Chapter 2 Identifying a Research Interest and a Research Problem

Overview

Excellent research begins with a clear and focus topic, research issue, rationale, and purpose. In this chapter, you will be guided through the identification of a research interest and research problem and to write a statement of the problem. You will learn about the components of the statement of the problem: the topic, the research problem, justification, deficiencies in the evidence, and the audience. You will explore the connection between research issue, rationale, and research purpose, drawing on relevant research articles that are connected to your area of interest. You will learn how to use key theory, prior research, and authoritative reports to ground the rationale for your study.

Learning Objectives

By the end of this chapter you will be able to:

- Identify a research issue within a research interest
- Define a research problem
- Justify a research problem effectively
- Articulate relevant background information about the research interest
- Identify purpose statements in a variety of research articles
- Critique research statements
- Write a statement of the research problem according to your area of interest

Identifying a Topic (Frederiksen & Phelps, 2017)

Things to think about when choosing a topic area:

- Pick an area of interest; pick an area of experience; or, pick an area where you know there is a need for more research.
- It may be easier to start with "what" and "why" questions and expand on those. For example, in Nursing: what is current research on obesity and why is it significant to nursing and health sciences? Or, in Education: what is media literacy and why is it significant to education sciences?
- If you are a teacher or other education practitioner, you might think about a current problem in the workplace such as, classroom management or parent interaction and expand from there. Nurses may want to consider a current issue in a clinical or hospital setting, like hand washing or patient falls.

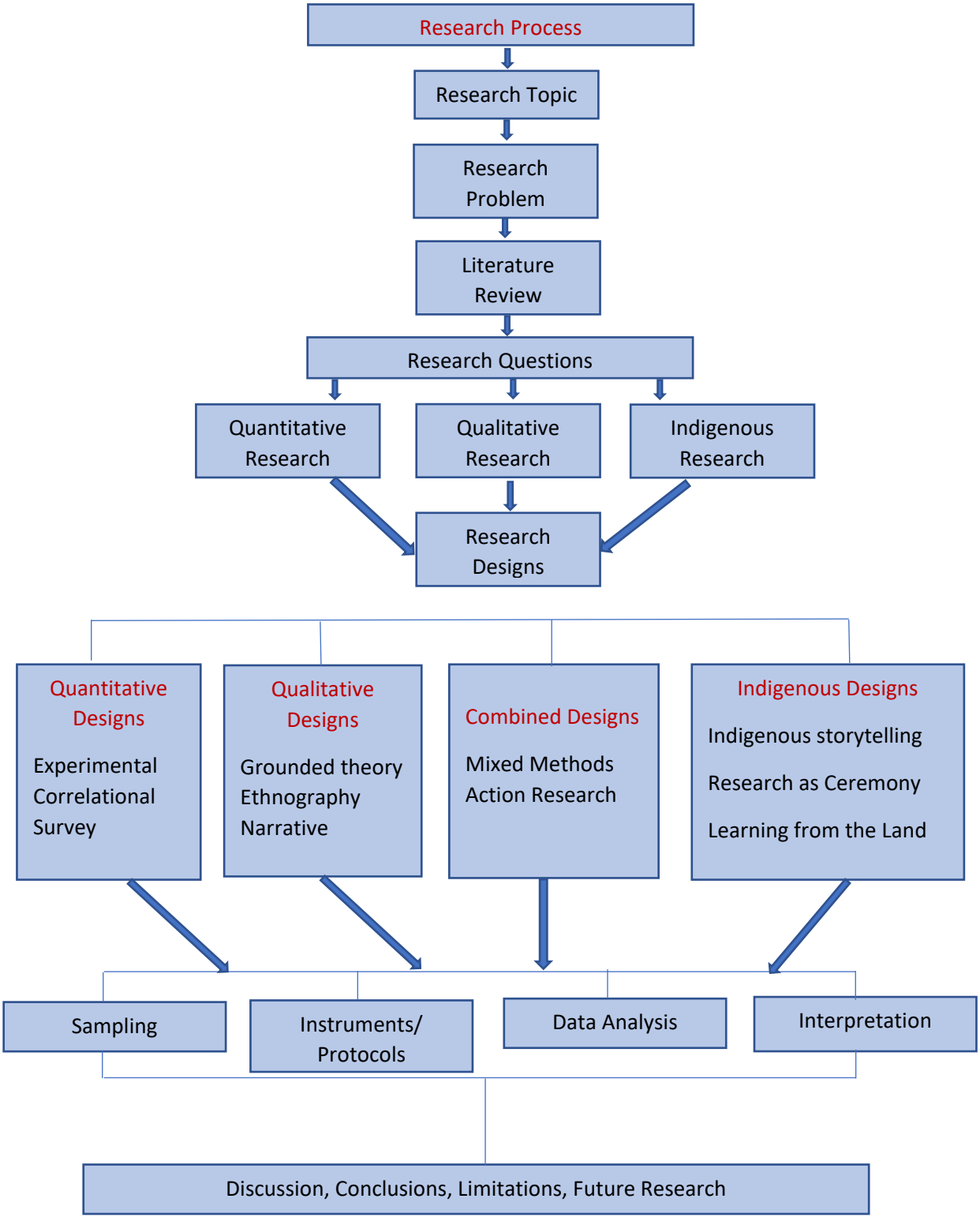
Other suggestions for choosing a topic include:

