

Databases, Collection Development, and Student Learning

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Where Do Databases Fit into a Collection?

When talking about collection development, school librarians often think of the books in their collections. Some may consider their library's e-books as well. However, few think of the other area of their school library budget dedicated to an electronic collection: databases. Databases provide learners with a one-stop shop for cross-curricular, up-to-date, vetted information in a structured and easy-to-manipulate format for class projects. While search engines are an immensely valuable resource, databases provide a structure for educators to teach learners crucial information-literacy skills with fewer results. These benefits make a strong case for allocating a school library's budget on databases or finding access to databases through other avenues.

Amy Gustavson and H. Clark Nall conducted a study of college freshman in North Carolina that indicated that "only 20.68% of students indicated their library research skills 4 or 5, the highest confidence ratings" (2011, 298). Regardless of the students' confidence level, the average test score was only 51 percent. Additionally, the study found that students with prior group library instruction had the highest test scores, as opposed to those students who had individual library instruction. As demonstrated by this study's results, library research skills need to be taught to students, especially those continuing on to higher education.

To be successful learners, students need to know how to use a database to find the information they need. Throughout this article we will illustrate how we use databases in our high school instruction, provide an overview of the databases available, and offer some troubleshooting

advice to navigate databases. Additionally, we will highlight how database instruction ties directly to the specific Domains and Competencies in the *AASL Standards Framework for Learners* (2018).

One High School's Approach to Databases

We teach in a high school (grades 9–12) located in a suburb of Washington, D.C., in northern Virginia. Our school opened in the fall of 2016, and we have both been with the school from its birth. The population has grown from 1,550 students in 2016 to 2,550 students in the 2019–2020 school year. Our database purchases have varied year to year depending on database usage and class projects we know will be coming through the school library in the coming year.

Collaboration with teachers on their recurring research projects is a critical factor in determining which databases we purchase each year. For example, we work heavily every year with our 11th-grade United States and Virginia history classes on an individualized research project from September through February, so we focus on databases with historical primary sources on topics we have seen students choose frequently. The students research a historical event of their choice around a yearly theme (AASL I.A.1,2; I.B.1). We also collaborate with every 10th- and 11th-grade English class on a vertically aligned pro/con research project. To help these classes out with their research projects we provide all classes with access to multiple databases and teach information-literacy skills throughout the project. We use databases for this instruction because they provide already vetted information and controlled results (AASL IV.A.1,2).

The databases provide a fantastic springboard from which students can

begin their research. Students are able to jump in and get started on the project with their specific topic right away with information we know they can use, and won't be overwhelmed by, before an individual research meeting with library staff occurs. The databases provide a controlled environment for students to practice the learning structure of information. Additionally, we consider what our students will pursue from their various personal interests outside of classroom projects when building our scope of databases.

Incorporating Information Literacy Instruction into Student Learning

The process of research and information seeking is an organic, fluid skill set; however, learners and educators do not realize this fully until they venture into it. The process involves soft skills such as trial and error, forward and backward movement, and often altering an initial premise, which can cause students to become frustrated and self-conscious quickly. Using a database makes it easy for librarians to demonstrate and teach these soft skills on all levels in a framework that is not overwhelming.

School librarians can demonstrate how to select and use keywords without the glut of results from a search engine. Subject headings provided by the databases serve as an example of alternate terms and help familiarize students with more technical vocabulary structures. Limiters such as date, publication, subject heading, and resource format allow school librarians to help students narrow results.

Databases also provide abstracts and summaries, which allow students to practice making content judgments from a small portion of information. The abstracts can be opened in tabs,

