Research Skills and the New Undergraduate

Barbara Quarton

Undergraduates are largely unaware of the myriad information resources available to them in their university library; thus, many students rely on publicly accessible Internet sites for their research needs. This practice severely undermines the academic research efforts of undergraduates. Contrary to student opinion, the Internet does not encompass all the world’s knowledge, nor is it likely to do so in the future. Students must learn to use specialized research tools and to approach all information sources with a critical eye. This article describes teaching strategies faculty in any discipline can use to guide their undergraduate students through the basic library research necessary for writing a solid research paper.

University libraries have outstanding information resources available to their student populations—subject encyclopedias, monographs, periodical literature, dissertations—and they have powerful tools for accessing these materials—online catalogs, subscription databases, interlibrary loan services—but many college students are either unaware of these resources or they do not know how to use them. Because few universities require an assessment of information literacy as a condition of graduation, many students move from course to course with only a marginal understanding about how to use research tools and how to evaluate resources. At graduation, students lacking these information literacy skills are ill prepared to function in a technological and information-rich environment.

For teaching faculty, information literacy is problematic. While it is widely agreed that information literacy is an essential component of higher education, it is unclear where it fits in the university curriculum: computer science classes, writing classes, or research methods courses. In fact, information literacy transcends course content and can be developed through course work in all disciplines. It is possible for individual faculty in any discipline to design assignments that provide the framework for a mastery of information literacy skills. This article identifies essential library resources for undergraduate students and, more important, presents teaching strategies that foster the acquisition of information literacy skills in the university classroom.

The Research Assignment

A typical undergraduate assignment involves choosing a topic in a discipline and writing a paper about it. Students are usually required to establish a premise and use literature from the field to corroborate their position. While this kind of assignment sounds straightforward, it is fraught with difficulties for undergraduates who lack information literacy skills: how does one focus a topic; how does one find literature pertaining to the topic; what is the “literature,” and how does one distinguish it from other published materials?

Focusing the Topic

As beginning researchers, undergraduates usually do not know enough about specific disciplines to choose a focused avenue of research and to develop a manageable research question. There is, however, an important library tool that can be useful to

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students as they work to develop their research question: the subject encyclopedia. While an encyclopedia is a tertiary source (and therefore often overlooked by scholars), it is important to give it due respect as an excellent starting point for novices in the search for information. Unlike the general encyclopedia, the subject encyclopedia has longer articles that treat the topic in some depth while providing a context within the discipline. The articles present overviews, often including historical perspectives, theoretical frameworks, and issues of controversy, among other things, that help the novice researcher find a foothold in the field. Of equal importance are the bibliographies that accompany the articles. These references direct the student to further reading, allowing them to explore the topic in a systematic way. The objective in using this library tool is for students to explore the topic in a general (non-threatening) way, from a reputable source, and hopefully to discover in themselves a curiosity that motivates them to examine the topic further.

Teaching Strategy

For all the merits of subject encyclopedias to the research process, do students use them? The answer is: rarely. Few students even know they exist, having only heard about general encyclopedias such as Britannica. The search for a research question, therefore, is often performed on the Internet, at random and unreliable sites, and it often results in a mediocre pop-topic that either is too broad or is overused. To discourage such hit-or-miss tactics in the search for a research question, professors can require their students to turn in a half-page description of their research interest and the resulting research question, citing the specific subject encyclopedia they consulted, and providing a photocopy of one of the articles referenced in the source they used. This assignment requires students to use a reputable, published source for a cogent overview of the subject matter: to describe in their own words what the topic means to them, and to practice the technique of following references. All of these are examples of information literacy skills, and all of them are based on critical thinking.

Planning the Effective Search

Students who have a good sense of their topic and who have developed a strong research question are ready to plan their search strategy. The main issue facing students at this point is where to look for information, and the first place most students look is the Internet. This is not a bad idea if they are looking up movie times or ski reports or just keeping track of their bank balance. Problems arise, however, when students approach academic research in the same way they manage their daily Internet use. Students are typically unaware of the existence of and differences between the public Internet and the online subscription databases that university libraries and other institutions use for specialized purposes. Thus, when students think about doing online research, they often assume that the public Internet is appropriate for their needs. While there are many excellent web sites generally available—especially from government agencies and educational institutions—students doing academic research are better served by using the subscription databases they find in their university library. These databases are chosen according to strict criteria for content, usability, and relevance to the university’s curricula.

