# Finding Measures

In order to locate existing measures that have been used by other researchers and evaluators, and have shown to be reliable and valid, it is important to know how to conduct effective literature searches for scholarly articles[1]. This type of research may lead to useful information about previous evaluations conducted on similar constructs, as well as the measures used.

In order to ensure that measurement efforts lead to results that are credible, useful, accurate, and feasible to obtain, it is important to be aware of the existing tools that may meet current measurement needs so that they can be considered alongside their "home grown" counterparts. Before beginning a search for existing measures, it is essential to do the careful thinking that goes into logic modeling and the initial steps in the evaluation planning process - namely developing high quality evaluation questions. Without prior knowledge of the program's measurement needs, it is impossible to make informed decisions about which measures will be most appropriate.

## Where to begin

Before beginning the measurement tool search process, the program description, pathway model, evaluation questions, and purpose statement should be on hand to ensure that any measure that may be considered is aligned with previous thinking and planning. In addition, all measures that are currently being used or considered should be made available for comparison. Then, begin by seeking out programs similar to the one currently being evaluated. This may provide a starting point for subsequent searches, or may lead directly to a measure that will require further consideration.

It may also be valuable to find out if there is measures repository website maintained by the state or federal funding agency responsible for overseeing the program at those levels, or by an association of professionals who deliver programs similar to the one being evaluated. These are sometimes contained within evaluation resources or evaluation "toolkit" websites specific to a program area or organization. Often, this can be a good shortcut to finding measures of interest listed by indicator or outcome. (Note that for information about the validity and reliability of these measures, you will have to check the research literature cited in them.)

[1] Scholarly articles are reports on original research or experimentation that have been written by and for scholars in a particular field of study, articles written about original research, or a new application of others' research by an author who has been credentialed in the particular field.

## Literature Searches

Locating measures reported in scholarly articles is a two-step process. Typically, the article or resource related to the construct being measured is located first. Often the measure itself is listed as a reference in the article and must be located separately.

Extensive research has been done on many of the outcomes commonly shared across programs. However, only a few of the related scholarly articles will pertain to the specific outcomes of interest to a particular program, and even fewer will refer to evaluation resources with established validity and reliability. A successful search involves experimenting with different topic headings and keywords in multiple databases, and narrowing the searches down from there.

Here are some tips for getting started:

1. Before looking for articles revisit the evaluation question(s) and pull out key terms, phrases, or concepts that further specify the topic of interest. You can use these as key words in measurement searches.

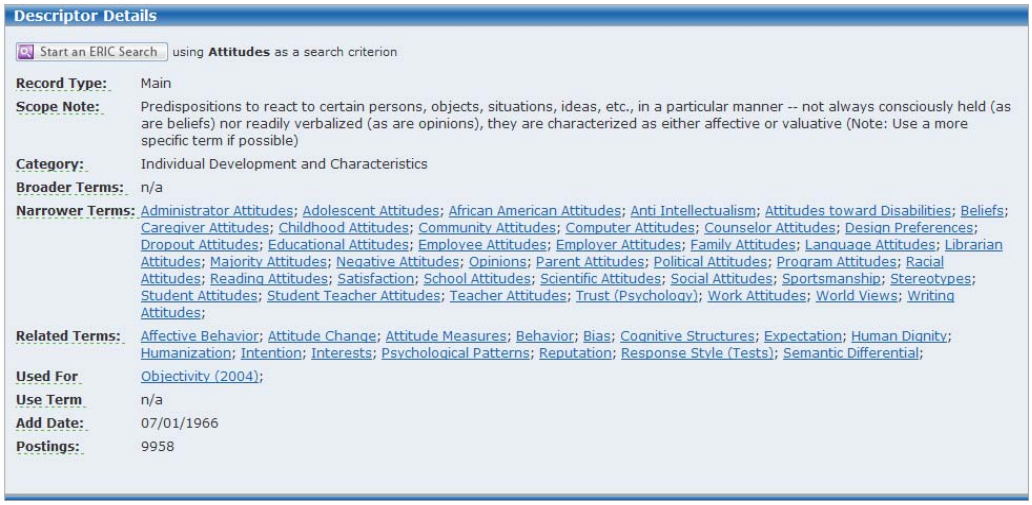
2. Use the "search" or "find" function within your PDF software. With this function, you can search within the article for terms such as "measure," "instrument," and "tool;" or you can search the topic key terms. The shortcut for searching is "ctrl-f" on PCs and "apple-f" on Macs.

