certification Process**

The MLA offers two levels for their systematic review specialization. According to their website, Level One is meant for building foundational knowledge, and is often recommended for new librarians that are starting with systematic reviews (Medical Library Association, n.d.).

The SRSS Level One competency focuses on five major areas of building systematic review knowledge: fundamentals, communication, searching, documentation and reporting, and data management (Medical Library Association, n.d.). Fulfilling these competencies comes from completing a variety of courses and webinars offered through the Medical Library Association. Up to eight credit hours of required courses and six hours of electives are needed to fulfil the requirements for specialization (Medical Library Association, n.d.).

These courses and webinars cover a variety of topics, from grey literature, complex searching, research

question development, and basic to intermediate software use during reviews, like Covidence and citation managers. Most courses consist of prerecorded webinars, with only one course requiring a live session with feedback. The average length of these videos' ranges from one and a half to three hours. In this training model, these videos are completed on the librarian's own time. At the end of each course, a short attestation is required to get credit.

At the completion of this process, applicants submit a formal request for specialization through the MLA's website. Credit will only be given once the applicant has proven that all requirements for specialization have been fulfilled and has paid the processing fee. Once approved, the applicant will receive a certificate in the mail detailing their SRSS Level One certification.

The external specialization process was meant to build upon the foundational knowledge that we had learned from our peers by diving deeper into more specialized systematic review training. Helpful topics, such as citation managers and grey literature searching, allowed us to look further past the initial consultation, and to understand the full systematic review process.

A formal external certification was included as part of the scaffolded training model for the added benefit of providing us as new librarians with a specialization. The certification at the end of the MLA course is a hard deliverable that we can share with researchers to communicate our value on a review team. It also provides natural progression into the next phase of the scaffolded learning process.

When considering external certification for this step, several important factors were taken into account. The price for the MLA SRSS Level One course ranges from US \$840-1,040, with an additional US \$99-132 needed for the certificate application fee (Medical Library Association, n.d.). At the EBL, fees for this course were allocated from the university. The MLA course provided additional benefits by offering course flexibility, allowing librarians to take up to a year to complete the self-directed work at their own pace.

### **Level Three: Practice**

During and after the second step of skill development, step three of the scaffold naturally emerges: practice. We began honing the key skill of synthesizing research questions into PICOT questions (Gallagher, Ford, & Melnyk, 2019). As this essential research skill built, we also began to practice key complex database searching skills gained through level two of the scaffold. These included term harvesting, search formatting, search translating, proofreading, and search modifying. With the oversight of a peer mentor, we practiced creating keyword lists, implementing truncation tools, field tags, and inserting search filters. This helped achieve a complex search strategy that matched the criteria of the researcher's final PICOT question. We then executed these practice searches and documented the results. This practice helped to build habits of writing and recording searches, which are key skills for systematic review participants.

As we engaged in this enriching practice work during this stage, we each had a peer mentor to review our work and provide individualized feedback on every search. These peer mentors were other EBL librarians, each with five or more years of experience in systematic review searching. This feedback took multiple different forms, such as in-person or virtual meetings, notes/ edits in a shared document, or an email with notes/ edits to the search. This mentor was able to provide specific feedback on corrections or things done well. This was very helpful as we were able to keep notes to reflect on progress for future search strategies. This allowed us to further hone our searching skills and build on our already mounting progress.

Along with individualized peer feedback on systematic review database search strategies, peer mentors were also available throughout the entire scaffolded systematic review training process. This mentoring was available across the library, across colleagues, and existed very informally. Mentoring took place in the form of emails, virtual or in-person meetings, Microsoft Teams messages for brief questions, or a coffee and a chat with someone during a break.

Our senior librarians made themselves very available to us for questions about systematic reviews, for formal peer review, or less formal input, advice, or best practices advice. These mentorships were truly invaluable, as they offered some of the most essential advice. From more technical advice, such as using ctrl+h in Microsoft Word to more easily “Find & Replace” terms when formatting a search, to the more interpersonal advice, such as when to set boundaries on a systematic review team. These mentorships also served to create a harmonious and seamless work environment when bridging the gap between new and existing staff. This training brought forth the opportunity for bonding and team building for the library. Peer mentorship should serve as an essential part of any systematic review training model, as it accounts for the essential professional experience of the librarians who know the process best.

