Library Databases as Unexamined Classroom Technologies

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"...teachers cannot be content to understand the maps of computer interfaces as simple, uncomplicated spaces." (Selfe and Selfe 82)

Abstract

In their 1994 article, "The Politics of the Interface: Power and its Exercise in Electronic Contact Zones", compositionists Cynthia Selfe and Richard Selfe give examples of how certain features of word processing software and other programs used in writing classrooms (including their icons, clip art, interfaces, and file structures) can invisibly privilege cultural values that not all of the program's potential users share, creating disadvantages. Selfe and Selfe call for teachers to help students examine these technologies and develop their critical awareness of their influences. In this paper I consider that library databases and other online search engines can also be seen as classroom technologies that are commonly used but often unexamined by librarians, teachers, and students. In particular, the ways that online database interfaces—the search options and results screens that stand between researchers and the information that they seek—can have a dramatic influence over these researchers, affecting the ways that they think about searching as well as how they actually conduct their searches, while other invisible features of these databases can also affect results. Library databases and other online search engines are not a neutral classroom technology any more than word processing software is, and students and teachers need to be aware of the larger implications of their use of this technology. Developing a critical awareness of all of the information sources they are using can only benefit students and help them become more experienced academic writers and researchers as well.

Introduction

Learning to locate articles from online library databases is an important part of learning to conduct academic research for most college students. Both librarians and faculty help students learn strategies for successful online research. However, not surprisingly, most library database searchers (including librarians and faculty) pay much more attention to the information found through online databases than they do to the actual databases themselves. Finding useful books, articles and other sources of information is, after all, the main reason for searching these databases. But this can be problematic because if searchers do not pay enough attention to the technology they are using to locate information, they will not be aware of the many ways that these search technologies can influence them. In particular, the ways that online database interfaces—the search options and results screens that stand between researchers and the information that they seek—can have a dramatic influence over these online researchers, affecting the ways that they think about searching as well as how they actually conduct their searches. Other characteristics of online databases, which are often not apparent from their interfaces, can also have a dramatic effect on the results that users receive—or don't receive—in response to their

searches.   Because of this, learning to look critically at library databases and other online methods of searching should also be an important part of learning to conduct academic research.

Background

Writing instructors have long been concerned about using technologies in the classroom without critically examining their potential effects. In their 1994 article, "The Politics of the Interface: Power and its Exercise in Electronic Contact Zones", compositionists Cynthia Selfe and Richard Selfe examined the ways that the design of computer programs, including word processing software, commonly used in writing classrooms made assumptions about the backgrounds of the programs' users. These assumptions, which usually went unnoticed by users, could cause students who were not from the same types of backgrounds to be at a distinct disadvantage when learning to use these programs. Their article gives examples of the ways that a program's icons, clip art, or even file structures can almost invisibly privilege cultural values that all of the program's potential users may not necessarily share. Writers using these programs are often unaware of how these unnoticed features affect them and ultimately their writing. Selfe and Selfe call for writing instructors to "teach [students] to be technology *critics* as well as technology users" (68) so that they will become more aware of the influence that technology can have over its users.

Other compositionists following Selfe and Selfe have also looked at how the interfaces between people and technology can affect writers. In their 2004 article Anne Frances Wysocki and Julia I. Jasken reviewed the work of many of these and found that most compositionists who examined interfaces have "argued that we have to see interfaces as not just what is on screen but also what is beyond and around the screen if we want to understand how interfaces fit into and supported the varied and entwined sets of practices that shape us" (36). However, their study also examined writing handbooks and looked at the ways that these textbooks instructed students to create their own interfaces. Through this analysis, they found that in most of the handbooks used by writing teachers the "technical particularities of interfaces tend[ed] to be given more weight than how production takes place or what the production might imply for those involved" (39-40). So even when writing instructors are teaching students to design their own online interfaces as part of writing classes, unless these instructors push their students to look beyond what is outlined in their textbooks their students may still be missing out on a larger critical awareness of how these interfaces function. Teaching students to analyze the interfaces they are using every day can be seen as an even more important first step.

Academic librarians, who often collaborate with writing instructors to teach research, have also done work analyzing interfaces, although they often focus on usability and user outcomes rather than the social and political factors also considered by Selfe and Selfe. One recent analysis of search technologies (specifically Google Scholar) by librarian Charlie Potter, however, also argues that librarians "should not be fooled into thinking that the technology used by Google (or any search technology, really) is a neutral force in the information seeking process" (10) and that "libraries *must* accept the challenge of educating users to think rhetorically about the technologies they use" (21).