Subscription databases are programmed to retrieve electronic representations of published information—sometimes in citation form and sometimes in full text—based on a search statement entered by the researcher/student. The results obtained from a database search are only as good as the search statement entered. It is therefore important that students know how to compose their database search statements effectively. The
research question must be condensed into keywords or phrases that describe it. For example:

Research question: What is the effect of perceived gender roles on marital satisfaction?
Keywords: gender roles, marital satisfaction

The search statement can be developed by connecting the keywords with the word "and."

Keywords: gender roles, marital satisfaction
Search statement: gender roles and marital satisfaction

In a database, this search statement returns a list of results in which both phrases are present in each retrieved item. Note, however, that some authors refer to gender roles as sex roles, or marital satisfaction as happiness in marriage, among other things. To compensate for this variation in vocabulary, and to expand the search results, it helps to search for word variations as well. For example:

Search statement #1: gender roles and marital satisfaction
Search statement #2: sex roles and marriage and happiness

Beginning students are perhaps unprepared for more advanced database searching techniques, so for this population the simplicity of having several basic search statements such as these to use in databases is entirely appropriate and certainly effective.

Teaching Strategy

Unless students are required to search appropriate databases rather than the Internet and to prepare search statements that describe their research question, it is unlikely that they will take the time or make the effort to do so. When university professors require their students to use library databases and to plan their searches before starting their online research, they discover that their students focus on their research in a more critical way. To confirm their students' good preparation for searching databases, faculty can assign the following: after students decide upon a manageable research question, have them prepare a list of keywords, synonyms, and word variations that apply to their research question and then compose a few search statements to use in the database. Requiring that students turn in this very brief research agenda not only causes students to think ahead and with a critical eye, but also it gives the professor insight into students' progress at an early stage in their research. It gets students in the habit of thinking about words, their meanings, and their relationships with other words. This skill is one that is transferable among databases and therefore to other assignments and courses.

Searching the Literature

Armed with an interesting research question and a few basic search statements that describe it, students are prepared to explore the literature of their field using subscription databases. Librarians who observe the research habits of undergraduates note that students gravitate toward general databases that provide access to short, full-text articles from newspapers, magazines, and scholarly journals. While these databases are easy to use and convenient, they are not meant to be a comprehensive source for discipline-specific literature. In general, they do not index books, documents, or dissertations; they index a limited number of discipline-specific periodicals, and most do not index articles published prior to the 1970's. Depending on their topic, therefore, students must also learn to use specialized research tools such as PsycINFO, the American Psychological Association's database of the psychology literature, or ERIC, the U.S. Dept of Education-sponsored database of the education
literature, among other specialized databases. Use of a subject-specific database along with a general database allows students to search the general, full-text databases they are familiar with and still be introduced to specialized information tools that index the full range of published materials in their field. This structure also gives students an excellent opportunity to juxtapose general and scholarly materials for better comparison and evaluation.

**Teaching Strategy**

Following a brief class discussion about the differences between articles in magazines and journals, students can conduct a simple trial search of two subscription databases—one general, full-text database and one specialized database—using one of their search statements. Their assignment can be to find one magazine article in the general database and one journal article referenced in the specialized database. After reading the two articles, students can write a half-page evaluative piece (or graphic representation) comparing and contrasting the two articles. The professor may want to give students criteria for their evaluation, for example: do the articles have reference lists; is any information about the authors’ credentials included with the articles; are sources of data cited; for what audiences do the pieces seem to have been written; are the arguments/perspectives biased in any way; are assertions backed up with fact, and so on. The purpose of this assignment is to nudge students into thinking critically about different sources of information and to evaluate them based on content, authority, and validity rather than on length, convenience, or entertainment value.

**Conclusion**

The teaching strategies described above represent opportunities for students to explore reputable information sources in their field of study and to practice evaluating what they find. This basic preparation for a research paper guides students to a clear understanding of what they want to know, where and how to look for answers, and how to choose good, solid sources to answer their research question and write an effective paper.

These abilities—exploring information resources efficiently and critically evaluating results—are information literacy skills. They are best developed through regular exposure to assignments that are process oriented and that require critical thinking. Students who know how to use information resources and who recognize the essential characteristics and purposes of published materials have a critical advantage when adding to their knowledge base in any discipline, and they have a firm foundation for future course work. Further, because information literacy skills are transferable to other disciplines and to everyday life, students’ future learning—both in and out of the classroom—is positively impacted.

**References**


