FOCUSED ON UNDERGRADUATE RESEARCH

ALISON RICKER, SCIENCE LIBRARIAN FROM OBERLIN COLLEGE

"CONNECTING STUDENTS WITH ALL OF OUR RESOURCES IS MUCH MORE SATISFYING WHEN THEY ARE NOT FRUSTRATED BY THE PROCESS, BUT ARE INSTILLED WITH A SENSE OF CONFIDENCE AND SUCCESS. WEB OF KNOWLEDGE IS A CRITICAL PART OF THAT SUCCESS STORY."

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As a Science Librarian at Oberlin College, Alison Ricker uses *Thomson Reuters Web of Knowledge*℠ to design library programs that support and enhance undergraduate research at her institution. Founded in 1833, Oberlin College is a four-year, liberal arts college and conservatory of music located in Oberlin, Ohio, USA. At Oberlin, Alison works almost exclusively with undergraduates (aside from faculty and visiting researcher projects). She is always searching for innovative ways to engage new students of science and help introduce them to the complex search and discovery research process.

Tell us about Science at Oberlin and how your library helps support students.

The science programs are quite rigorous at Oberlin and the faculty expect students to quickly achieve high-level fluency in scientific literature. Students are required to produce increasingly sophisticated research papers that synthesize current literature and target areas for their own in-depth analysis. We feel the library is central to helping students establish a solid foundation early on, while also offering more advanced and customized support as they progress.

What do you mean by "establish a solid research foundation"? How does this differ from what they learn in class?

Acclimating students to the complexities of the research process is the first major hurdle. While our library invests heavily in securing robust resources, students can easily become overwhelmed by the mechanics of proper research—how does an indexing database differ from Google or publisher interface? Why can't I access certain full text documents from publisher websites when I know they're in the library collection? The literature is overwhelming—how can I be sure I'm reading quality, peer-reviewed work?

And beyond basic resource navigation, there are still critical questions about keyword choice, reasonable topic focus, and tracing historical progress and impact. When experienced searchers explore a database, we take for granted this complex interchange between research and resources and understand the navigational markers.

It is my job to always consider the fresh perspective, to help students make sense of the noise and endless literature inherent to the research landscape. If we give students a solid research foundation, we can complement how they approach and understand the science in the classroom.

How does *Web of Knowledge* fit in to this early exploration?

Although the *Web of Knowledge* environment easily supports our faculty's most sophisticated research agendas, I've also found it particularly helpful in immersing students in research fundamentals.

As we move seamlessly from BIOSIS® to *Web of Science*℠ to MEDLINE®, or even articles to conference abstracts, letters and other forms of writing, I can illustrate how the database platform makes students' searching more efficient and effective. I can also review resource integration, including how full-text links depend on Oberlin coverage and how best to access them. Again, this all seems second-nature to seasoned researchers, but it can prove distracting for undergraduate researchers. The interface allows streamlined access across many research-resource intersections, and these critical lessons translate to a range of library resources well outside the database's scope.

Instead of dizzying students by opening and closing several windows to access Oberlin's resources, we can work primarily within the *Web of Knowledge* interface. The end result, and what I truly appreciate, is that I spend more time on higher-level concerns such as topical focus and citation linkages.

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Does *Web of Knowledge* also play a central role in "higher-level" research support?

Absolutely. Although outlining library resources is of great benefit, *Web of Knowledge* is invaluable in helping undergraduate students mature in scientific literacy. It begins with the internationally recognized journal selection process. The idea of "good science" makes sense theoretically, but it's often difficult for new researchers to make those evaluations on their own. For undergraduate researchers to advance and hone their skills in both the lab and in seeking literature, the faculty prefer that their formative work begin in an environment of "good science."

From within *Web of Knowledge*, it is very easy for me to overview article citations, connections, and impact. As we click through articles, we review citation counts and the shifting "related" articles; I find students relate to them as analogous to online shopping suggestions, with significantly different connections. Citation navigation within *Web of Knowledge* is so seamless and instructive that students quickly appreciate how citations create linkages throughout literature. It is very important that our students learn to incorporate citation analysis in their research—the benefits of working within *Web of Knowledge's* intricately mapped citation universe are unparalleled.

When the students approach you for support, where do they need the most guidance?

I find that students most often benefit from customized support on topic focus, keyword strength, and other refining techniques. Is the topic focused enough? Is it reasonable? How can we continually adapt our keywords in the context of the larger subject? These questions, after all, relate directly to the individual research project at hand. *Web of Knowledge* offers assistance with multiple refine options along the left navigation panel, including remarkably well-defined subject categories, and search limits to publication type and other parameters. Students really appreciate how intuitive it becomes to sift through results from within the interface.

The most enjoyable aspect of my job is tailoring the topical and citation discussion to each student's unique project. *Web of Knowledge* makes that possible by allowing me to cover so much in one session, customizing resource navigation, peer-review and citation analysis for a specific class, with time allotted for topical support one-on-one following the group demonstration. As students continue to engage *Web of Knowledge* throughout their years at Oberlin, their research skills mature and I can offer more advanced support. It is always rewarding to see our senior students take advantage of the deep sophistication that makes the database so popular with faculty.

What are some of the recent educational programs you've supported with *Web of Knowledge*?

Immersion in Biology. With the migration of BIOSIS® and MEDLINE® to our *Web of Knowledge* platform last year, I made the database central to all the required library appointments for the core Biology class. Now that the major Biology resources are available on one platform, I can conduct incredibly streamlined training for students. They leave with a successful experience and become more inclined to seek help with other research projects. They also learn concepts that are transferrable to other courses in other disciplines.

Backfiles and Physics. We've also incorporated citation-based research in an advanced Physics lab course. After our library secured significant backfile coverage, we worked with the faculty to support an assignment to identify the first time an instrument or technique was used, for example the 1940s, and trace its historical discussion and iterations throughout the following decades. This exercise has proven invaluable for students in understanding scientific evolution.

Interdisciplinary Music. There are very interesting possibilities cross-disciplinary as well, supporting both our liberal arts curriculum and professional training in the Conservatory of Music. Music therapy and the physiology of singing or medical conditions arising from years of trumpet playing, for example, yield provocative results when queried across *Web of Science's* Arts and Humanities and Science Citation Indices. The uniquely broad citation coverage offers an excellent starting point to explore and identify interdisciplinary opportunities.

As I consider my own education, which involved untold hours poring over the print "keyword in context" indices of both Biological Abstracts and *Science Citation Index*, moving from the heavy index volume to author or abstract volume over and over again, it is remarkable to consider the transformation into *Web of Knowledge*. Understanding that development and the richness of the database, historically as well as currently, makes me eager to introduce students to its finer points. They are invariably pleased with their rapid access to "good science." Connecting students with all of our resources is much more satisfying when they are not frustrated by the process, but are instilled with a sense of confidence and success. Web of Knowledge is a critical part of that success story.

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