3. Search various databases. Databases vary widely, and different databases offer different information, even on the same resources– Some may offer only basic citation information (basic public access databases such as ERIC.gov, PubMed.gov, http://nsdl.org/, Google Scholar, AGRICOLA, etc.) and may require further searching through your University's library catalogue to retrieve the original articles. Your affiliated University most likely provides its affiliates with exclusive access to several licensed databases that offer annotated or more in-depth information than may be available at public sites. Examples of these include ISI Web of Knowledge, SocAbs, PsycINFO, and JSTOR.

Some databases are small and focused on a single or specialty topic, others cover a broader range of topics. Consider what field of academic discipline your outcomes are in, such as education, healthcare, or nutrition. Keep in mind that a University often has several libraries, and it can save time to start in the library website for that subject specialty.

| Topic | Database |
|---|---|
| Education | ERIC |
| Sociology | Sociological Abstracts |
| Science | Web of Science, SciFinder Scholar |
| Agriculture | AGRICOLA, CAB abstracts, AGRIS (international Ag) |
| Food science and nutrition | Food Science and Technology Abstracts |
| Psychology | PsycINFO |
| Business, social sciences, physical and life sciences, math, music, and other fields. | JSTOR |
| Business, sciences; education; law; and others | Wiley Interscience |

1. Begin broad and narrow it down. Begin with a broad search and use that to identify other key words that are related to your searches and outcomes. There may be common jargon that is used popularly in the literature. Many databases will provide options for similar or related topics or other keywords to use, others may provide a thesaurus for exploring optional keywords – a thesaurus search for "attitudes" at the Educational Resources Information Center (ERIC) is shown below. You can see how the related terms and the narrower terms may lead to more focused searches.



**Descriptor Details**

Start an ERIC Search using **Attitudes** as a search criterion

**Record Type:** Main

**Scope Note:** Predispositions to react to certain persons, objects, situations, ideas, etc., in a particular manner -- not always consciously held (as are beliefs) nor readily verbalized (as are opinions), they are characterized as either affective or valuative (Note: Use a more specific term if possible)

**Category:** Individual Development and Characteristics

**Broader Terms:** n/a

**Narrower Terms:** Administrator Attitudes; Adolescent Attitudes; African American Attitudes; Anti Intellectualism; Attitudes toward Disabilities; Beliefs; Caregiver Attitudes; Childhood Attitudes; Community Attitudes; Computer Attitudes; Counselor Attitudes; Design Preferences; Dropout Attitudes; Educational Attitudes; Employee Attitudes; Employer Attitudes; Family Attitudes; Language Attitudes; Librarian Attitudes; Majority Attitudes; Negative Attitudes; Opinions; Parent Attitudes; Political Attitudes; Program Attitudes; Racial Attitudes; Reading Attitudes; Satisfaction; School Attitudes; Scientific Attitudes; Social Attitudes; Sportsmanship; Stereotypes; Student Attitudes; Student Teacher Attitudes; Teacher Attitudes; Trust (Psychology); Work Attitudes; World Views; Writing Attitudes;

**Related Terms:** Affective Behavior; Attitude Change; Attitude Measures; Behavior; Bias; Cognitive Structures; Expectation; Human Dignity; Humanization; Intention; Interests; Psychological Patterns; Reputation; Response Style (Tests); Semantic Differential;