While word processing software may be the most obvious form of writing technology, library databases are also technologies commonly used by writers which need to be critically examined. Using library databases or other search technologies without this critical examination can lead to similar kinds of difficulties to the ones that Selfe and Selfe describe. Databases help writers conduct the research

that informs their work by providing access to books, articles, and other materials and student writers are often encouraged or even required by their instructors to consult databases when collecting sources for their writing assignments. However, even though library databases are commonly used in writing classrooms just like word processing software and other computer programs, they are possibly even less likely to be critically analyzed by students and teachers. Library databases are often held up to students by both librarians and faculty as the standard for research, and using library databases to find information is often highly recommended or even required by faculty. Other alternative paths to finding sources, like using internet search engines, are often discouraged or not even allowed. And while most writing teachers probably would not specify which of the many commonly available word-processing programs their students must use to write papers, they do often give students very specific instructions about which library databases they must use when finding sources. Even writing instructors who have responded to Selfe and Selfe's call for critical awareness of technology are seldom as critical of library databases.

In his article about improving the research habits of first-year writing students, writing instructor Patrick Corbett points out an important "disconnect between the obligation we place on students to begin using sophisticated digital library tools for our classes and their ability and willingness to successfully use these tools to find the information that will serve them best" (265). At the same time, however, composition researchers Helms-Park and Stapleton note that "the general consensus [among faculty] seems to be that it is not only the dubious sources…but also the Internet's user-friendliness that is undermining the research process, privileging a less rigorous and expedient approach to writing research papers" (451), showing how widespread this same disconnect could possibly be.

As recently as 2012, compositionist James Purdy conducted a survey of 523 undergraduate students, asking them to name their "favorite research resources" ("Why First-year College Students…"). In this survey, the "students selected Google as their favorite 312 times, over three times as often as the next favorite resource, Google Scholar, [which is] still a Google product." (Purdy, "Why First-year College Students..."). One of the biggest differences between internet search engines and library databases is, however—just like in the software that Selfe and Selfe examined—their nearly unnoticed search interfaces. These interfaces, if examined more closely, by students, librarians, and faculty, would help searchers come to a better understanding of how this technology might affect them as well. Two library databases that are commonly used by and recommended to first year students, JSTOR and EBSCO's Academic Search Complete, are a good starting point for this type of analysis.

The JSTOR Interface

The library database JSTOR (www.jstor.org) is often used in writing classrooms or recommended to first-year writing students, but even the name of this database can be seen as possibly misleading to users. JSTOR is actually an acronym for "journal storage" and was originally created in 1995 as a way for libraries to archive older issues of journals electronically instead of continuing to store these often lower use items on already overcrowded shelves. Many users of JSTOR are not aware that because of this archival mission, JSTOR does not normally include any articles from the most recent five years for any of the titles it includes. Journal publishers agree to let JSTOR provide access to their back issues but continue selling their current issues outside of JSTOR because it is more profitable. Searching JSTOR for any current events or other time-sensitive topics is unlikely to return any results no matter what keywords are used in the search. Searching JSTOR for medical, scientific, or other topics where

currency is essential will return outdated research of historical but not contemporary interest. If searchers are not aware of JSTOR's mission, they may come to believe that either they are not good at searching or there are not any journal articles available on their topic, or both.

Another feature of JSTOR that many users are not aware of is that it is run as a non-profit organization. This is not a bad thing, but is important to note because this influences the content that JSTOR chooses to include. Most of the journal titles included in JSTOR are published by university presses and other non-profit or small-scale publishers who are willing to enter into agreements that allow JSTOR to archive and provide access to their contents through its subscriptions. While this seems only beneficial to users and to the many libraries who are able to purchase access to JSTOR because of its relatively low cost, searchers need to be aware that in many fields a large number of the top journals are published for-profit and cannot be found through JSTOR. Larger publishers usually create their own searchable databases of content that they then sell subscriptions to for libraries and individual users. While faculty will know they need to look in more than one database if important journals in their field are not included in JSTOR, students may not be aware, especially if they are happy with what they are finding in JSTOR. While you can browse a list of included journals through the JSTOR interface, expert knowledge of the field being researched is needed to know what is missing from this list.

