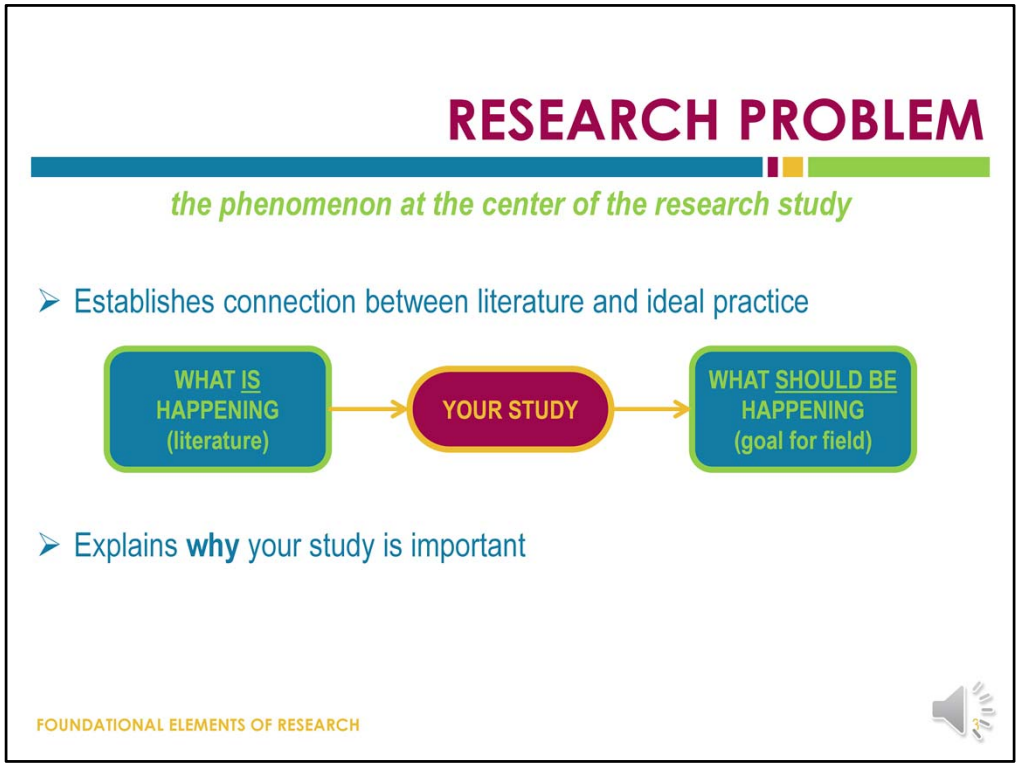
FOUNDATIONAL ELEMENTS OF RESEARCH

Frances Chumney, PhD

CONTENT OVERVIEW

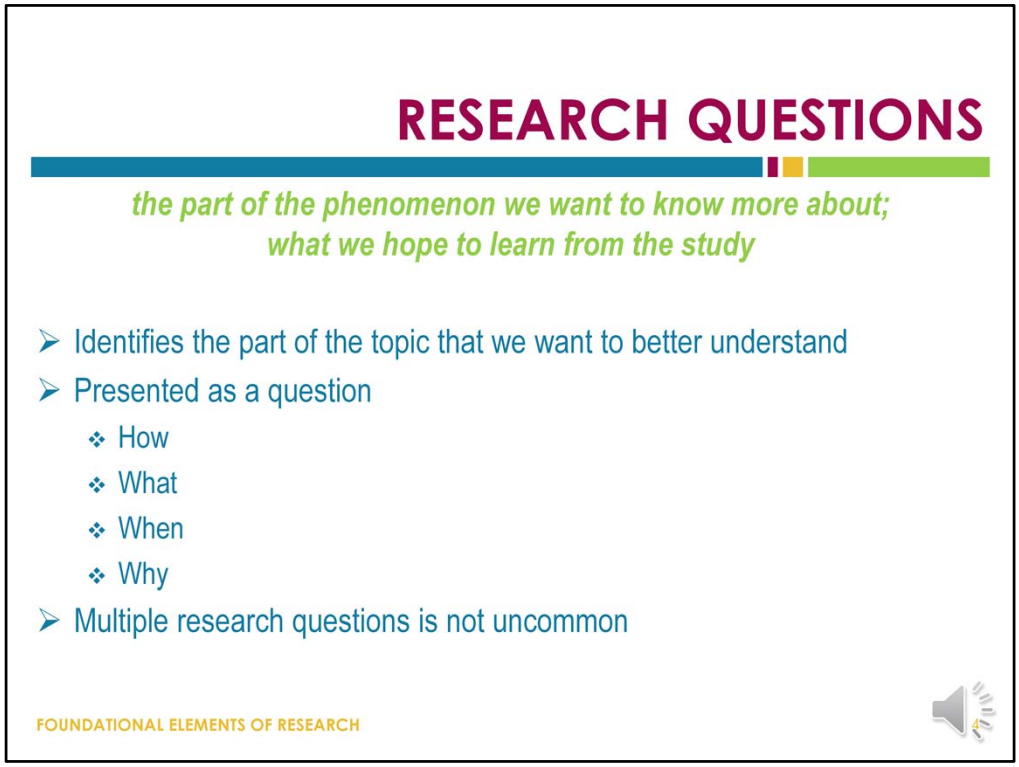
- Research Problem
- Research Questions
- Hypotheses
- Variables
  - Independent
  - Dependent
- Relating the Foundational Elements

FOUNDATIONAL ELEMENTS OF RESEARCH



TRANSCRIPT:

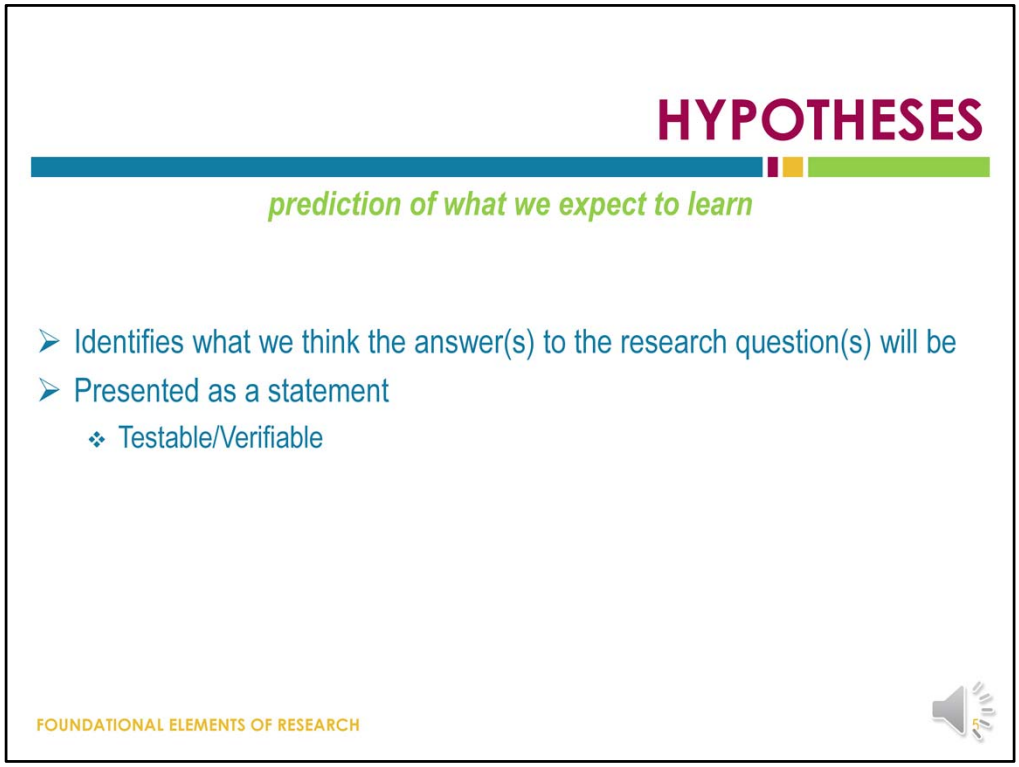
The most basic element of a research project is the research problem. A research problem is basically the topic of your research study – it is the phenomenon at the center of the study. The only meaningful difference between a research problem and a research topic is that the research problem should serve as a link between what the literature on the topic reports is happening, and what would happen in an ideal situation. Ultimately, the research problem tells why a study is important because it makes clear the way in which it can serve as a bridge between the current state of affairs and the ideal, best practices scenario for that topic.



