

CHAPTER 3

Conducting a Literature Review

© eho3005/Shutterstock, Inc.

Objectives

Upon completion of this chapter, the reader should be prepared to:

1. Discuss the process of critically analyzing data sources.
2. Identify databases that may be useful in locating data sources to include in a literature review.
3. Identify the purpose of the literature review.
4. Discuss important characteristics of a research article's Introduction section.
5. Discuss important characteristics of a research article's Methods section.
6. Discuss important characteristics of a research article's Discussion/Conclusion section.
7. Describe the importance of reliability to the research appraiser.
8. Describe the importance of statistical significance to the research appraiser.
9. Discuss the importance of external validity to the research appraiser.
10. Discuss the difference between a primary data source and a secondary data source.

Purpose of the Literature Review

As mentioned in the previous chapter, the reader of a research study should be able to trace the flow of an idea from the researchable problem to the research question or hypothesis, which also has a direct route to the **literature review** and the theoretical framework. This chapter will discuss the development of the literature review. A literature review is literally an account of what has been published on a topic by researchers, critically appraising each data source included for its relevance rather than simply summarizing what the author originally stated. The literature review is guided by the research question or the hypothesis. A literature review should discuss conceptual theories or models from nursing as well as other fields that will be used to examine the problem at hand. Because the review will reveal inconsistencies or unanswered questions about a subject, a correctly formulated literature review will allow for the research question or hypothesis to be further refined, if necessary (LoBiondo-Wood & Haber, 2009).

Apart from merely seeking out the literature that is available on a topic, the literature review must be formed using the researcher's critical appraisal skills. This means the researcher is able to apply principles of analysis to identify unbiased research studies, accurately assessing the data sources so that the strengths and weaknesses of each are discussed. If the literature review is developed appropriately, the reader should find it to be relevant, appropriate, and useful. The review should never deteriorate into simply a list summarizing one document after another (Taylor & Procter, 2009).

Ultimately, the purpose of the literature review is to establish the value of previous research on the study topic. The literature review should:

- Address a question not investigated in the literature previously and generate new research questions.
- Fill in a knowledge gap that has been found to exist in previously conducted research or reveal the existence of a knowledge gap in the field for the first time.
- Test an existing model under previously untested conditions or using a different patient population.
- Correct for errors in previously conducted research, or reveal existing errors for the first time.

- Resolve research findings that appear to be contradicting each other and determine the accuracy of reported findings (Taylor & Procter, 2009).



TOOLBOX

Think about your own work environment. Can you think of a question related to that environment that has not been investigated and might generate new research questions?

Structuring the Literature Review

A literature review most commonly uses one of three formats. First is a discussion and evaluation of previous research beginning in chronological order. This would be used when the doctor of nursing practice (DNP) researcher is utilizing studies that are evaluated beginning with the earliest published report and moving chronologically until the most recently reported is discussed. Second is a literature review organized around a central concept. An example of this type of organization would be when the researcher is studying the patient's pain experience as the overall research concept. The literature review would then organize studies according to instruments used to operationalize or measure the degree of pain the patient experienced, treatments utilized for relief of pain, and the long-term effects of chronic pain. Finally, the literature review can be organized to first discuss an evaluation of studies that apply to the general research topic and then move toward the more narrowly defined research topic of the researcher (O'Sullivan, Rassel, & Berner, 2007). This could be used if a researcher first evaluated studies on the topic of the patient's pain experience and then moved to the more narrow focus of the experience of pain in cancer patients under the age of 21. In addition to these types of reviews, a derivation of a literature review that is frequently utilized is a meta-analysis. This consists of the use of quantitative procedures to statistically combine the results of studies. A small meta-analysis is considered to use no more than 50 articles (American Psychological Association, 2010).

As the author is developing the literature review, locating sources, and beginning the process of initial evaluation of data sources, he or she should consider the following:

- Are there gaps in the knowledge available on this subject? If so, identify the specific areas that are lacking. This will generate new research questions and potentially new research studies.
- Are there areas of further study that have been identified by other scholars that may serve as sources of additional research for a DNP researcher?
- How could these areas of further study impact the research project currently under way?
- Do potential relationships exist between concepts that would generate additional researchable hypotheses?
- How have other researchers defined and measured key concepts that will be used in the current research project? Do these definitions and measurements appear to be accurate and reliable?
- Have other researchers used data sources including topic-specific websites that the DNP researcher was not aware of?
- What keywords can be identified to help guide the researcher's search for information?
- How does the current research project relate to the work already generated by other researchers (F.D. Bluford Library, 2013)?