The advanced search screen of JSTOR, which most libraries link to directly to save their patrons from clicking multiple times, does not indicate anything about the mission of the database and how this might impact searchers. A closer reading of the search interface itself, however, does offer some clues about what this database values and the kinds of searching it expects users to conduct. One immediately noticeable feature is a long list of disciplines that first-time searchers may find overwhelming; it isn't necessary to select any of them but the rows of checkboxes almost make the interface look like a form to be filled out. Because of this, some searchers will select many (or all) of these. If searchers know that the database was started as a way to help libraries archive information, this giant list may make more sense to them, because most academic libraries would shelve their bound journals in call number order using Library of Congress classification numbers, which would correspond very loosely to the broad categories given on the JSTOR screen. However, for users unfamiliar with library organization schemes (and even for those who are familiar) this could seem like a randomly chosen and somewhat exclusionary list. For example, some disciplines, like Composition Studies, do not even have their own category, even though several important journals to that field are included in JSTOR. Even the larger field of English does not have its own category. To find English journals, searchers must know to look under the category "Language and Literature", the subject heading used by the Library of Congress. Alphabetically, this category is so far down the screen that it can't even be seen without scrolling. Another potential problem is that the disciplines listed do not match up with lists of majors at most colleges, which may make it more challenging for first-year students or other new users to figure out which category they need (although really they don't need to choose any at all since the default is to search all of the categories at once).

The search interface of the JSTOR advanced search screen (see below) gives users many options for limiting searches. While librarian Charlie Potter would argue that this complexity is one advantage that library databases have over Google Scholar, because it shows that "these databases acknowledge that there is not a 'typical' kind of researcher and accordingly attempt to provide results in varying formats" (20), this complexity itself could easily overwhelm new users, especially those new to the world of academic writing and research. Teachers and librarians need to help students navigate these complex in-
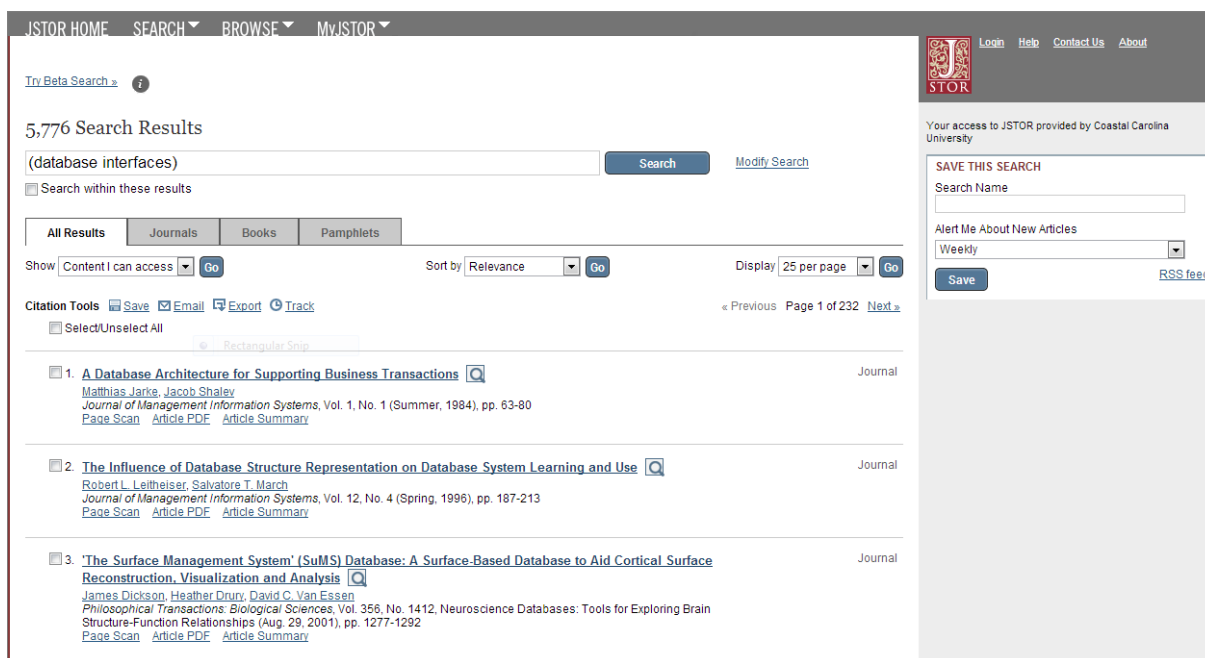
terfaces, but if they do not also explain why these databases are worth taking the time to learn, students may not see the benefits.

Other features of the JSTOR interface that may confuse new users include the fact that while JSTOR contains many articles in languages other than English, the interface itself cannot be changed to search with directions in any other language. It is also interesting to note that the categories of articles that searches can be limited to are vague (articles instead of journals or magazines, and the completely un-helpful "miscellaneous" category). Even though JSTOR is a non-profit company, their self-advertising still figures prominently on this page, in the large "J" logo as well as the video off to the side of the screen which is advertising for the database rather than instructions for using it. The search screen al-so includes the option to search by ISBN number, without explaining what ISBN numbers are. Search-ers who know that ISBNs are serial numbers assigned to books may still be confused—will this search box return book reviews or actual books?—especially if their library has not subscribed to any of the electronic book subscriptions available in JSTOR.