Company Name	K-5	6-8	9-12	12+	Curriculum Support	Standards Alignment	Resources	Company-Specific Examples	Best For...
EBSCO	X	X	X	X	Yes	Yes	Trade publications, news articles, magazines, scholarly journals, peer-reviewed items, images, interviews, e-books	Explora Primary, Advanced Placement Source, Teacher Reference Center, ABC-CLIO	Number and variety of results, e-books
GALE	X	X	X		Yes	Yes	Op-eds, magazines, news articles, videos, reference articles, statistics, images, scholarly articles	Opposing Viewpoints, Kids Infobits, Biography in Context	Translating, leveled reading resources, visual subject headings
JSTOR			X	X	No	No	Scholarly journals, peer-reviewed items	<i>American Journal of Psychology, World Literature Today, Journal of Sports History</i>	Academic research with access to a vast collection of reputable peer-reviewed journals
Lexis Nexis			X	X	No	No	Congressional records, current and past court cases, SEC filings, business dossiers, biographical information, scholarly and new articles	<i>Harvard Law Review, Congressional Record, New York Times</i>	Business reports, intelligence, and statistics; current legislative issues and court cases; historic cases, both state and federal; global newspaper access; voting records
ProQuest	X	X	X		Yes	Yes	Transcripts, maps, articles, images, newspapers, general reference	Elibrary, CultreGrams	General information and reference resources

Table 1. A breakdown of the database options. When selecting a database for your school library, there are lots of variables to consider. Between the two of us, we have personally used each of these databases at some point in our professional careers.

which enable students to keep track of the most applicable resources and to discard ones that are irrelevant. By keeping multiple tabs open students can also scan across content.

Databases allow students to practice going back and forth between resources and adding new references, while eliminating previously found items that are not as relevant to their topic. This trial and error of research is essential for learners to understand that information skills involve flexibility and having to change course, which is not an indication of failure but good research (AASL V.B.1.2).

In addition to providing instruction on structuring information with databases, we also generate a slide framework in Google Slides to help students identify what information is needed, find appropriate resources, and apply them to a final product. The slides outline how to choose a topic, list possible supporting and dissenting arguments for that topic, demonstrate how to build a thesis like a simple math equation, and detail points to address in the body of the paper. These slides help students outline and organize the information they find in databases before they even start to write their final paper.

Teaching structure at the beginning of a student's research career helps set the stage for instructing students on structured searching with Boolean logic and search strands in a search engine. Students will have learned the basic concepts of keywords, "and," "or," alternate terms, and date ranges within the framework of a less overwhelming system where all they have to evaluate is the pertinence of a resource to their topic (AASL II.A.2).

While many of these filters are also available in search engines, databases provide built-in scaffolding that will return limited responses when compared to the results from

a search engine query. By using the "Advanced Search" function, students can build parameters into their initial search. We go through this initial search with students as a group, explaining what filters we are applying and why.

One of the most valuable lessons our students learn, regardless of the database, is to select the "Full Text" box when performing an initial search. Too many times we have had a student find an article that they really want to use, but only the abstract or citation is available. Additionally, most databases are equipped with leveled reading results. Databases also have translation features for students with a primary language other than English. In a text article, anywhere the search term is found, the term will be highlighted in red (there are no highlights on a PDF version of the search result). This adds another tool for students to quickly skim results to determine if it will be useful for their final product.

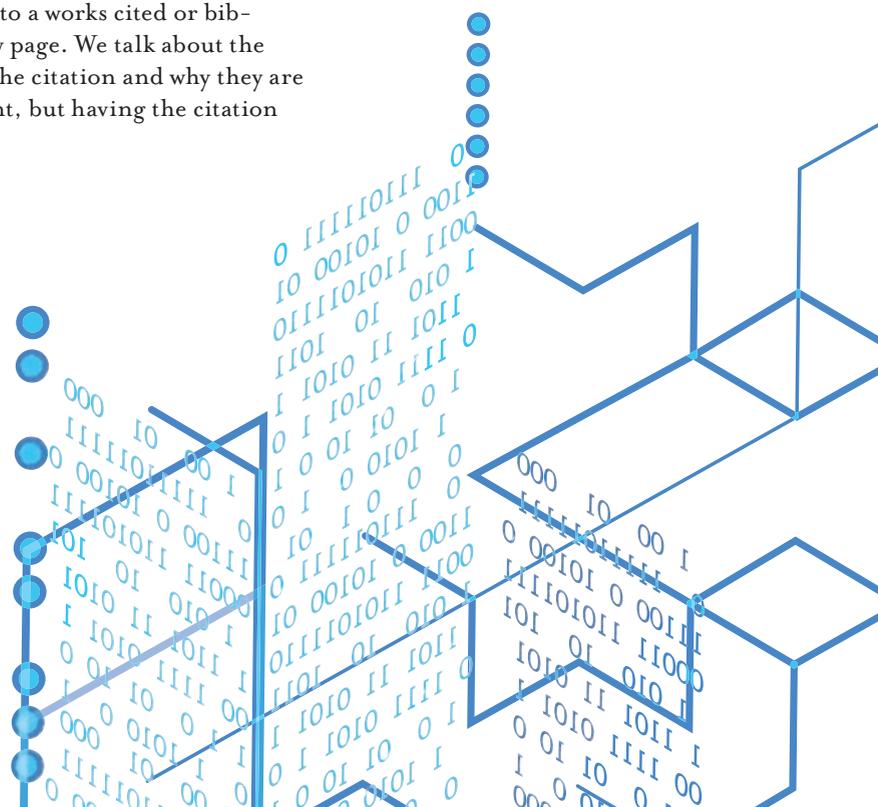
Databases provide structure in the organization of information as well. Citations are found at the bottom of each article and can be copied and pasted into a works cited or bibliography page. We talk about the parts of the citation and why they are important, but having the citation