**Used For** Objectivity (2004);

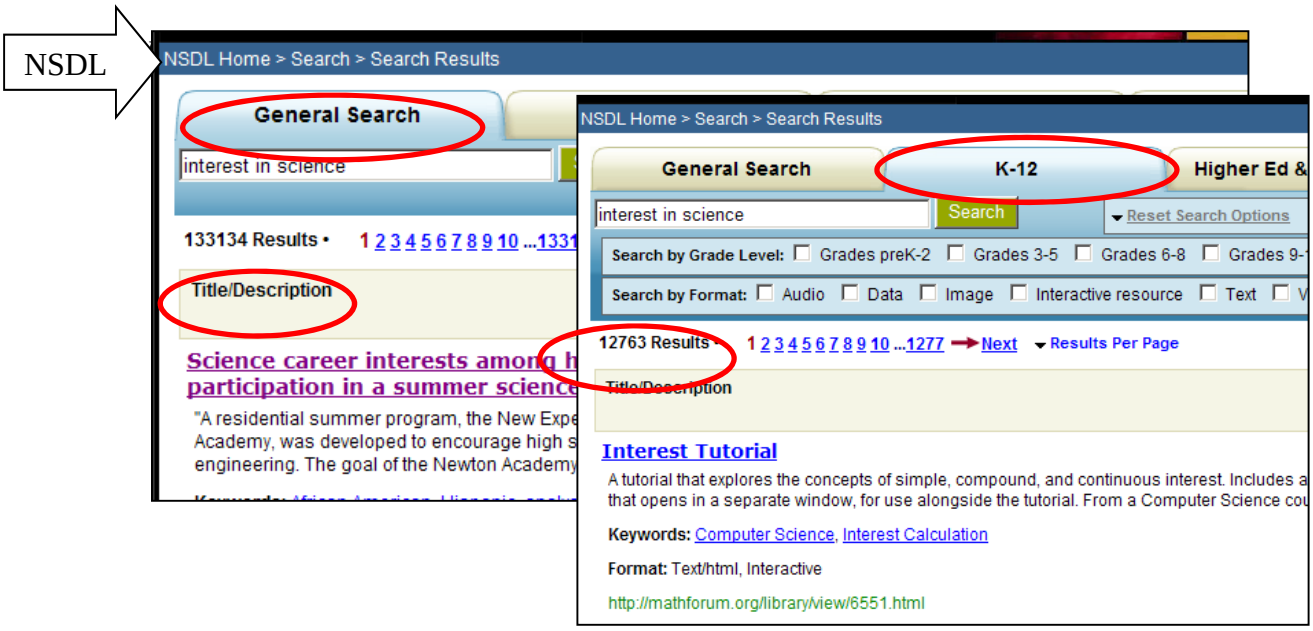
**Use Term** n/a

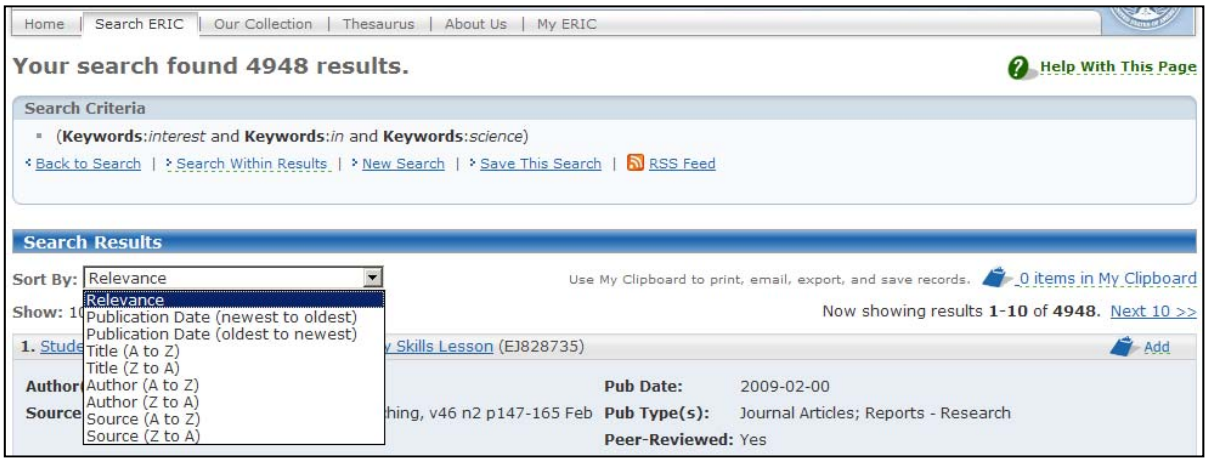
**Add Date:** 07/01/1966

**Postings:** 9958

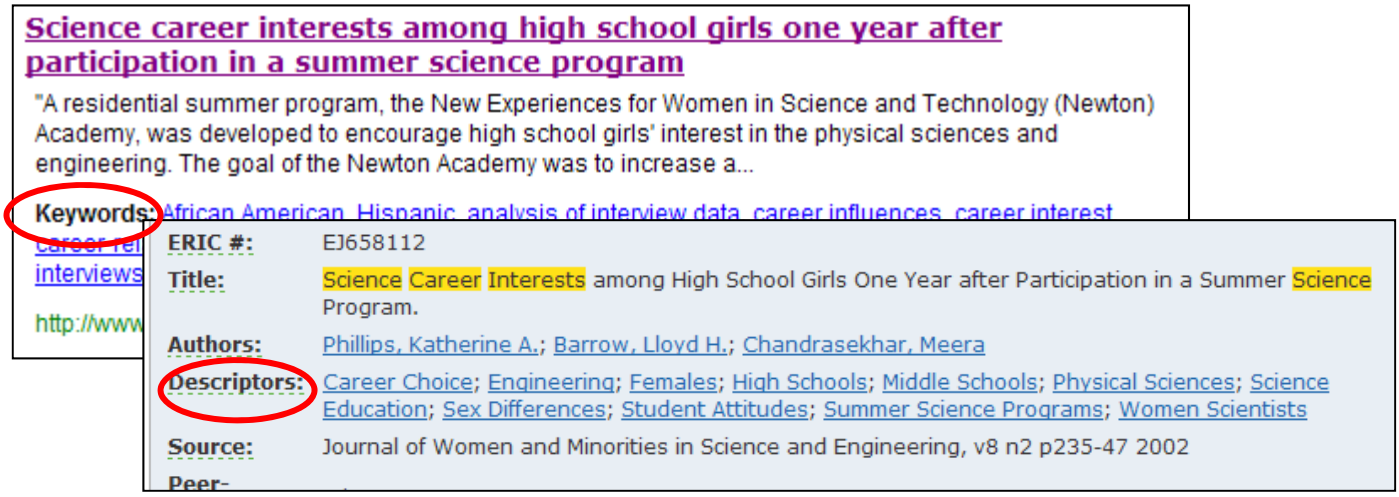
"Interest in science" is a common construct, as well as its relationship to career choice. A Google Scholar search shows almost 5.5 million hits. But if you put quotations around the phrase it is reduced to 20,500.


At the National Science Digital Laboratory (NSDL) there were far fewer results (133,134), and a focus on K-12 dropped that down to less than 13,000. But a search at the ERIC had less than 5,000, and can be sorted alphabetically or according to relevance or date.






At the NSDL, a search for “interest in science” brings up an article “Science career interests among high school girls one year after participation in a summer science program.” This record suggests other “keywords” including: “Career influences,” “career interest,” and “gender differences”. At ERIC the other “descriptors” or key words for the same article included “career choice,” “science education,” “student attitudes,” and “sex differences”.




Each search phrase leads to more relevant studies. Experience will show that different terms may be more or less effective depending upon the database you are searching. Skim an article summary or abstract while keeping in mind your research questions to help you determine whether a particular article is of interest.

With these three searches you can begin to see the potential of literature searches for finding measurement resources for your programs and useful background information from scholarly work done in the area of your construct of interest.