TOOLBOX

Think about your own work environment. Based on your experience, are there gaps in the knowledge that is available on either the services provided to patients in your work area or on the patient population served?

Critical Appraisal of the Literature

Because of the nature of the DNP researcher's practice-oriented doctoral program, the DNP student must be particularly scrupulous in ensuring that each source included as part of the literature review contributes in

some manner to evidence-based nursing practice. In order to ensure that the literature review is the result of a critical appraisal on the part of the researcher, Taylor and Procter (2009) have developed a series of questions the researcher should ask him- or herself regarding each data source undergoing critical evaluation:

- Has the author clearly formulated a problem statement? If not, is it at least clearly implied?
- Is the problem's significance established in terms of scope, severity, and relevance to the nursing profession?
- Could the defined problem have been approached more effectively from another perspective? If so, what perspective could have been selected?
- If the data source is a research study, what was the author's research design? Was the design appropriate for the type of research study implemented?
- What is the theoretical framework? Was it appropriate, or should a conceptual framework have been used instead?
- Is there a relationship between the theoretical or conceptual framework and research question or hypothesis, or is a disconnect evident?
- If a research study is being evaluated, can the study population, interventions, and outcomes be clearly identified?
- How accurate and valid are the measurements utilized—do they measure what they were intended to measure? Would the same results be obtained if the study was replicated?
- Is the analysis of the data that was performed in the study both accurate and relevant to the research question or hypothesis?
- Are the conclusions appropriately based on the analysis of the data?
- How does the data source contribute to the understanding of the problem under scrutiny, and how does it contribute to evidence-based practice?
- What are the strengths as well as the limitations of the research article? Do the limitations outweigh any benefits derived from the implementation of the research?
- How does the data source relate to the researcher's research question or hypothesis?

Collecting Data Sources

As the DNP researcher begins the process of searching out data sources that will be critically appraised for possible inclusion in the literature review, he or she should initially ensure that the topic that is the central focus of the research question or hypothesis is absolutely clear. The researcher should remain focused on the practice-related topic as well as the basic patient population being studied.

Next, the researcher should identify terms that are unique to the study. For example, if the study uses the research question, “Is the incidence of substance abuse greater in hospice nurses who have experienced cancer in their own families than in hospice nurses who have no firsthand experience with the disease?” then the unique terms that will be researched will be *substance abuse*, *hospice*, and *nurses*. As the researcher uses these terms to initiate a computerized search for data sources, broad-spectrum medical/nursing databases should initially be utilized, such as Cumulative Index to Nursing and Allied Health Literature (CINAHL), Index Medicus (MEDLINE), and Educational Resources Information Center (ERIC). This will provide the researcher with a large volume of articles that can then undergo critical appraisal. In addition, the use of multiple databases increases the researcher’s access to multiple sources, allows for searching of the key terms selected, provides for ease of document retrieval, and increases the credibility of the search (LoBiondo-Wood & Haber, 2009).

Steps to Include in the Critique of a Research Article

1. Determine if the research is believable.
 - ___ Is it well organized?
 - ___ Is it grammatically correct?
 - ___ Are terms that are used appropriate?
 - ___ Do researchers have qualifications indicating they have sufficient knowledge of the topic?
 - ___ Does the title indicate the topic?
 - ___ Does the abstract provide a clear overview of the research problem, technique used to sample the population, methodology utilized, results achieved, and recommendations for further study?

