



UNIT II

Choosing a Design for Your Capstone Project

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CHAPTER 5

Selecting a Methodology for Your Capstone Project

OBJECTIVES

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

1. Discuss the process involved in developing a research project using secondary data analysis as the methodology.
2. Discuss the process involved in developing a research project structured as a systematic review.
3. Discuss the process involved in developing a research project using health policy development as the methodology.
4. Discuss the process involved in developing a research project using a gap analysis as the methodology.
5. Discuss the process involved in developing a research project using quality improvement as the methodology.
6. Discuss the process involved in developing a research project structured as curriculum development.
7. Discuss the process involved in developing a research project using a comparison of models of healthcare delivery as the methodology.

► Secondary Data Analysis

Secondary data analysis can be a way for the nurse researcher who lacks access to additional resources or assistive personnel to make a significant analytic impact. Secondary data are essentially data collected by another individual for a purpose other than intended by the nurse researcher. Use of secondary data allows the researcher to analyze large amounts of information that may have taken years to collect, thus allowing access to data that can be rich in diversity, relatively easy to generalize to multiple populations, and dramatic in its impact. However, the nurse researcher who chooses to utilize secondary data analysis must be prepared for use of a population

that he or she might not have selected as initial primary investigator, as well as data collection techniques that are not preferred (Blair, 2016; Smith et al., 2011).

From a practical standpoint, secondary data analysis initially proceeds using the same steps that are familiar to the researcher who has been performing primary data analysis: choosing the researchable problem, crafting a research question, selecting a study sample, and choosing measurement and data analysis techniques appropriate for the study. Ensure that the research question used has either clinical or policy relevance so that findings are more likely to be meaningful. A significant advantage to use of secondary data analysis that utilizes publicly available data is that usually such studies progress rapidly through the institutional review board approval process (Smith et al., 2011).

An aspect of the research process that is unique to secondary data analysis is the need for the researcher to get to know his or her data set. When primary data analysis is used, the investigator selects the study population and then selects study participants from the population. In the case of secondary analysis, that familiarity with study subjects is not present and thus significant time must be devoted to determining, for example, who initially captured the data and what was the purpose of the initial data collection, if another researcher previously validated the data, and if there are obvious gaps in the data. Another issue that may arise with use of a secondary dataset is that of significance. Due to the large size of many public datasets and consequently large samples used, statistical significance can occur without corresponding clinical significance. Because of this, consider choosing a dataset that is publicly available for ease of use yet has not been frequently accessed in nursing. For example, if the research topic is the nursing workforce, consider using publicly available datasets in economics or public administration (Smith et al., 2011).

Ultimately, the relatively inexperienced nurse researcher who lacks extensive time as well as resources may find secondary data analysis to be quite useful. This well-respected technique has proved to yield a rich variety of information while being simple to utilize if conducted properly.

TOOLBOX

Consider your current workplace. If you were planning a research project using secondary data analysis as the methodology, what documents would you utilize?

► Systematic Reviews

Another excellent way to structure the DNP project is to utilize the **systematic review**. This technique involves a planned literature search strategy to identify, critique, and synthesize all of the relevant studies on a topic. One goal of such a technique will be to decrease the possibility of bias occurring. Systematic reviews can be especially effective when they include a **meta-analysis** aspect. A meta-analysis involves the use of statistical techniques to synthesize data from multiple studies into one quantitative summary effect size. Effect size is important because it measures the strength of the relationship between two variables.

Uman (2011) identified eight stages that characterize the development of a systematic review and the meta-analysis:

1. Develop the review question and a title for the review. Frequently researchers utilize a formulaic method of developing a title, indicating an intervention for a specific population of patients who have a particular condition. An example of this would be “Focus group therapy with adolescent females experiencing bulimia.”
2. Define criteria that will both include studies and exclude them from the framework of the overall systematic review. Such criteria can include the population age range, types of interventions, and minimum number of participants, for example.
3. Develop a search strategy, including a list of key terms to use.
4. Choose the studies to include. Initially retrieve abstracts to review, and then determine which studies appear to meet the established criteria and obtain full-text copies of them. Implement the review process using at least two reviewers for interrater reliability. Maintain a log of all reviewed studies, including the reasons for including or excluding each study.
5. Extract data, using a table to organize the information obtained.
6. Assess the quality of each study utilized. Uman (2011) cites the Consolidated Standards of Reporting Trials, available at <http://www.consort-statement.org>, as a comprehensive guideline for such a purpose.
7. Analyze and interpret the meaning of the results. There are various statistical programs available to calculate the effect sizes for meta-analyses. Most of such programs will generate a heterogeneity value that will indicate if the studies are similar enough to compare. After analysis of the results, summarize the findings and include recommendations for additional research and patient care.
8. Disseminate the findings. Although systematic reviews can be quite lengthy, it is possible to publish a shortened version of a review in an academic journal. Therefore, this would be a doctor of nursing practice (DNP) project that would have the advantage of not only fulfilling the requirements for a project but also laying the foundation for potential publication of several journal articles (Blair, 2016; Uman, 2011).