already formatted makes it easy for students to complete this vital piece of a research project. All databases allow users to cite, save, e-mail, or print the resource. Many databases targeted for schools are also designed to link to a Google or Office365 account.

One struggle we have encountered with long research projects (like the one from September to February with 11th-grade social studies) is that students tend to lose their resources. They don't print their results, can't remember the titles of references, or struggle to find the resource a second time. By teaching students to always save and sync their findings to their Google or One Drives, we ensure that they have access to these resources in the future while also modeling positive organizational skills (AASL VI.D.1.2).

Troubleshooting Tips

There are certainly drawbacks and challenges to incorporating databases logistically into classroom instruction on a large scale. We have a few helpful tricks that we employ to smooth out a few of these wrinkles.



“The databases proved to be an extremely valuable resource for our students when completing their research for National History Day, offering a number of reliable sources that students could then narrow down [and] ensuring that my students were utilizing academic sources, and I felt confident requiring my students to utilize primary sources since they could easily plug this criteria into the filter and find a number of confirmed primary source documents. All of this helps to prepare them for the type of research they will be asked to do in college.”

—Laura Shaw USVA Teacher at Charles J. Colgan, Sr. High School 2019



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Password bookmarks: We provide students with a bookmark with all our database usernames and passwords on it. We can generate four per sheet of paper. We encourage students to take a picture of the bookmark (after emphasizing that the passwords may not be posted anywhere due to licensing agreements) so they have the information if they are working at home.

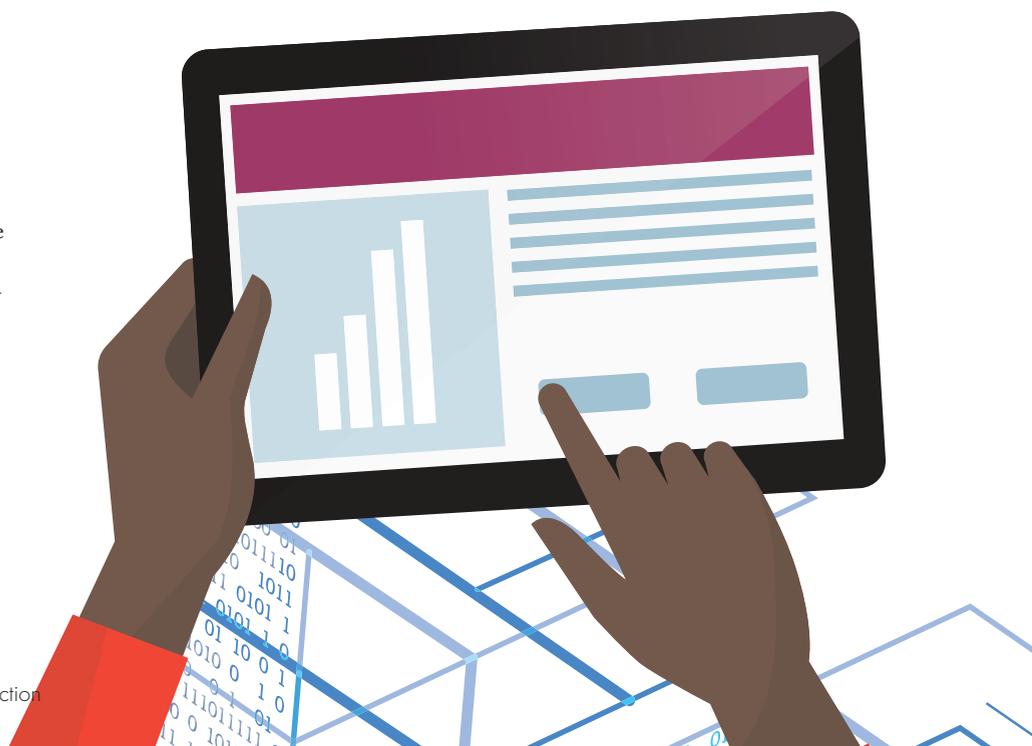
Domains for direct links: Creating a domain with an intuitive naming convention helps students access materials easily. For example, `databases.colganlibrary.com` is much easier to access than providing students a long list of instructions to go to the school site, then the library site, then find a link to the databases, etc. Also, the more you use domains, the more students become used to them. Our students naturally look for sites using our “colganlibrary.com” domain. We purchase the domain through Google for \$12.99 a year. We have the main address linked to our Weebly page and then have subdomains for links to the database page, each individual database, class pages for resource links and handouts, and even for the