After searching for their keywords, JSTOR users will see a search screen that looks like this:

This list shows how many results were received and lists them in order of "relevance", meaning those items in which the search terms appeared most often at the top of the list, not how likely the articles are to the searcher's actual research question. Citation tools do not, as students or even faculty might expect, give you a citation for the article in MLA or APA style. The citation tools feature in JSTOR simply allows users to email or otherwise export citation information (not the full text of articles) to themselves. Users can also make a free account to login to "My JSTOR" and save citation information there. Although compositionist James Purdy has argued that database features including "My JSTOR", "allow students to create a personalized research space" ("The Changing Space of Research…" 52) as they would in the web 2.0 sites they are already comfortable using, it can also present disadvantages.

Most library databases, including JSTOR, allow users to create accounts and save citations, but few of them allow users to import citations from other databases. By limiting users to only saving citations for articles in JSTOR, users are encouraged to not use any other databases when searching, because they would not be able to organize and store any additional citations in the same place. Another problem is that students would lose access to these personalized spaces upon graduation, because subscription databases like JSTOR are usually not available to alumni unless special and often expensive arrangements have been made by the institution. Encouraging students to use tools which they may not be able to continue to use after graduation does not help encourage the life-long learning that writing instructors and librarians generally hope to inspire. Web 2.0 citation management web databases like Zotero (http://www.zotero.org/) and Mendeley (http://www.mendeley.com/), which allow users to create their own freely-accessible databases of citations from any source, might be a better alternative for teaching students to organize their research than "My JSTOR" or similar database services, because they are available to everyone who has access to the internet and do not charge subscription fees for their use.

The EBSCO / Academic Search Complete Interface

Another commonly used database interface in classrooms is from the company EBSCO. While hundreds of databases are available from EBSCO and all would be searched with basically the same interface (called a "platform" in library terminology), for the purposes of this analysis Academic Search Complete, a general database often promoted by librarians and writing instructors to first year students, will be used.

The name of this library database can also be misleading to students, because the word "complete" might logically imply that this database includes everything students would ever need. From a marketing standpoint, this name helps the company sell the database, but students need to know that the only thing actually "complete" about it is that it includes all of a selection of the content available through the publisher EBSCO, not all possible publications. Because this is a commercial database, it does include a much wider range of content than JSTOR, including resources from a variety of publishers both large and small. This is also not immediately apparent from the search interface. Another invisible but important feature of EBSCO's Academic Search Complete is that, unlike other EBSCO databases, it was created by EBSCO as a way of aggregating content owned or licensed for use by the company.

Many other databases hosted on the EBSCO platform are actually online versions of traditional print indexes created and maintained by scholarly societies. These indexes have been translated by EBSCO to a web environment rather than created by EBSCO (one example of this is PsychInfo, a database created by the American Psychological Association that has been published since well before the internet). Academic Search Complete, like a few other EBSCO products (usually general interest databases) are not web versions of traditional indexes and do not have the same level of subject indexing available to users that these databases have. Aggregated databases can also change their content without warning, as agreements between publishers and EBSCO are not usually permanent and the journals and the full-text availability of articles frequently shifts. An article that was available last week is not guaranteed by EBSCO to still be available tomorrow or next semester.

The advanced search screen of Academic Search Complete appears similar to that of JSTOR:

There are several search boxes available, as well as a large amount of search limiters. Like JSTOR, however, the branding of the company's name, EBSCO, is the most prominent feature of this screen. Users may not even be aware of which database they are searching (which is not really an issue in JSTOR), but EBSCO sells hundreds of different databases. If users don't take note of which database they are searching, they might not be using one that is the best for their needs. Since the search interfaces look nearly identical for all EBSCO products, users may not even realize they are not searching the database they want. The interface also uses technical terminology like Boolean searching, which novice users will most likely not recognize, as well as made-up terminology like "smart-text searching" which is unique to the EBSCO platform.

One feature of EBSCO databases not available in JSTOR is the ability to change the search interface to multiple different languages (see below for a list)—but certain things are not translated out of English no matter which language is chosen, a problem also noted in early word processors by Selfe and Selfe (71) that still continues today.