2. Determine if the research problem is clearly identified.
3. Determine if the research question or the hypothesis is clearly stated and is appropriate.
4. Determine if the literature review is sufficiently extensive for the topic and includes primary sources no more than 5 years old.
5. Determine if the article identified a theoretical or conceptual framework that is appropriate for the research.
6. Determine if the research article described the method utilized to sample the population.
 - ___ Is the sample size specified?
 - ___ Was the sample utilized adequate for the research project?
7. Were research participants adequately informed about the research project?
 - ___ Were research participants sufficiently protected from harm during the project?
 - ___ What level of institutional review board permission was granted for the project (exempt, expedited, full)?
8. Are the terms and concepts used in the article clearly defined and understandable to the reader?
9. Is the research design clearly identified in the article?
 - ___ Was the design appropriate for the research project?
 - ___ Was an instrument used for data collection, and was it appropriate for the project?
 - ___ Was reliability discussed in the article?
 - ___ Was validity discussed in the article?
10. Does the article describe how the data were analyzed?
11. Does the article describe the statistical results of the analysis that was performed?
12. Does the article describe the strengths and limitations of the research project?
 - ___ Did the article describe recommendations for further research?
 - ___ Did the article generated either answer the research question or support the hypothesis?
13. Did the article discuss the implications of the research project?
14. Were the references included in the study appropriately cited (Ryan, Coughlin, & Cronin, 2007; Coughlin, 2007)?

INITIATING THE PROCESS OF CRITICAL APPRAISAL

A crucial skill that the DNP researcher must practice as part of the process of formulating a literature review that contains credible data sources is that of critical appraisal of the research. Wooten and Ross (2005) recommend breaking a journal article down into its component parts in order to appraise it efficiently. Initially, the DNP researcher should look for a journal article that is contained in a publication that is peer reviewed. This means the study underwent a prepublication review by experts in the specialty field to ensure the information it contained was both unbiased and accurate. The researcher must identify whether the source is primary or secondary. A **primary source** is one that was written by the person who either developed a theory or conducted the research being reported. A **secondary source** is written by someone other than the person who developed the theory or conducted the research (LoBiondo-Wood & Haber, 2009). A literature review should contain a majority of primary sources.

Next, the DNP researcher should look at the authors' qualifications. Are the authors' credentials appropriate for the topic being researched? Have they published other studies on similar subjects? For example, if the research is written using a population of intensive care patients, is the author a nurse with an intensive care practice background? If not, the author may lack credibility. Also, look at any funding sources the author used. Can it be determined if the research is biased in such a way as to reflect favorably on the funding organization?



TOOLBOX

Initiate a search of the literature that is readily available on a topic related to your current work environment. Try to locate at least three primary sources and three secondary sources. Are the authors' credentials appropriate for the topic being researched? Why or why not?

CRITICAL APPRAISAL OF THE ABSTRACT

Once the DNP researcher has determined that the article in question is included in a peer-reviewed journal and that the author has sufficient qualifications to generate the research, he or she should take a cursory

look at the study's **secondary source**, bearing in mind that the study cannot be accurately evaluated based on its **abstract** alone. The researcher should read the abstract to find a summary of the purpose; problem under investigation; participants; procedures utilized including a brief mention of the sample size, outcome measures, data gathering procedures, and research design; as well as results and the author's conclusions (American Psychological Association, 2010). This abstract appraisal may indicate the need to pursue a more detailed review of the article or may show that the article is not needed for inclusion in the literature review (Wooten & Ross, 2005).

CRITICAL APPRAISAL OF THE INTRODUCTION

The next step in the critical appraisal of the literature involves breaking down the article into its individual parts that form the "skeleton" of the research report: the introduction, methods, results, and discussion and/or conclusions. The **introduction** section should include the author's research question or hypothesis that clearly states the population being studied, the intervention being proposed, the comparison that will occur, and the expected outcome. The study should be based on research that has previously been conducted on the same topic or one very similar, so there should also be a discussion of previously conducted studies and a review of their findings. A well-crafted introduction should tell the reader:

- *Why the problem is important*—The reader should be able to understand the importance of the topic both to the individual nurse and to the nursing profession.
- *How the study relates to previous work in the area*—This will show a clear connection with the theoretical or conceptual framework.
- *If other aspects of the study have been reported prior to this study, how this report differs from the previous reports*—The study should be able to indicate what it will provide to the reader that other studies have not.
- *How the study relates to previous work in the area.*
- *The relationship of the hypotheses and research design to each other.*
- *The theoretical and practical implications of the study that have been identified* (American Psychological Association, 2010).