- Ask a professor, preferably one active in research, about possible topics
- Read departmental information on research interests of the faculty. Faculty research interests' areas vary widely, so do some research on their past publications. Most departmental websites post faculty CVs.
- Read a research paper that interests you. The paper's literature review or background section will provide insight into the research question the author was seeking to address with his/her study. Is the research incomplete, imprecise, biased, or inconsistent? As you're reading the paper, look for what's missing. These may be "gaps in the literature" that you might explore in your own study. The conclusion or discussion section at the end may also offer some questions for future exploration. A recent blog posting in *Science* (Pain, 2016) provides several tips from researchers and graduate students on how to effectively read these papers.
- Think about papers you enjoyed researching and writing as an undergraduate and choose a topic that reflects those interests
- Sift through the table of contents of annual reviews journals in your area of interest – such as, the *Annual Review of Psychology*, the *Annual Review of Immunology*, the *Review of Research in Education*, or the *Annual Review of Nursing Research*.
- Identify and browse journals related to your research interests. Faculty and librarians can help you identify relevant journals in your field and specific areas of interest.

Although it's a good idea to avoid subjects that are too personal or emotional as these can interfere with an unbiased approach to the research, it's also important to make sure you have more than a passing interest in the topic. You will be with this literature review for an extended period of time and it will be difficult to stick with it even under the best circumstances. A graduate student in psychology said, "'My advice would be to NOT choose a topic that is an unappealing offshoot of your adviser's work or a project that you have lukewarm feelings about in general…It's important to remember that this is a marathon, not a sprint, and lukewarm feelings can turn cold quickly.'" (Dittman, 2005).

Identifying a Research Interest

Research is "a process in which you engage in a small set of logical steps" (Creswell, 2015, p. 2) with the purpose of increasing our knowledge, improving practice, and informing policy debates. These steps are identifying a research problem, reviewing the literature, specifying a purpose for research, collecting data, analyzing and interpreting the data, and reporting and evaluating research. The following chart illustrates this process:



Source: Adapted from Creswell (2019, p. 12)