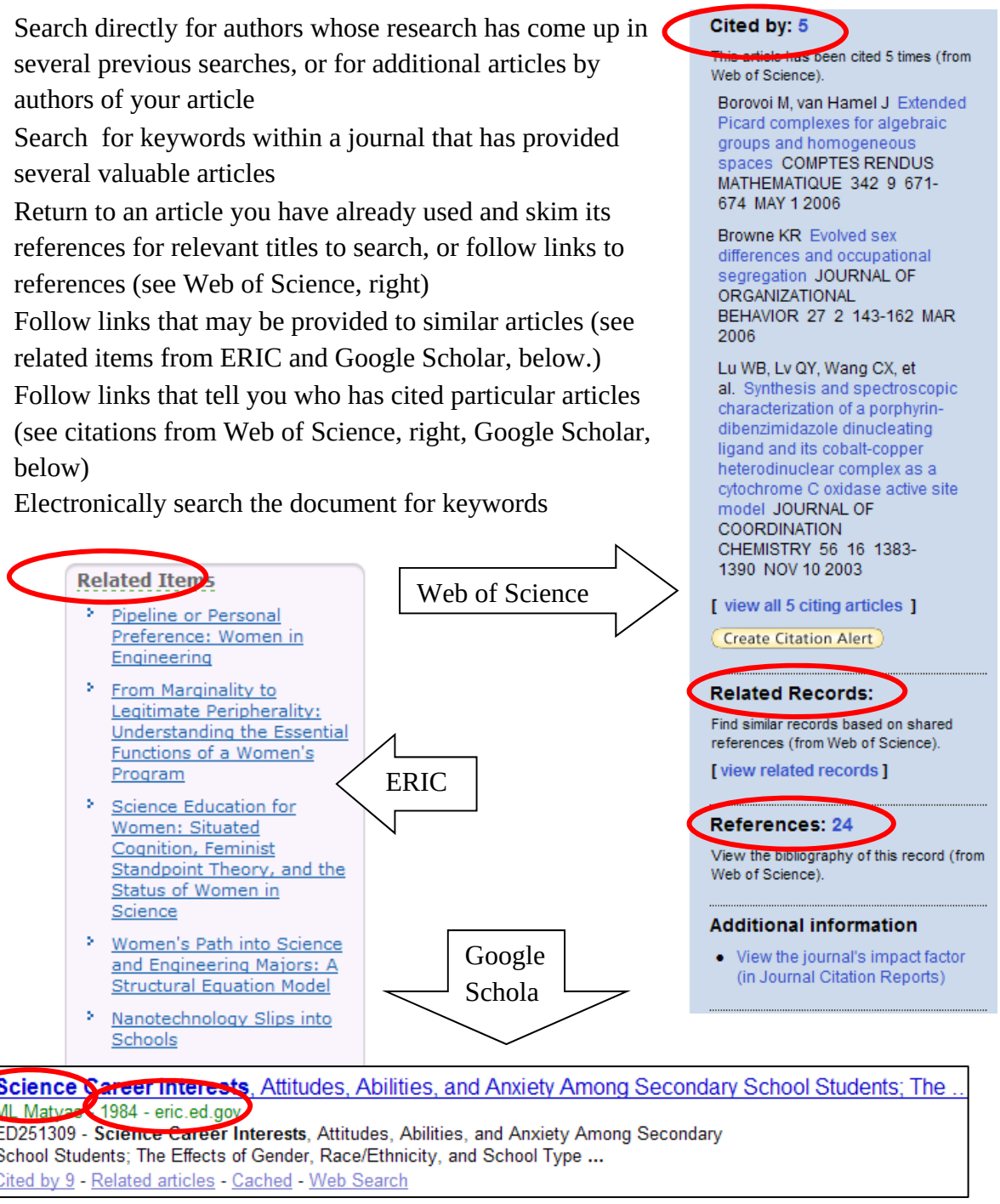
1. Keep a record of your searches. Select a method of tracking the date of your search, where you have searched, what you have found, and what your key terms were. You may also want to record the number of results you received, and where you went from there. Keep track of your search so that you or the next researcher to work on the project does not spend energy duplicating a search that was already done.