TOOLBOX

You have completed a systemic review of articles pertaining to mechanisms that oncology nurses use to manage their anxiety levels. Where would you attempt to disseminate the findings of your systematic review? List sites for publication as well as sites for possible presentation of findings.

► Health Policy Development

The development of a health policy in response to an identified health issue is another example of an excellent DNP project. This can result from the identification of a problem with health financing, healthcare delivery, or health promotion and management.

The latter could occur in a setting that has very few stores offering nutritionally sound yet affordable food options for consumers. Johns Hopkins Bloomberg School of Public Health developed a checklist that identifies several steps in the process of health policy development:

1. Clearly define the problem
 - a. How widespread is the problem?
 - b. How prevalent is the issue?
 - c. Who is the population primarily affected by it?
 - d. How long has the issue been identified?
 - e. What are the identified causes (errors of omission, missed opportunities, errors of commission)?
2. Identify sources of information
 - a. Identify any existing data on the problem as well as background literature
 - b. Determine if new data are being collected
3. Develop alternative solutions that could be utilized
 - a. Identify best practices
 - b. Obtain information from stakeholders and decision makers
 - c. Consider approaches to take initially:
 - Financial incentives to either the healthcare consumer or the provider.
 - Additional education to either the healthcare consumer or the provider.
 - Change in the organizational infrastructure, such as development of a new program or modification of an existing program.
 - Collaboration with other organizations in the community.
 - Existing policies that must be considered, such as internal policies, policies related to reimbursement for services (insurance or Medicaid), or various laws and regulations.
4. Identify criteria that may be included in a decision-making framework to assess alternative policies:
 - a. Population benefit: improve access for underserved population, reduce disparities in access to health care, improve quality of care delivered, improve outcomes of care delivered, and improve overall quality of life.
 - b. Cost/economics: maximizing benefits given a specific amount of funding.
 - c. Efficiency of service: is care being provided in a timely manner?
 - d. Cost containment: are costs staying within the identified budget?
 - e. Ethics and equity: is the total good being maximized? How fairly are resources being allocated based on the existing need?
 - f. Administrative feasibility: how much control does the organization have over the issue? What is the time frame for implementation if the policy is approved? Are there resources for developing and implementing the policy? How simple is the policy or intervention, with an increased degree of simplicity being highly desirable? Do legal or regulatory issues need to be addressed?

- g. Perspectives of constituencies other than patients and consumers (these may include healthcare providers, employers, employees, board of directors members, and various community groups).
5. Estimate impact of the policy being considered: review the existing evidence, use statistical analysis to estimate the impact on health outcomes, and estimate the economic impact using cost-benefit analysis.
6. Decision-making process and development of a decision matrix: form a group that will have input into final decisions and develop a decision matrix by deciding the importance of each criterion to be utilized; this may help in determining if multiple policy alternatives can be combined based on their strengths.
7. Advocate for adoption of the policy: develop documents for public distribution, including bullet points giving the rationale for development of the policy alternative and some details of the implementation process.
8. Implementation, improvement, and evaluation: develop an evaluation plan that will continuously analyze the implementation process of each part of the policy and as updates are implemented. As part of formative evaluation, determine if initial objectives for the potential policy are achieved at each step of the implementation process. As part of summative evaluation, determine if the policy has had its intended effect. Maintain your formative evaluation material as evidence of quality improvement occurring as well (Weiner, 2005).

TOOLBOX

Utilize the Johns Hopkins Bloomberg School of Public Health checklist to formulate as many steps as possible in the development of a health policy for your state in response to the Zika virus.

► Gap Analysis

Originally used in the business world, gap analysis has proven invaluable in health care because of the significant changes occurring in each healthcare system in response to federal and state legislation and changes in the global healthcare economy. The **gap analysis** will:

- Compare recognized best practices with the processes currently used in an organization.
- Identify the areas in which organizational practices and best practices are not congruent.
- Assist the researcher in choosing best practices appropriate for implementation in an organization.