Let us begin this process with the identification of a research interest. For example, Ingersoll (2008) identified a research problem through his own frustration in his practice when he was misassigned a teaching position twice by two different administrators. He was clearly a reflective teacher to be able to see this as an injustice or a misguided practice as it clearly happens with many teachers, each semester, in Canada and the US. The first step in identifying a research problem must be to be reflective on your own practice, as Ingersoll was, and question and reflect on why and how things are done within the field of education (p. 115). As he reviewed the literature he found three explanations for out of field teaching: inadequate preparation of teachers, inflexible teacher unions, teacher shortages (p. 126). Through the process Ingersoll discovered that there was some data on the topic, though occasionally misunderstood (p. 117) and that data had been used effectively for policy change as well as misused as a way to highlight other problems in the field. His original question about "out of field" teachers and its effect of student achievement, led to broader questions regarding teacher training programs and their validity and effectiveness. His purpose is clearly stated, and narrowed down on page 119 where he states that "my primary focus became discovering how many of those teaching core academic subjects at the secondary level do not have at least a college minor in their teaching fields."

Identifying Your Research Interest

Our academic, professional, and personal experiences influence our research interest. To identify a research interest, think of a challenge you face in your professional practice, a wondering, a controversy, a pressing need, a burning question. This interest may be of theoretical or practical nature; some may relate to curriculum, while others to educational policy. Write down some of these ideas and then follow with a justification of its importance. Who would benefit from such research? What are its potential contributions to education and society in general?

The Research Problem

The statement of the research problem sets the stage for a study, narrows the topic, and gives focus to the study. It needs to stand on its own and be recognized as distinct step. To understand this, let us consider the following example. A researcher is interested in strategies to accelerate vocabulary learning among kindergartners. The research issue is that there are wide differences among kindergartners in vocabulary knowledge, the gap increases throughout schooling, and eventually affect their academic performance. "A research problem is an educational issue, concern, or controversy that the researcher investigates" (Creswell, 2015, p., 66). As informed by Creswell (2015), the statement of the research problem includes:

A statement of the topic. It provides a bit of background information on the topic and includes big picture statements and a succinct and broad overview of the subject matter. An effective statement of the topic uses accessible language and avoid the use of specialized terminology. When this terminology is strictly necessary, it is explained briefly, so the reader can obtain a general sense of the topic. An engaging statement of the topic uses an effective narrative hook (e.g., striking figures, vivid account, provocative question, current societal concern expressed through media, the purpose of the study). The first few sentences provide a statement of the topic.

A concrete research problem/issue. This could be an educational issue, concern, controversy, or gap in knowledge. It could relate to a practical research problem (e.g., implications of the new BC curriculum for assessment and teaching) or research-based research problems (e.g., although we know this… we still do not know that…), which builds on prior knowledge to expand understanding or add clarity to an issue.

A justification of the importance of the problem. This section provides the rationale to pursue the investigation of an issue. The justification may be based on past research and practice. It provides several reasons to explain why the issue identified is important. This is the largest section in the statement of the problem. A strong rationale provides several reasons, each of them properly supported in separate paragraphs. These reasons may be supported with personal experiences and observations, theory, logical reasoning, and prior research. The final paragraphs in journal articles usually provide directions for future research. These are good leads to identify gaps in knowledge and outstanding issues, which can be used as a rationale to purse a study. Justifications may also be grounded on incomplete models, e.g., a model of online learning that does not fit Indigenous worldviews. A sound rationale identifies and cite experts (individuals frequently cited in published studies) relevant to the research issue. For example, when I am writing about morphological awareness, my reference experts are Nagy, Carlisle, Goodwin, among others. When I am doing research on vocabulary my experts are Beck, Mkewon and Kucan, Snow, Biemiller. When I am examining indigenous issues, my experts are Battiste, Wilson, Archibald, Airini, Johnson, Clark, and Dick-Billy, among others. You will become familiar with relevant experts that constitute authoritative references by surveying the literature on your area of interest.

Deficiencies in our existing knowledge about the problem. In this section, the statement summarizes how the researcher's present state of knowledge, both form research and from personal experiences and observations, is deficient. It identifies reasons why existing research and practice are deficient in addressing the research problem and state these reasons towards the end of the introduction to the study.