TRANSCRIPT:

Once we have identified our research problem, the next step is to develop our research question or set of research questions. A research question tells about the part of the phenomenon about which we want to know more. A research question poses a question in the form of a question that identifies what it is we hope to learn from a study. The most common types of research questions are those that attempt to answer how, what, when, or why questions related to an identified research problem.

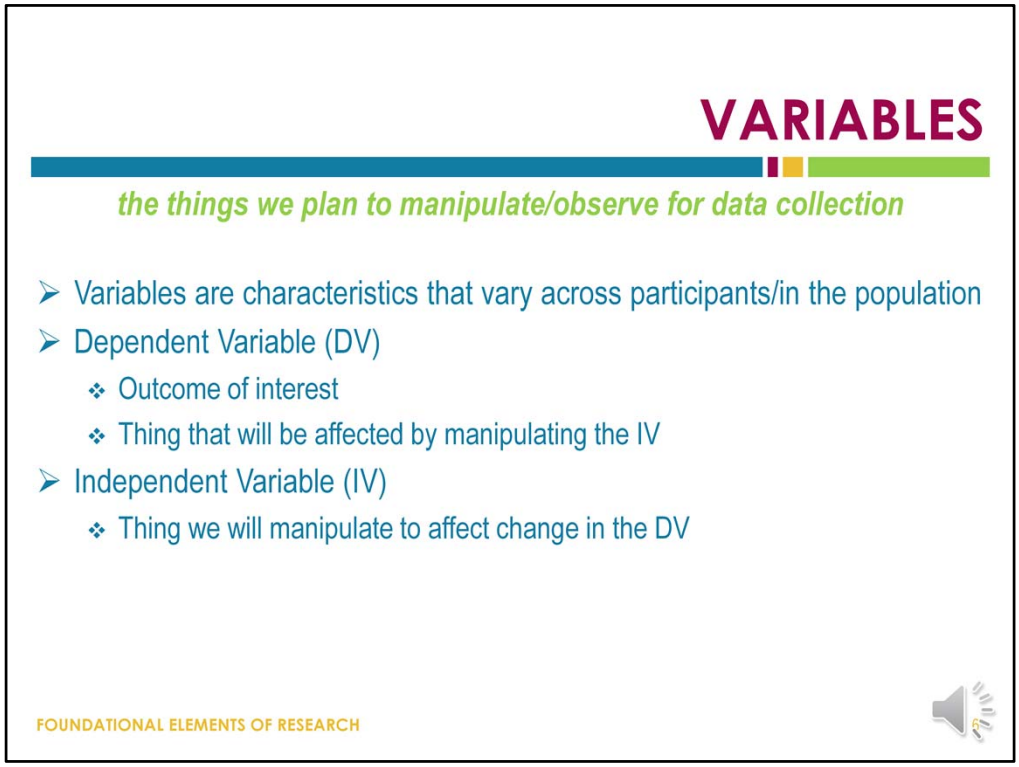
Most research studies focus on 1-6 research questions; as a general rule of thumb, 3-4 is a good number of questions. Sometimes a study might be structured with one overarching research question and a couple secondary questions that are interesting but not as crucial to answer.



TRANSCRIPT:

After we develop our research questions, we then formulate our hypotheses. Hypotheses are what we think the answers to the research questions will be, or what we expect to learn from our study.

