Learning Objectives

Upon completion of this unit, students should be able to:

1. Explain why research is important.
2. Identify eight characteristics of good research.
3. Compare and contrast hypotheses and theories.
4. Differentiate between the types of research.
5. Compare and contrast basic and applied research.
6. Discuss the relationship between independent, dependent, and other variables.
7. Explain the concept of significance.
8. Create the Introduction section of a research proposal.

Written Lecture

In the last unit, we touched briefly on each component of a research proposal, what goes in each part and how it should be put together.

Planning is the key to successful research. The specific purpose of this unit is to acquaint students with the fundamentals of planning research and to introduce several important themes that run throughout the course.

The first theme is that all approaches to the scientific method are based on observable phenomena. Regardless of the theory or concept being investigated, it must be reduced to, or translated into, observable manifestations.

Often, our research suggests that our theory or hypothesis is incorrect and an alternative hypothesis or generalization is needed; requiring a new set of observable manifestations for the phenomena of interest. The conduct of scientific inquiry then is a cyclical process based on "hypotheses, deductions, observations, generalizations, new hypotheses" progression.

A second theme that begins in this unit and is carried throughout the course is the development of the question. Development of a research question rests on the hypothesis. We conduct research because we want to prove relationships; so, if our theory is correct, then we would expect to observe a specific relationship. That expectation or prediction is a hypothesis. Hypotheses are typically if-then statements; for example, if x then y. Another way of posing the hypothesis is through the research question.

In applied research, the research is often posed as a question or series of questions. How we pose the question will suggest different data collection strategies. For example, if we ask, “What is the quality of our safety training program?” we might want to evaluate attendee perceptions of the course. If the question is, “How frequently do we need to train employees on safety issues?” then we might want to count safety violations.
If the question is “How satisfied are employees with the work safety?” then we might want to gather data directly from employees. And, if the question is “Has safety at the job site improved as a result of the training session?” then we might want to collect safety data over time or ask the employees whether they think safety has improved. Throughout this unit and the course, we will be discussing the importance of the research question to the research design.

Finally, the theme that will be visited throughout the course is measurable and observable characteristics of our research—variables. It is the relationship between variables (i.e., elements or categories) that we are interested in observing and recording. To identify the nature of the relationship, we determine them to be either independent or dependent variables. The independent variable is the causal or explanatory variable, and the dependent variable is the variable being explained. For example, in some safety training contexts, safety is the dependent variable and the training program is the independent variable. If our hypothesis is correct, the dependent variable (safety) will be affected by application of the independent variable (training).

**Reminder:** Students should be collecting and reviewing resources for their research proposal. While many resources will be reviewed in the review process, a minimum of five scholarly references are required for the research proposal.

**Learning Activities (Non-Graded)**

Follow the link below to the Pearson Companion Website, and complete the Practice Test and Applications 1.1 and 1.2:

http://wps.ablongman.com/ab_researchmethods_studysite_1/98/25197/6450532_cw/index.html

Follow the link below to the Pearson Companion Website, and complete the Practice Test and Applications 2.1 and 2.2:

http://wps.ablongman.com/ab_researchmethods_studysite_1/98/25197/6450584_cw/index.html