Because the gap analysis tool is designed to identify weak areas throughout an organization, ideally the DNP researcher will have a team of personnel assisting with the process. Once the process is completed, the researcher will have a clear picture of the current practices in the organization and how they differ from the best practices currently in use in health care, as well as a cross-sectional view of the obstacles that need to be resolved before best practices are implemented.

Although the format for a gap analysis can vary from one organization to another, the tool typically consists of a table with columns. The columns will include:

- Identify a practice recognized as best practice in the healthcare industry.
- Determine strategies for implementation of this practice.
- Identify ways in which the facility’s practices vary from the industry best practice.
- Identify of barriers that may interfere with the process of implementing best practice.
- Guide a decision regarding implementation of the best practice at the current time or at a more opportune time.

An example for a format for a gap analysis is included in **EXHIBIT 5-1**.

TOOLBOX

Identify at least one area in your current workplace in which organizational practices and best practices are not congruent to use as the basis for a gap analysis.

EXHIBIT 5-1 Format for a Gap Analysis

| Best Practice for Health Care | Strategies for Implementing Best Practice | Difference in Facility Practice and Best Practice | Facility Barriers to Implementation of Best Practice | Decision to Implement Best Practice at the Current Time or at Later Date |
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► Development of a Curriculum

Development of a curriculum and educational modules can be an excellent option for the development of the DNP project. In order to pursue such an endeavor, initially clarify the goals for the curriculum. Who is the intended audience for the information? What is the overall goal of developing the curriculum? What is the curriculum intended to achieve? For example, is this intended to increase the knowledge level of new graduate nurses regarding the needs of mothers who have delivered a stillborn infant (American Association for the Advancement of Science, 2016)?

Part of the initial stage of curriculum development is the identification of constraints on the curriculum design. These constraints can include the time frame for instruction, facility policies, state and federal legislation, cost, faculty preparedness, and availability of instructional material. Costs can be associated with the instructors, instructional material, facilities required, or resources utilized (American Association for the Advancement of Science, 2016). For the DNP student, constraints can include resistance to the development of a curriculum on a specific topic in a facility from either administrative personnel or bedside nurses.

Once the researcher has identified the initial goal of the curriculum and the constraints involved, the curriculum should be founded on a selected philosophy of education. It should be clear that there is a connection from the curriculum to the mission statement of the facility. There should be curricular goals that clearly state what nurses who complete the curriculum should be prepared to know or do. Select activities for the students participating in the curriculum with the intent of using those tools to achieve the desired student outcomes (Gardiner, 2002).

The researcher will build assessment of the curriculum into the plan to monitor the curriculum effectiveness on a continuing basis. Clearly define the outcomes of the curriculum so faculty can understand and manage the learning resulting from the curricular process. Curriculum goals and learning outcomes:

1. Provide a structure for continuously monitoring the assessment of actual outcomes produced by the curriculum and the evaluation of those outcomes.
2. Require the curriculum to adapt to meet the needs of students while still achieving its purpose.
3. Provide an understanding of the educational program and what it intends to produce.

The DNP student should be prepared to create a syllabus for the new curriculum, particularly if the program of study is lengthy enough to extend over the course of an entire day or even longer. Part of the syllabus should include a topical outline that shows which topics are to be covered on which days, how much time will be devoted to each topic, and the learning activities specific to each topic. If the DNP student will be the instructor for the course and is not already functioning in an instructional role in the current workplace, the student should review principles of adult instruction to deliver the material most effectively so it will appeal to the adult learner.

TOOLBOX

You are considering developing a curriculum to meet a specific need at your current workplace. What would be the goal of the curriculum and who would be its intended audience?

► Designing a Quality Improvement Project

The DNP student who has chosen to design a quality improvement project should initially set improvement goals. Recognize that the goals are subject to change as additional information is gathered and preliminary goals achieved. Develop a plan that outlines the overall goals for the program and another plan developed at the practice level that tailors the overall goals to fit the needs of individual practice. Such plans should include the desired outcomes for practice improvement, major changes needed to accomplish these goals, and actions that are most likely to bring these changes to pass (Agency for Healthcare Research and Quality [AHRQ], 2013).