The audience. This section identifies the audiences that will benefit from the study of this problem. Potential audiences include researchers, parents, students, policy makers, administrators, society in general, etc. It includes an explanation of how they would benefit.

You may use the above five components as a template to write your statement of a research problem. You may write a paragraph addressing each aspect, although the justification may require several paragraphs, but you also can combine several components within a paragraph. It all depends on your writing style. When writing the statement of the problem you must also keep in mind that if you are leaning towards quantitative research, your aim will be to examine variables to explain outcomes. On the other hand, if your research problem seems more in alignment with qualitative research, your main purpose will be to explore and understand a process, event, or phenomenon. The following excerpt from Creswell (2015, p. 71) provides additional writing strategies for the statement of the problem:

> Another writing strategy is to use frequent references to the literature throughout this introductory passage. Multiple references add a scholarly tone to your writing and

provide evidence from others, rather than relying on your own personal opinion. The use of references in your study will build credibility for your work. A third strategy is to provide references from statistical trends to support the importance of studying the research problem. How many teenagers smoke? How many individuals are HIV positive? This form of evidence is especially popular in quantitative studies. Another writing strategy is to use quotes from participants in a study or from notes obtained from observing participants to begin your "statement of the problem" introduction. This approach is popular and frequently used in qualitative studies. Finally, be cautious about using quotes from the literature to begin a study, especially in the first sentence. Readers may not extract the same meaning from a quote as the researcher does. The quotes are often too narrow to be appropriate for an introductory section in which you seek to establish a research problem and provide justification for it. To use quotes effectively, readers often need to be led "into" as well as "out of" the quote.

Identifying the Statement of the Problem in Journal Articles

Research articles published in peer-reviewed journals provide excellent examples of how to articulate a statement of a research problem. Paying attention to them when reading articles relevant to your research interest will help you develop the skills to write an effective statement of a problem. Choose three articles relevant to your research interest (if possible, one qualitative and the other quantitative) and identify each of the components of the statement of the problem. Use the template table provided on Moodle (Identifying a Statement of the Problem). Note the different strategies the authors used to articulate the problem. What type of work was cited? What type of statements were made? How were the studies justified? Are there differences between the two statements? Did the introductory statements capture your attention? How? Did they give you a good sense of the topic?

The following examples from Cresswell (2015, p. 61), illustrate common errors made when formulating statements of research problem and how to address them.

Examples of Common Errors Writing Statements of the Research Problem

Poor Model. The researcher intends to identify the research problem but instead presents it as a *purpose statement:* The purpose of this study is to examine the education of women in Third World countries.

Improved Model. A revision of it as a *research problem*: Women in Third World countries are restricted from attending universities and colleges because of the culturally oriented, patriarchal norms of their societies.

Poor Model. A researcher intends to write about the research problem but instead identifies the *research question:* The research question in this study is "What factors influence homesickness in college students?"

Improved Model. An improved version as a *research problem*: Homesickness is a major issue in college campuses today. When students get homesick, they leave school or start

missing classes, leading to student attrition or poor achievement in classes during their first semester of college.

Deciding Whether or not to Pursue a Research Interest

Often, researchers identify an extremely appealing research problem. However, before pursuing the research and investing time, energy, and money, one must stop and assess whether it is worth pursuing. Three important considerations are: relevance, value, and feasibility. Below, are guidelines to assess the relevance and value of a research problem.

One important reason for engaging in research is to add to existing information and to inform our educational practices. Research adds to knowledge. Now let us examine these ways in more detail as you think about the research problem in one of the articles you found on your area of interest.