These records can be kept electronically in a text document or spreadsheet; others may wish to track their searches in a notebook. Another tip provided by the Cornell Library is to use Zotero (to download this tool, please visit http://www.zotero.org/), which is integrated into your Firefox web browser and assists in keeping track of the records of interest.

2. Explore both basic and advanced searches. This requires learning how to search each database. Basic search functions usually provide for simple key word, title, author, or article searches within a particular database or journal, whereas advanced searches allow for multiple pieces of information to simultaneously direct a search. Different databases may have different rules for searching, and they usually offer some guidance on how to search. The use of quotes around phrases, Boolean searches (which use true/false logical operators such as “and”, “or”, “not”, “if” and “then”) and the use of wildcards (*), question marks and the like are database specific. Look for directions on how to conduct an advanced search at each database.

Try one of these methods for linking to more resources after you have identified a good article:

- Search directly for authors whose research has come up in several previous searches, or for additional articles by authors of your article
- Search for keywords within a journal that has provided several valuable articles
- Return to an article you have already used and skim its references for relevant titles to search, or follow links to references (see Web of Science, right)
- Follow links that may be provided to similar articles (see related items from ERIC and Google Scholar, below.)
- Follow links that tell you who has cited particular articles (see citations from Web of Science, right, Google Scholar, below)
- Electronically search the document for keywords



## Locating Measures that Work

Having located the article, the next task will be to locate the actual measure. Different situations call for different approaches, but here are some basic steps you can take to find the measures referred to in the article:

- Start out by looking for the measures within the article itself. Sometimes, the measures are included in the research results section, or may be included in an appendix.
- Look for references to the measure. Find and read the section where the author explains the "method," "procedure" or "measures" used in conducting the research. Usually, there is a sentence about where or how they obtained these measures. From there you can determine if the measure was, for example, purchased or developed and how to ultimately obtain it. At times the author cites the article where the measure was obtained. In that case, search for the referenced article to obtain the measure. At other times, any reference to the measure may only be a reference to an article where you can get more information on the measure.
- If there is no appropriate citation to the measure, conduct a search on the title of the measure. Any well-documented measure should be revealed by a direct search by title.

## Other Resources

Below are some potential web resources that can assist you in your literature review. At the time of this publication, they were all active links, but it's possible that they will become outdated. Additionally, the quality of the sites may change over time, and this list doesn't even begin to exhaust all of the good websites out there!

**Measurement Tool Databases:**

Field-tested Learning Assessment Guide

http://flaguide.org/tools/newsearch.php.

Out-Of-School time database and bibliography

http://hfrp.org/out-of-school-time/ost-database-bibliography

Compendium of Assessment and Research Tools

http://cart.rmcdenver.com/index.cgi?autoid=7258

Assessment Tools in Informal Sciences

http://atis.pearweb.org/

Online Evaluation Research Library

http://oerl.sri.com/

**Instrument Toolboxes**

Place-Based Education Evaluative Collaborative: Research and Evaluation Instruments

http://www.peecworks.org/PEEC/PEEC_Inst/

Authentic Assessment Toolbox

http://jonathan.mueller.faculty.noctrl.edu/toolbox/index.htm

Learning in a Technology-Rich Environment (LITRE) Student Learning Toolkit

http://litre.ncsu.edu/sltoolkit/ToolKitEntry.html

**Boolean Searches**

http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Boolean.pdf

**Literature Reviews and searching**

http://library.usm.maine.edu/tutorials/esp/module2/module2.htm

**Data management resources**

http://www.zotero.org/ ( Free)
http://www.endnote.com/
http://www.refworks.com/

**Evaluating Resources**

http://www.library.cornell.edu/resrch/intro#2Findingbooks,articles,andothermater
http://library.usm.maine.edu/research/researchguides/webeval.php