



### Introduction

It is important for educators to develop the skills necessary to differentiate between journal articles or other literature that is credible and valid, and that which is less so in order for them to evaluate research accurately. There are two distinctions to consider: 1) primary and secondary sources, and 2) qualitative and quantitative research.

A critical distinction in quality is the difference between primary and secondary sources of information. Charles and Mertler (2002) define secondary sources as “sources that do not provide firsthand or eyewitness accounts” but may provide “expert compilations, analyses, and interpretations of primary information” (p. 77), including encyclopedias and scholarly books. Primary sources are original research such as journal articles and monographs (Charles & Mertler, 2002, p. 80).

A second distinction is the difference between qualitative and quantitative research. Quantitative research is research conducted using number data. It follows a linear sequence of empirical and methodological steps. It is formal and rule-based, and implies a limited cause-effect relationship free of context (Flick, 2002). Qualitative research is more subjective. It assumes that the researcher must interact with the subjects of the study. It is less formal, and can be expressed as words, pictures, and objects (Flick, 2002). An example of quantitative research is a study that follows the scientific method. An example of qualitative research is conducting a case study (Flick, 2002).

Neuman (1997) also identifies some things to look for when examining quantitative research. He argues for large sample size and random samples so that the results can be generalized to the larger population. It is also crucial when interpreting research reports to make sure the results are valid (measuring what they are supposed to measure) and reliable (consistent) (Neuman, 1997). Good quantitative research should be peer reviewed (reviewed by a scholarly group of individuals) and sponsored by non-biased sources of funding (Neuman, 1997).

### Key Findings

- Teachers can use both primary and secondary sources of information in order to find trends, definitions, key findings, and conclusions.
- When searching the library homepage for secondary sources, use either a keyword search (general terms), or subject search (subjects standardized by the library).
- Online databases or indexes can be located on a university library homepage. They provide assistance in exploring primary sources by subject or keywords.
- When examining primary data sources, start with the most current articles written by the most credible researchers.
- Most frequently used educational online databases include ERIC, Education Index, Current Index to Journals in Education, and Social Science Citation Index.

- Always check such things as sample size, methods of analysis, and sponsoring or funding agencies. Use multiple forms of data to triangulate research findings. Often, credible research will use a process of triangulation to corroborate findings. In social research, triangulation refers to a process of using different types of measures or data collection techniques to examine a variable. The basic idea is that measurement improves when diverse indicators are used. As the diversity of indicators increases, confidence in making conclusions increases.
- Be cautious in generalizing conclusions in studies with small samples to broader populations.
- Every research method and question places limitations on findings. Good research clearly states its limitations.
- The most credible sources of research are peer refereed journals.

### **Suggestions for Teachers**

1. Ask the following questions when examining research articles:
  - Is information about the major aspects of the research included?
  - Are the problem area and the educational importance reported?
  - Has the related research been evaluated?
  - Can the research variables be identified from the hypothesis?
  - Are the subjects, selection procedures, and group size appropriate for the study?
  - What instruments are used and are the data collection procedures clearly described?
  - Are the procedures free from extraneous variables?
  - Are significant levels indicated?
  - Are the conclusions related to answering the original research question?
2. Ask the following questions when examining qualitative research articles:
  - Does the problem area have educational importance?
  - Has the researcher presented related research and critiqued it?
  - Is the purpose of the study relatively unbiased?
  - To what extent has the researcher's presence influenced the behavior of the subjects of the study?
  - Is the process for organizing the data valid and appropriate?
  - To what extent is the sample of subjects representative of broader populations?

### **References:**

- Borg, W., & Gall, M. (1983). *Educational research an introduction* (4<sup>th</sup> ed.). New York: Longman.
- Charles, C., & Mertler, C. (2002). *Introduction to educational research* (4<sup>th</sup> ed.). Boston: Allyn & Bacon.
- Flick, U. (2002). *An introduction to qualitative research* (2<sup>nd</sup> ed.). London: Sage Publications.
- Gay, I., & Airasian, P. (1992). *Educational research: Competencies for analysis and applications* (7<sup>th</sup> ed.). New Jersey: Merrill Prentice Hall.
- Glesne, C. (1999). *Becoming qualitative researchers* (2<sup>nd</sup> ed.). New York: Longman.
- Hittleman, D., & Simon, A. (1992). *Interpreting educational research: An introduction for consumers of research*. New York: Macmillan Publishing Company.
- Lee, T. (1999). *Using qualitative methods in organizational research*. California: Sage Publications.
- Mason, J. (2002). *Qualitative researching* (2<sup>nd</sup> ed.). London: Sage Publications.
- Neuman, W. (1997). *Social research methods: Qualitative and quantitative approaches* (3<sup>rd</sup> ed.). Needham Heights, MA: Allyn & Bacon.

### **Internet Resources**

<http://www.home.uleth.ca/lib/>  
ERIC  
[http://www.people.uleth.ca/~irt/ji\\_mod\\_jart\\_chart.html](http://www.people.uleth.ca/~irt/ji_mod_jart_chart.html)  
<http://www.ucalgary.ca/library>  
<http://www.ualberta.ca/library>