If the introduction section doesn't include a clearly stated research question or hypothesis, the novice researcher should consider it a poor

addition to his or her own literature review for the project (Wooten & Ross, 2005).

CRITICAL APPRAISAL OF THE METHODS SECTION

When the DNP student begins appraisal of the **methods** section of an article, he or she will find that this is arguably the most important section in a research report, because it should contain the author's description of exactly what was done in the research as well as how it was implemented. It is the methods section that tells the DNP student about the reliability of the research being scrutinized—if this study were replicated, would the same results be achieved? If not, then the research has a very low degree of reliability and should not be included in the literature review.

The methods section should include a concise description of the procedure for data collection. If the author designed an instrument for data collection, such as a questionnaire or other tool that participants used during the research, then a copy should be included in this section. If statistical calculations are needed to make this section's description of the author's procedures more clear, were they included? This section should also include a detailed description of the population of research subjects, including how they were selected. Major demographic characteristics, level of education, socioeconomic status, and topic-specific characteristics should be included, such as number of years actively licensed as a registered nurse. Participant characteristics may help the researcher determine the extent to which findings can be generalized, or applied, to other populations (American Psychological Association, 2010).

The methods section should include a discussion of the technique used to determine sample size and randomization of subjects, if probability sampling was utilized. If nonprobability sampling was utilized and this randomization of subjects did not occur, the author should clearly state this and the reasoning for opting not to randomize. The methods section should also contain criteria for including subjects in the study population. Was the population studied large enough to validate the research on the problem being studied? If the author presented findings on a population of randomized subjects that yielded a group of five participants, the results of the research, and possibly the credibility of the researcher, will very likely be called into question. The methods section should include information on any agreements that were made with participants as well as

any incentives they received for participating. This can include a tangible incentive such as receiving a payment as well as a more esoteric incentive such as awarding continuing education units.

The procedures used for data collection, such as administration of questionnaires, online surveys, or interviews, or conducting of focus groups, as well as any training that was provided to researchers implementing the study, should be described. If data are missing, such as would occur if participants failed to complete every question in a questionnaire, procedures designed to deal with the missing information should be discussed (American Psychological Association, 2010). The author should include information on the procedure used to approach an institutional review board (IRB) if there was manipulation of human subjects, the agreement made with the IRB, the procedures used to meet ethical standards, and safety monitoring methods instituted (American Psychological Association). In addition, the author should be able to describe the design of the study. Polit and Beck (2006) describe several characteristics of an acceptable design for a research project:

- The research design should suit the research question or the hypothesis; for example, if the researcher is interested in investigating four variables or areas being studied, then four groups of participants should be used.
- The design should not be biased; if groups of study participants are formed in a nonrandom manner, the threat of bias is always present. Therefore, the article's authors should state how the threat of bias was handled.
- The statistical procedures for analysis of the findings should be appropriate for the research design. If a quantitative research design was selected, were statistics used for analysis appropriate for such a design, or were the statistics primarily descriptive, such as might be used for a qualitative design?

The study should state if subjects were manipulated or randomly selected to specific groups. If control groups were used, they should be described, as well as any interventions that were applied (American Psychological Association, 2010). If the DNP student feels that the methods section presents nebulous details that don't describe how the research

was implemented, the article should not be utilized as a reputable source in the literature review (Wooten & Ross, 2005).

CRITICAL APPRAISAL OF THE RESULTS SECTION

After a detailed appraisal of the methods section, the DNP student should move to a review of the research article's **results** section. This is a presentation of the author's findings. If the author used a hypothesis as part of the research study, he or she should be able to state that the hypothesis was accepted or rejected on the basis of statistically significant findings. This means it can be shown that the findings the author obtained are not likely to have resulted from chance at a specific degree of probability. If the hypothesis was rejected, it should be due to a nonsignificant outcome, meaning the findings were shown to possibly result from chance. The study should include all results obtained, even if they do not support the author's original hypothesis or are contrary to the research question. If findings are presented in the form of charts or tables, they should be scrutinized to determine if they are congruent with the rest of the research report. All participants should be accounted for at the conclusion of the study, including those who chose to opt out of the study before its conclusion. When participants choose not to complete a research project, it is known as attrition. The author should present findings that have statistical significance, but they should also have clinical significance in some way. This will be particularly important to the DNP student who is preparing a research project that relates to evidence-based practice. The results section should include some measure of the effect size generated in order for the reader to grasp the importance of the study's findings. If serious consequences occurred after interventions were applied, these should be detailed in this section (American Psychological Association, 2010). If the author appears to contradict his or her own findings, the DNP researcher should not include this source in the literature review (Wooten & Ross, 2005).

