Chapter 2
Defining Research Problems: Processes for Beginning Researchers

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ABSTRACT

The authors present a process for beginning researchers to consider when defining a research problem for scholarly research. The process considers research problems that arise both from the literature and workplace settings, and describes stages that might occur as one analyzes possible research problems: expressing a rough idea of the problem, extracting the topics embedded in the rough idea, and identifying theories related to those topics. Illustrations and checklists are provided to assist readers in the integration of the process. The chapter provides processes related to careful articulation of problems in order to help beginning researchers lay the groundwork for the research design, and emphasizes the importance of taking time early in the research delineation process to clearly and accurately isolate the problem for investigation.

INTRODUCTION

“Educational technologists cannot simply install purportedly innovative technologies into the classroom and expect them to work” (Reeves, 2006, p. 59). These technologies need support of credible educational research to provide evidence for implementation. Educational research attempts to address a researchable problem, and yet, as Richey and Klein (2007) admit, “Identifying a research problem ... can be difficult, especially for those who are planning their first study or for those searching for a new research agenda” (p.15).

When talking about a research problem, think about prompting, motivating, or sparking an idea that sets the researcher’s questioning mind working – the seed that stimulates the researcher’s thought processes. A research topic may grow out

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of curiosity about how things are related or about predictions of a particular theory, or it may arise from everyday workplace challenges. Regardless where the inspiration comes from, it is critical to define and express the problem in clear and researchable terms. The process of articulating a research problem begins with learning to convert an interest in a topic into a research problem worth investigating. Topics related to an issue tend to be easy to identify; clearly articulating a research problem is often more complex (Richey & Klein, 2007).

The key point to remember as a beginning researcher is the need to confirm that the problem you want to research is within the context of an educational research problem and has a basis in research literature. If you are working on PhD level research or academic research, you are generally focusing on a research problem connected to theory rather than solving a work-related problem. It is the definition of research problem within the educational research context that guides you in isolating a researchable problem.

**Definitions**

Research is defined as “the systematic process of collecting and analyzing information (data) in order to increase our understanding of the phenomenon about which we are concerned or interested” (Leedy & Ormrod, 2005, p. 4). A key point is that research involves making original contributions to the body of knowledge.

Interestingly, few definitions of the term, research problem, are available in the literature. One finds information about how to craft a problem statement, but that assumes one understands the research problem itself. For this chapter, a research problem is defined as the issue(s) that causes the researcher to initiate the research study. A research problem is very focused on one small aspect of a situation or topic. The research problem is “the axis around which the whole research effort revolves” (Leedy & Ormrod, p. 49), and is the basis for interrelated elements of a research study, including purpose, research questions, method, results, and conclusions (Ellis & Levy, 2008).

Schlosser and Simonson (2006) define technology as “the hardware or physical delivery system by which messages are transmitted and distributed. The technology is the pipeline through which messages are sent in a variety of media” (p. 166); while Januszewski and Molenda (2007) define educational technology as “the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (p. 1). Based on these definitions, a design framework for a study related to technology would focus on a research problem related to using appropriate processes and resources to help facilitate learning and improve performance.

Finally, a design framework as defined by Creswell (2009) is “a process … for designing qualitative, quantitative, and mixed methods research in the human and social sciences” (p. xix). Methodologies from recent ideas of design and development research (e.g., van den Akker, Gravemeijer, McKenney, & Nieveen, 2006) might also constitute part of our design framework for investigating research problems.

**FOCUSING ON THE RESEARCH PROBLEM**

The beginning researcher may not fully understand the need for or the importance of a research framework. As you become accustomed to the researcher role, you will begin to see value in understanding a research framework. The word, framework, hints at the importance that an infrastructure plays in crafting researchable study questions.

The process of isolating a research problem involves a lot of analytical thinking and brainstorming, sharing ideas with others, rethinking original ideas, examining the literature, challenging your assumptions, and providing rationale for