There are five ways to assess whether you should research a problem:
1. *Study the problem if your study will fill a gap or void in the existing literature*. A study fills a void by covering topics not addressed in the published literature. For example, assume that a researcher examines the literature on the ethical climate on college campuses and finds that past research has examined the perceptions of students, but not of faculty. This is a void or gap in the body of research about this issue. Conducting a study about faculty perceptions of the ethical climate would address a topic not studied in the current literature.
2. *Study the problem if your study replicates a past study but examines different participants and different research sites*. The value of research increases when results can apply broadly to many people and places rather than to only the setting where the initial research occurred. This type of study is especially important in quantitative experiments.

In a quantitative study of ethical climate, for example, past research conducted in a liberal arts college can be tested (or replicated) at other sites, such as a community college or major research university. Information from such a study will provide new knowledge.
3. *Study the problem if your study extends past research or examines the topic more thoroughly.* A good research problem to study is one in which you extend the research into a new topic or area, or simply conduct more research at a deeper, more thorough level to understand the topic. For example, in our illustration on ethical climate, although research exists on ethical climates, it now needs to be extended to the situation in which students take exams, because taking exams poses many ethical dilemmas for students. In this way, you extend the research to new topics. This extension is different from replication because you extend the research to these topics rather than participants and research sites.
4. *Study the problem if your study gives voice to people silenced, not heard, or rejected in society.* Your research adds to knowledge by presenting the ideas and the words of marginalized (e.g., the homeless, women, racial groups) individuals. For example, although past studies on ethical climate have addressed students on predominantly white campuses, we have not heard the voices of Native Americans on this topic. A study of this type would report and give voice to Native Americans.

> 5. *Study the problem if your study informs practice.* By examining the problem, your research may lead to the identification of new techniques or technologies, the recognition of the value of historical or current practice, or the necessity of changing current teaching practice. Individuals who benefit from practical knowledge may be policy makers, teachers, or learners. For example, a study of ethical issues in a college setting may lead to a new honor code, new policies about cheating on exams, or new approaches to administering tests (Creswell, 2015, pp., 62-63).

The above five considerations related to relevance and value are essential in considering whether to research a problem. In addition, one must consider the feasibility of the study. To assess the feasibility of the study, ask yourself the following questions:

- Do I have the skills needed to conduct this research? If no, do I have the time and energy to learn those skills?
- Do I have the time and financial resources to conduct this research?
- Do I have access to the participants and sites?

If indigenous research,

- Is this research of value to the Indigenous community?
- Does the research address a need identified by the community?
- Does it benefit the community?
- Is this research by and with Indigenous people?
- Did the community offered and invitation to conduct this research?
- Has it been endorsed by the relevant authorities through a process of open and genuine consultation and participation?

If the answers to these questions are no, then the research is not feasible. If the answers are yes, then you may proceed with the research.

Now that we have examined all these considerations thoughtfully, let us read an example of an effective statement of the problem section from Creswell (2015, p. 73), which clearly addresses each component of the statement of the research problem.

Sample "Statement of the Problem" Section

Statement of the Problem Elements	**Exploring the Conceptions and Misconceptions of Teen Smoking in High Schools: A Multiple Case Analysis**
The Topic	Tobacco use is a leading cause of cancer in American society (McGinnis & Foefe, 1993). Although smoking among adults has declined in recent years, it has actually increased for adolescents. The Center for Disease Control and Prevention reported that smoking among high school students had risen from 27.5 percent in 1991 to 34.8 percent in 1995 (USDHHS 1996). Unless this trend is dramatically reversed, an estimated 5 million of our nation's children will ultimately die a premature death (Center for Disease Control, 1996).
The Research Problem	