Google Slides mentioned earlier. Occasionally we run into a hiccup with the subdomain being blocked by the filtering system, but we’ve made great friends with the IT engineers, and they are always happy to quickly unblock the sites for us!

Cookie clearing: When using domain links occasionally students will get an error message due to too many redirects. We’ve seen this more using GALE, but it has also occurred

with EBSCO. When the students are logged in and attempt to search, they either get an error message or are redirected back to the database’s home page. To fix this, you can go into the advanced settings in the database and clear the cookies. When you open the database and log in again, the problem should be fixed.

Multiple tabs open: By having students keep multiple tabs open, they are able to quickly scan across



multiple databases, articles, etc. We encourage students to right click and open in a new tab for any result they think may be useful; we also suggest students not go through the articles until they have ten to fifteen tabs open. This ensures that they aren't settling for the first result on the list but will dig deeper to find the resources that are best for their project. We use a similar strategy with search words or subject headings. We describe research as "going down the rabbit hole" and equate it to reading an article on BuzzFeed, then clicking another suggested article at the bottom, then another, and another, until an hour has passed and you aren't sure what happened. This approach to research encourages students to pursue multiple perspectives and dive deeper into their topic and related subjects (AASL III.C.2).

Other access: Public and state libraries can be a fantastic asset. When deciding which databases to purchase, always compare those

databases you're considering with those that the public and state library offer. This ensures that there is limited to no overlap for the databases used across the different libraries so libraries can be the best stewards of their budget, while also providing resources for students who do not have access to public libraries. While it is a good idea to cross-reference institutions such as the public library for effective purchasing, librarians should still cover a broad content scope in the databases they purchase to ensure students without institutional access are supported with available resources. We provide public library card applications for students and deliver the completed applications to the public library for students to obtain library cards. If possible a joint purchase plan between public libraries and school systems would be an ideal way to cost-share and ensure all students have access to databases. In a social media poll of three library professional learning community Facebook

groups, almost 30 percent of respondents specifically mentioned using databases from public or state libraries when asked about their school database use and purchasing (Elizabeth 2019).

Conclusion

Databases are a key component in the instruction of research and information skills. In this structured environment, students can experiment with various search strategies and build their confidence in their research skills while isolating them from the onslaught of information overload associated with search engine results. Budgeting for databases can certainly be a challenge, but their merits make them an important part of our collection development and a crucial tool in the instruction of our students.



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her librarian career in a middle school and has been at Charles J. Colgan, Sr. Colgan High School since 2016. She received her Master's degree in Library and Information Science from the University of Pittsburgh. In December 2018 she achieved her National Board Teacher Certification. She is a member of AASL.



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