Exploring Research 9th edition Salkind Solutions Manual

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Chapter 2. The Research Process: Coming to Terms

CHAPTER OVERVIEW

The purpose of this chapter is to engage students in formulating research questions that seek to find solutions. Students will learn some of the basic terms and concepts associated with the research process, such as research methods, types of variables, hypotheses, the sample versus the population, and the concept of significance.

OBJECTIVES

At the conclusion of this chapter, students should be able to:

- Examine a psychological research study that tries to understand the impact of maternal employment on adolescent development
- Recognize new words and phrases that form the basis for much of the communication in research
- Examine dependent variables, independent variables and the relationship between them
- Recognize variables that a beginning producer of research needs to know in order to have a good foundation
- Examine the null hypothesis, the research hypothesis and their differences
- Report the concept of generalizability of research work with respect to selecting a sample from a population that most closely matches the population characteristics
- Analyze the concept of statistical significance to measure the amount of risk we are willing to take when reaching a conclusion about variable-relationships

CHAPTER OUTLINE

I. The Research Process: Coming to Terms
II. From Problem to Solution
III. The Language of Research
IV. All About Variables
    A. Dependent Variables
    B. Independent Variables
    C. The Relationship between Independent and Dependent Variables
V. Other Important Types of Variables
VI. Hypotheses
    A. The Null Hypothesis
    B. The Research Hypothesis
        1) The Nondirectional Research Hypothesis
        2) The Directional Research Hypothesis
    C. Differences Between the Null Hypothesis and the Research Hypothesis
    D. What Makes a “Good” Hypothesis?

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VII. Samples and Populations
VIII. The Concept of Significance
IX. The Research Process: Coming to Terms

IMPORTANT TERMS

1. Variable
2. Measurement
3. Dependent variable
4. Independent variable
5. Control variable
6. Extraneous variable
7. Moderator variable
8. Treatment variable
9. Factorial design
10. Confounding
11. Null hypothesis
12. Chance
13. Research hypothesis
14. Directional research hypothesis
15. Nondirectional research hypothesis
16. Population
17. Sample
18. Statistical significance
19. Significance level

LECTURE & DISCUSSION QUESTIONS

1. According to the text, independent variables should be independent of one another. Why is this an important part of examining the relationship between independent and dependent variables? Provide an example of how independent variables that are related may confound research findings.
2. Discuss the characteristics of a good research hypothesis. What distinguishes a null hypothesis from a research hypothesis? How would you explain the difference between nondirectional research and directional research hypotheses?
3. Why is it impossible for researchers to be 100% confident that the differences found between groups in a study were due to the hypothesized reason? How might a good scientist go about reducing the risk that some other competing reason (other than the variables of interest) is influencing the variables in a study?

CLASS ACTIVITIES

1. When introducing the different types of variables, you may choose to reference Table 2.1 in the text, which will provide students with definitions of dependent, independent,

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control, extraneous, and moderator variables. In addition, this table will introduce students to other terms often associated with these types of variables.

2. To illustrate the concept of factorial designs, refer to Figure 2.2 and discuss the differences between factors and levels of each factor. Have students generate their own factorial designs by drawing an experimental design that has at least three independent variables (i.e., factors) with 2 to 3 levels each. Be sure to have them also indicate the dependent variable of interest. This makes for a great quiz item!

ADDITIONAL RESOURCES

Nickerson, R.S. (2000). Null hypothesis significance testing: a review of an old and continuing controversy. *Psychological Methods, 5(2)*, 241-301.

Raktoe, B.L., Hedyat, A., & Federer, W.T. (1981). *Factorial Designs*, New York, NY: John Wiley & Sons, 2001.

Vitaro, F., Brendgen, M., & Tremblay, R.E. (2000). Influence of deviant friends on delinquency: Searching for moderator variables. *Journal of Abnormal Child Psychology 28(4)*, 313-325.

Corina, J.M & Dunlap, W.P. (1997). On the logic and purpose of significance testing. *Psychological Methods 2(2)*, 161-172.

Daniel, L.G. (1998). Statistical significance testing: A historical overview of misuse and misinterpretation with implications for the editorial policies and educational journals. *Research in the School 5(2)*, 23-32.

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