Evidence Justifying the Research Problem	Previous research on adolescent tobacco use has focused on four primary topics. Several studies have examined the question of the initiation of smoking by young Evidence Justifying the people, noting that tobacco use initiation begins as early as junior high school Research Problem (e.g., Heishman et al., 1997). Other studies have focused on the prevention smoking and tobacco use in schools. This research has led to numerous school-based prevention programs and intervention (e.g., Sussman, Dent, Burton, Stacy, & Flay, 1995). Fewer studies have examined "quit attempts" or cessation of smoking behaviors among adolescents, a distinct contrast to the extensive investigations into adult cessation attempts (Heishman et al., 1997). Of interest as well to researchers studying adolescent tobacco use has been the social context and social influence of smoking (Fearnow, Chassin, & Presson, 1998). For example, adolescent smoking may occur in work-related situations, at home where one or more parents or caretakers smoke, at teen social events or at areas designated as "safe" smoking places near high schools (McVea et al., in press).
Deficiencies in Evidence	Minimal research attention has been directed toward the social context of high schools as a site for examining adolescent tobacco use. During high school students form peer groups which may contribute to adolescent smoking. Often peers become a strong social influence for behavior in general and belonging to an athletic team, a music group, or the "grunge" crowd can impact thinking about smoking (McVea et al., in press). Schools are also places where adolescents spend most of their day (Fibkins, 1993) and are available research subjects. Schools provide a setting for teachers and administrators to be role models for abstaining from tobacco use and enforcing policies about tobacco use (O'Hara et al., 1999). Existing studies of adolescent tobacco use are primarily quantitative with a focus on outcomes and transtheoretical models (Pallonen, 1998). Qualitative investigations, however, provide detailed views of students in their own words, complex analyses of multiple perspectives, and specific school contexts of different high schools that shape student experiences with tobacco (Creswell, in press). Moreover, qualitative inquiry offers the opportunity to involve high school students as co-researchers, a data collection procedure that can enhance the validity of student views uncontaminated by adult perspectives.
The Audience	By examining these multiple school contexts, using qualitative approaches and involving students as co-researchers, we can better understand the conceptions and misconceptions adolescents hold about tobacco use in high schools. With this understanding, researchers can better isolate variables and develop models about smoking behavior. Administrators and teachers can plan interventions to prevent or change attitudes toward smoking, and school officials can assist with smoking cessation or intervention programs.

As can be gleaned form this example, the introduction to the topic and the research problem can be intertwined and introduced following one another in the first paragraph. This is just one option. As stated earlier, researchers sometimes present them in separate paragraphs and provide more background information on the topic, before introducing the main issue. The second paragraph provides key citations on relevant evidence, which serves to build the justification for the study. Notice however, that these citations are strategically selected (e.g., a meta-analysis) and support broad statements relating to key findings. The researcher does not provide the specific details for each study cited. This is done later in the literature review. As this researcher is using the identification of a knowledge gap as the main strategy to justify the study, the next paragraph focuses on identifying deficiencies in the research or what is yet unknown. the final paragraph indicates what audiences will benefit from this research and why.

As suggested by Creswell (2015, pp., 74-75), examine the following two additional examples to see how an author of a qualitative study and an author of a quantitative study wrote introductory sections for their studies. Both followed the template, but the type of problem is more exploratory in the qualitative and more explanatory in the quantitative. Following each example, we will relate the passages to each of the five elements of a "statement of the problem" section. The first example is a qualitative study by Brown (1998) on distance learning in higher education, and this passage presents the entire introduction to her study.

Distance learning is an increasingly important aspect of higher education because it meets the needs of an expanding pool of nontraditional students who find education necessary for jobs in today's information age. Distance learning provides a flexible manageable alternative for this developing segment of society. However, students in distance classes work at computers miles apart at varying times of the day and night. This feeling of being alone is overcome when students join in a community of learners who support one another (Eastmond, 1995). The process of forming a community of learners is an important issue in distance learning because it can affect student satisfaction, retention, and learning (Gabelnick, Mac-Gregor, Matthews, & Smith, 1990c; Kember, 1989; Kowch & Schwier, 1997; Powers & Mitchell, 1997). It may even affect faculty evaluations, which tend to be lower in distance education courses (Cordover, 1996).
In reviewing the literature on distance learning for adults and nontraditional students in higher education, I found a decided lack of research about community build-ing within the class and within the institution. However, other research has paved the way for the exploration of this topic. Studies discussed the need for institutional support (Dillon, Gunawardena, & Parker, 1989) and for student/student and student/faculty interaction (Hiltz, 1986, 1996; Powers & Mitchell, 1997) which appear to be steps in building a community of distance learners. (Brown, 1998, p. 2)