#### **Level Four: Perform**

The fourth and final level of the scaffold is the performance level. By this point, according to our scaffolded model, the librarian should be able to accomplish three main objectives:

1. Be added to the library’s official review service
2. Build and execute systematic review searches
3. Be prepared to continue education on systematic reviews outside of the scaffold

For us as EBL’s newest librarians, being added to the library’s official review service means taking independent systematic review consults for solo projects. While peer review of a librarian’s search strategies is still a large part of our workflow at EBL, per the PRESS guidelines, we operate largely independently (McGowan et al., 2016). Once level four of the scaffold has been reached, consultations with review teams are held individually, self-sufficiently and we each manage our own workload. We are also able to select which projects they would like to work on. Additionally, at this stage, searches are built and executed independently, with peer review occurring at the initial search completion stage, per the PRESS guidelines.

Despite achieving outside certification, completing the scaffold, and operating largely independently, librarians at EBL still largely rely on one another for advice. Our doors always remain open to one another for professional input, questions and support – something built in large part thanks to peer mentorship in this scaffolded training. This is intended to continue long past level four of our training.

While one certification course was completed by both new librarians, continuing education is an essential part of this or any training scaffold for systematic reviews. Certifications like the MLA SRSS have additional iterations, such as Level II SRSS. MLA also has additional certifications in related areas to systematic reviews that may be explored by the new librarians to support their systematic review skills. There are also many other evidence synthesis and evidence-based medicine workshops, courses, webinars, and articles being hosted and published that should continue to be explored throughout the lifespan of the career of a health sciences librarian. Systematic reviews procedure constantly evolving area of study. As funding, time, and bandwidth allow, this should remain a key point in any scaffold of systematic review training to keep new information and approaches as fresh as possible.

## RESULTS

This scaffolded learning process took place from a timeline beginning in April 2024 has continued into the first half of 2026. A one-year training deadline was set for each of us from our respective appointment dates, with both authors projected to complete the process by August 2026.

While we are at different stages of the scaffolded process, both of us have found the process to be beneficial to our systematic review training. During this process, we have felt a high level of confidence in mastered skills after each step in the scaffold and have had a clear understanding of the requirements to pass into the next phase. The formal specialization was an added benefit that we have enjoyed having at our disposal.

Clear benchmarks allowed us to take a more hands-on approach to our own learning. We both were satisfied with tracking our own progress during the scaffolded process and having a clear understanding of learning across the different stages. The longitudinal learning allowed us to make connections between the different scaffolded stages and build upon the foundational skills mastered at each step.

Another added benefit was the opportunity for close peer mentorship with other members of our team. Both of us enjoyed learning from fellow colleagues and forging professional connections as we went through this process. Feedback provided by team members was especially helpful, as we built trust and confidence and fostered an environment inclusive of asking questions and seeking help when needed. In addition to professional benefits, we had personal benefits as well. Due to the slow-building scaffold, we felt low stress for the duration of this learning process. With a one-year timeline that detailed our learning path, we were comfortable with the pace and scope of each scaffolded step and felt that balance between training and normal day-to-day duties was manageable.

While both of us have not finished the process, Emily has reported feeling highly confident working independently on research teams after completing the final step. The scaffolded learning process built a strong foundational and practical understanding of each step of the systematic review process that has allowed her to take on projects of her own. At the time of publication, she has officially been credited as an author on her first systematic review article and has consulted on more than a dozen others. Bryn, who is still on the third step, has earned her SRSS certification and continues to receive feedback on her practice searches.

## CONCLUSION

Scaffolded systematic review training is hugely beneficial for new health sciences librarians, health sciences librarians who are new to systematic reviews, or health sciences librarians who need a formalized refresher on systematic reviews. The detailed levels of the scaffold establish clearly defined goals, encourage time allocation for work tasks, set clear expectations and increase confidence for the training librarian. Opportunities for peer mentorship are created and a healthy, clearly communicated scaffold allows for longitudinal learning. Taking the time to create a scaffold for systematic review training creates confident librarians who are ready to actively partner with researchers and academics in the research lifecycle.

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### CONFLICTS OF INTEREST

We have no known conflicts of interest to declare, and this work is unfunded.

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