CRITICAL APPRAISAL OF THE DISCUSSION/CONCLUSIONS SECTION

The DNP student should analyze the **discussion** and **conclusions** section of the article. Findings should be traced back in a logical manner to the research question or hypothesis that was investigated. The researcher

should evaluate the author's interpretation of findings carefully, looking for feasibility and clinical significance. The discussion and conclusions section should allow the researcher to evaluate and interpret the implications of the results presented in the previous section. If hypotheses were not supported, explanations should be offered. Are the findings meaningful to the audience originally targeted? Were unexpected findings revealed during the course of the study? Were the findings that were uncovered of insufficient magnitude as to be meaningful to readers? The author should include any potential limitations of the research project as well as the generalizability or external validity of the findings. These would include any problems with bias, sample size or inability to random sample, or the type of study design utilized. The author should be able to discuss how the research could be improved upon were it to be replicated (American Psychological Association, 2010).

CRITICAL APPRAISAL OF REFERENCES

Finally, the DNP researcher should determine whether adequate references were included to provide sufficient credibility, or if the author repeatedly cited his or her own work. The reference list should contain predominantly research published in recent years using primary sources, unless the reference is considered to be a classic in the field. In the reference list, the author should include information on the data source author (or editor in the case of an edited book), publication date of the document, as well as the title of the data source (American Psychological Association, 2010). The DNP researcher also should review any footnotes, tables, or figures included to determine the accuracy and appropriateness of information included. In particular, tables and figures should be reviewed for readability—do they require the reader to review numerous directions and footnotes in order to understand the data presented?

An integral part of the critical appraisal of the articles and other data sources being considered for inclusion in a literature review is the review of the report's treatment of informed consent, confidentiality, and the mandates of the IRB that were used if the research involved manipulation of human subjects. The following chapter discusses the ethics involved in implementing research that involves human subjects and the correct approach to applying to an IRB for a review of a proposed research protocol.

Learning Enhancement Tools

1. A DNP researcher is concerned with studying the reaction of elementary school age children to the death of a parent. Choose a format for the structure of the literature review, select the key terms to utilize during the review, and select the sources that would be used to search for appropriate articles
2. A DNP researcher is concerned with studying the organizational behavior changes that occur in nursing staff when nursing students undergo a clinical experience on the medical unit. Choose a format for the structure of the literature review, select the key terms to utilize during the review, select the sources that would be used to search for appropriate articles, and discuss how the process of critical appraisal of the data sources will be implemented.

References

- American Psychological Association. (2010). *Publication manual of the American Psychological Association*. Washington, DC: Author.
- Coughlin, M., Cronin, P., & Ryan, F. (2007). Step-by-step guide to critiquing research. Part 1: quantitative research. *British Journal of Nursing*, 16(11), 658–663.
- F.D. Bluford Library, North Carolina State University. (2013). What is a “literature review” anyway? Retrieved from <http://libguides.library.ncat.edu/literaturereview>
- LoBiondo-Wood, G., & Haber, J. (2009). *Nursing research: Methods, critical appraisal, and utilization*. St. Louis, MO: Elsevier.
- O’Sullivan, E., & Rassel, G., & Berner, M. (2007). *Research methods for public administrators*. New York, NY: Longman.
- Ryan, F., Coughlin, M., & Cronin, P. (2007). Step-by-step guide to critiquing research. Part 2: qualitative research. *British Journal of Nursing*, 16(12), 658–663.
- Taylor, D., & Procter, M. (2009). *The literature review: A few tips on conducting it*. Retrieved from <http://www.writing.utoronto.ca/advice/specific-types-of-writing/literature-review>
- Wooten, J., & Ross, V. (2005). *How to make sense of clinical research*. Retrieved from <http://www.modernmedicine.com/modernmedicine/article/articleDetail.jsp?id=142654>