Unlike JSTOR, EBSCO databases do use icons to indicate certain functions, which can be problematic. EBSCO databases still use many of the same types of office metaphors that Selfe and Selfe found problematic because they can exclude users not familiar with or comfortable navigating "corporate culture and the values of professionalism" (69). Icons used in EBSCO also include a somewhat obsolete picture of a traditional, snail-mail envelope to stand for email and a completely obsolete picture of a computer diskette for saving documents. On some pages these icons are accompanied by text that may help users navigate them, but other times they are alone on the page without explanation. The following is an example of some of the icons used in EBSCO databases:
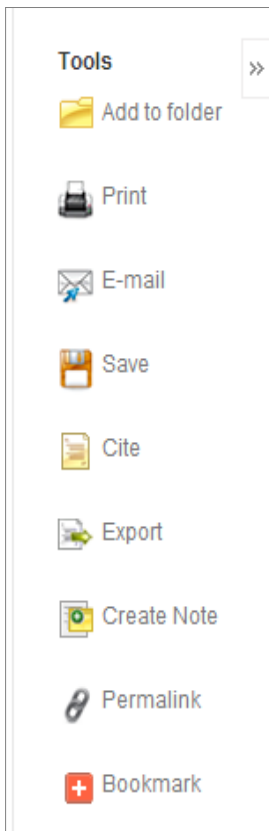
In this particular screen, the icons are less problematic because they are explained with text (although some of the text, like "permalink", an invented word, may not be effective enough descriptions). However, these icons do appear without their explanations in other places, like when the pdf format of articles are being viewed:
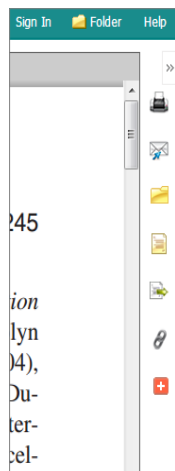
Since not every article in EBSCO is full-text, this can present its own challenges for users. Clicking on an article brings users to a screen like this one:

Users who are more familiar with JSTOR or even Google may be confused by this screen, which does not jump right to the full-text of the article. Instead, it provides an abstract for the article and a link to the full-text in the left-hand corner (where many users don't look, because they are accustomed to ignoring advertisements in this screen space on the websites they visit). Users may also not be aware of the "My EBSCO" function, which is similar to "My JSTOR", because it is not prominently featured on the screen.

JSTOR, EBSCO, and most other library databases are organized in a hierarchical way that would also concern Selfe and Selfe, because the methods of searching that are most successful privilege logic over "alternative approaches to constructing meaning" (75). While some library databases, like EBSCO, have experimented with alternative ways of searching like a visual search, none of these have been successful enough to date. And even though both JSTOR and EBSCO databases allow users to browse articles instead of search them, these functions are not immediately evident on the main interface screen and probably won't be found by most new database users.

Implications for Teachers and Librarians

 Both writing teachers and librarians want students to locate the most appropriate sources for their research topics, and searching in the right place can often be the key to this. But it is also true that library database interfaces are not often intuitive to uninitiated users because they do not, as librarian Charlie Potter points out, "make [the] totalizing assumptions about how people look for information" that internet search engines do when they offer only a single search box with no further options or instructions (20). To convince students to use library databases instead of internet search engines, if that is what is desired, librarians and faculty need to work together to help students learn the ways that database interfaces can be read and how their interfaces might affect the searching that students do, as well as the advantages these technologies have over the open internet. This could be as simple as having librarians and teachers talk to students about their own research methods—how they choose which databases to search, which functions seem the most helpful, etc. Demonstrating for students how to find

out more information about a database and the materials it contains can also be a useful skill to impart, so that students can get in the habit of questioning all of the sites they come across in their research. Being aware of the limitations of database interfaces can also help librarians and teachers point out possible pitfalls to students before they come across problems using databases. Students can also be encouraged by careful assignment design to explore and test the limits of databases and not be content with the first five articles they find on the first screen of any search they conduct. Writing instructors and librarians can also ask students to evaluate and compare different databases, so that they will develop a larger awareness of how search technologies work and how the different ways of searching can affect the results they receive.

The danger of not understanding or being misled by database interfaces is not simply the danger of not being able to find information quickly and efficiently, however. As Selfe and Selfe point out, teachers "need to learn to recognize—and teach students to recognize—the interface as an interested and partial map of our culture…that reveals power differentials" (77). Library databases are not a neutral classroom technology any more than word processing software is, and students and teachers need to realize the larger implications of their use of this technology. The motives behind the design of database interfaces and the motives behind library databases themselves should be questioned by both students and teachers. As librarian James Elmborg points out, in order for true information literacy to take place, "libraries [and by extension, their databases] can no longer be seen as value-neutral cultural space", either (198). Having a critical awareness of all of the information sources they are using can only benefit students and help them become more experienced academic writers.

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