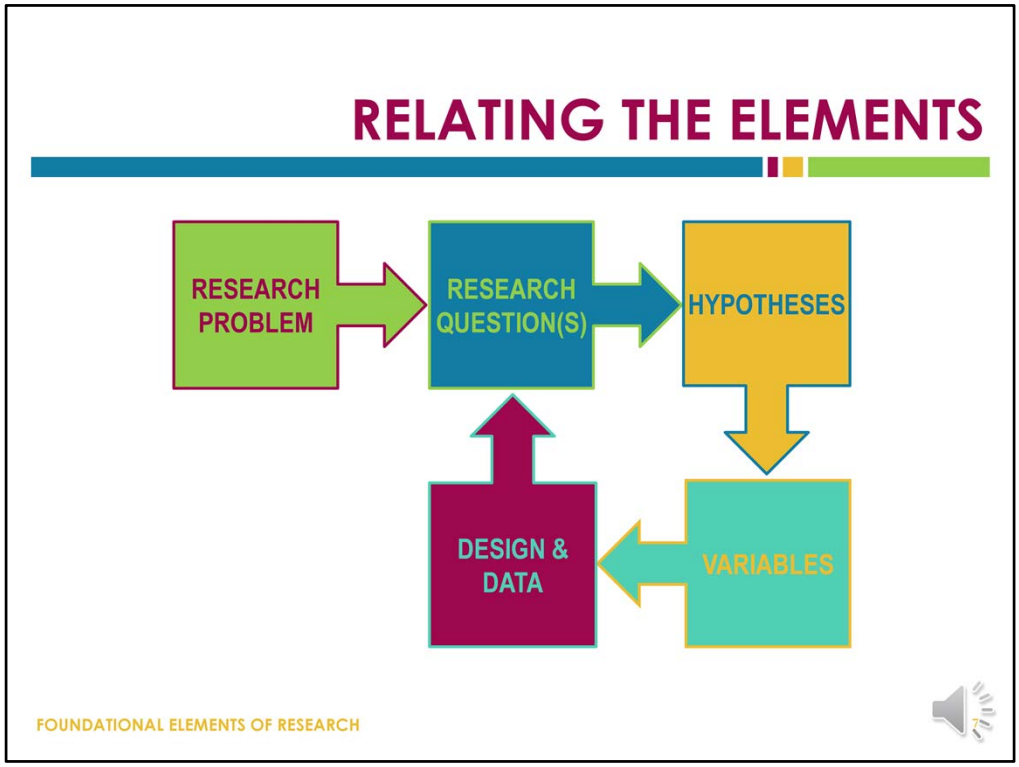
Hypotheses should be in statement form and should be statements that can be tested and verified using some sort of information or data that the research study will collect.



TRANSCRIPT:

Variables are the characteristics of something that we are going to actually collect our data about in order to test our hypotheses and answer our research questions. A variable can be any characteristic for which different members of the population or sample could have different values. That is, any characteristic that could vary across participants or in the population.

There are two general types of variables: dependent variables and independent variables. A dependent variable is the outcome of interest, or the thing that we expect to be influenced by manipulations to the independent variable. The independent variable is the thing we want to manipulate in order to see changes occur in the dependent variable.



TRANSCRIPT:

The purpose of this slide is to illustrate the relationships and flow between the different foundational elements of research and the execution of the research project. Research problems are the first step, and we develop research questions about those problems to create a meaning for why the study matters. Next, we formulate hypotheses that help to focus our research by identifying what we think the answers to research questions will be, or what we expect to find from our study. Given our hypotheses, we select variables that will allow us to test and draw conclusions about the hypotheses and, ultimately, the research question or questions. Once we know what variables we are going to collect data on, we design the study and collect the data, which are used to answer the research questions.

An important thing to keep in mind is that all the elements of a research project are connected, but they are also fluid. What I mean, is that the exact shape or form of each element can change as a study is developed and executed. Such changes are common and are not generally problematic – particularly during the planning phase. Because all these elements are so closely connected, though, we have to be ready to change or adjust everything in the study to accommodate any small change in one portion of the foundation.