In this example, Brown opens with a comment about distance learning and its importance today (the topic). She then argues that there are several problems facing distance education: Students feel alone (evidence from practice) and faculty evaluations are low (evidence from past research). Next, she assesses a shortcoming in past research: the need to explore community building (a deficiency in past research). Brown does not end the passage with implications for a specific audience, although she might have discussed the importance of addressing community-

building in distance learning for the student, teacher, or college personnel. Overall, Brown's "statement of the problem" section contains four of the five elements.
Next you will read the complete "statement of the problem" introducing a quantitative study by Davis et al. (1997) that was reported in a journal article. The study deals with the topic of tobacco use among high school students.

Adolescent use of all tobacco products is increasing (3–6). By age 18 years, approximately two thirds of United States teenagers have tried smoking and approximately one fourth have smoked in the last 30 days (3). In addition, more than 20 percent of white adolescent males use smokeless tobacco products (4). Adolescent tobacco use has been reported by race/ethnicity, gender, and grade level (5); however, the relationship between sports intensity, race, and tobacco use has not been studied to the best of our knowledge. (Davis et al., 1997, pp. 97–98)

This example models the elements of the "statement of the problem" section. Contained within two opening paragraphs in a journal article, it begins with a discussion about the prevalence of smoking in high school (the topic). The authors then advance the issue of the high rate of smokeless tobacco use among athletes (the research problem) and provide evidence for this issue drawing on past studies and statistical trends (evidence from past research documenting this as a problem). Following this, the authors indicate that sports intensity (defined later in the study), race, and tobacco use have not been studied (a deficiency). They seek an explanation for the influence of sports intensity and race on tobacco use. Although the authors do not comment about the audience that will profit from this study, the intended audience is likely students, teachers, schools, coaches, and researchers who study high school students and adolescent tobacco use.

Key Takeaways

- A research problem is a knowledge gap, controversy, issue, or need
- The components of a statement of a research problem are:
    - topic
    - research issue
    - justification
    - gaps of knowledge
    - audience
- In quantitative research, an emphasis will be on the need for an explanation or prediction of outcomes, relationships between variables or factors, effect on an intervention on a given outcome, etc… In qualitative research, we explore or examine a process, event, or phenomenon.
- Notice that statement of problems are more of an exploratory nature in qualitative studies and more of an explanatory nature in quantitative research.
- Journal articles state the research problem in the introductory paragraphs.
- Note how citing studies give statements of the research problem a scholarly tone

Study the problem if your study

- will fill a gap or void in the existing literature
- replicates a past study but examines different participants and different research sites
- extends past research or examines the topic more thoroughly; extends to new related topics
- gives voice to people silenced, not heard, or rejected in society
- informs practice
- is feasible

References

Creswell, J. W. (2015). *Educational research: planning, conducting, and evaluating quantitative and qualitative research* (5th ed.). Boston, MA: Pearson Education.

Frederiksen, L. & Phelps, S. F. (2017). How to get started. In L. Frederiksen and S.F. Phelps, *Literature reviews for education and nursing graduate students* (pp. 36-47). BC Campus. https://press.rebus.community/literaturereviewsedunursing/

Ingersoll, R. M. (2008). Researcher meets the policy realm: A personal account. In, F. M. Hess, (Ed.), *When Research Matters: How Scholarship Influences Education Policy* (pp. 113-134). Cambridge: Harvard Education Press. Available at: http://repository.upenn.edu/gse_pubs/235/