When developing a quality improvement project, make certain that goals developed are SMART:

- Specific
- Measurable
- Attainable
- Relevant
- Time-linked

Change goals should include numeric targets. There should be short-term goals that are time-limited and can be accomplished rapidly, as well as long-term goals that will require a lengthy process to accomplish. The overall quality improvement plan should provide insight into who should be members of the quality improvement team, when it will convene, the goals of the team, and the primary activities needed to accomplish the goals. Furthermore, the plan should indicate the process that will drive the quality improvement movement, such as the Plan-Do-Study-Act cycle; how progress will be documented; and how monitoring of ongoing progress will occur. According to the AHRQ (2013), a well-constructed, comprehensive quality improvement plan should include:

- A vision statement pertaining to quality
- A description of the structure of the program
- Description of the membership for the quality improvement committee
- Proposed time frame for scheduling meetings
- Proposed process for conducting quality improvement
- List of quality improvement goals that follow the SMART format
- A plan for evaluation of both the plan and the goals
- A plan for both acquiring and reporting performance data.

A standard template should be developed for the quality improvement report. A quality improvement dashboard can be useful in helping quality improvement personnel track progress toward the achievement of significant quality improvement goals. The dashboard can be developed to use color-coding to signal that an activity or level of performance is at the expected level or, if not, is progressing steadily toward

the identified goal. Ultimately, a quality improvement plan that is well developed and meticulously documented can prove to be an excellent DNP project (AHRQ, 2013).

TOOLBOX

You are developing a quality improvement plan for your facility. Develop a vision statement pertaining to quality, description of the structure of the program, and three goals for the plan and structure them according to the SMART format.

► Comparison of Models of Care Delivery

In 2010, the American Nurses Association (ANA) issued a white paper that discussed three emerging models of healthcare delivery that developed from the Patient Protection and Affordable Care Act. According to the ANA, these models may offer viable alternatives to the traditional fee-for-service system that has driven American health care for decades. Comparison of the potential cost savings derived from each of these models to the traditional fee-for-service model could easily form a framework for a DNP project.

The first of these alternative models is the accountable care organization (ACO). This is a collaboration between primary care clinicians, a hospital, and various healthcare professionals who agree to accept joint responsibility for the quality and cost of care provided to a group of patients. If the organization meets a specific target in terms of quality and savings, the members receive a monetary bonus. The ACO links to Medicare and the targeted savings shared between the ACO and Medicare. The ACO promises opportunities for registered nurses because the Patient Protection and Affordable Care Act allows for nursing to have greater leadership and participation in the entity's organization.

The second alternative model is the medical home. This model provides patients with a central healthcare provider who will coordinate the patient's care across multiple settings and providers. The medical home's payment system may be supported through a capitated payment or other financial incentive to providers, thus encouraging preventive care and management of chronic conditions and discouraging reliance on specialists or emergency medical providers. According to the ANA, medical homes rely on nurses to be both members and leaders of the healthcare team.

The third alternative healthcare delivery method is the nurse-managed health clinic. According to the ANA, the nurse-managed health clinic is an offshoot of the Patient Protection and Affordable Care Act, which established a program to fund nurse-managed health clinics to provide comprehensive primary care as well as wellness services to patients categorized as members of medically underserved or vulnerable populations. The nurse-managed health clinic is led by an advanced practice nurse associated with a school, college, university, or department of nursing, federally qualified health center, or independent nonprofit health or social services, agency as stipulated by the Patient Protection and Affordable Care Act. Such an alternative model provides opportunities for nurse practitioners to contain costs while optimizing patient outcomes through the provision of primary care, wellness education, management of chronic disease processes, and coordination of care.

Health care and the way it is delivered to the American public are in a constant state of flux. A comparison of the current fee-for-service model of healthcare delivery

along with alternative models such as those discussed here would provide the framework for a DNP project if implemented in sufficient detail to include the influence of various social, economic, and political factors and a cost-benefit analysis.

TOOLBOX

Compare and contrast the accountable care organization model with the medical home model. Include a discussion of which model would more effectively manage healthcare costs.

► Learning Enhancement Tools

1. Provide an example of a publicly available database appropriate for secondary data analysis.
2. You are considering development of a meta-analysis. Describe the topic, the target population, and the search terms you would use in locating the required articles.
3. You are in the process of developing a health policy to improve the access to health care of citizens who live in rural locales. Describe the benefits to the population of such a policy and the overall cost to the community of implementation.
4. You have just completed a gap analysis. What are some barriers in your current workplace that would prevent implementation of best practice?
5. You are designing a curriculum to teach nurses how to demonstrate cultural sensitivity in working with the population of immigrants who live in the local community. What are identified constraints that would hold back the implementation of such a curriculum?
6. You have an idea for a quality improvement project based on a process that is occurring in your workplace. Use the Plan-Do-Study-Act cycle to discuss how it will drive the project.
7. Compare and contrast the medical home model with the nurse-managed health clinic. Include a cost-benefit analysis.

► Resources

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