



This is a six page SAMPLE of Chapter 2 from Dr. Arthur's Study Guide for the National Counselor Examination.

Note that the actual chapter 2 is 31 pages long. In addition, the Study Guide contains 11 total chapters.

CHAPTER 2

Research and Program Evaluation

2.1 INTRODUCTION

Research and program evaluation questions tap knowledge in techniques and methodology of measuring, describing, and evaluating data. The number of questions for this study area for the NCE has been reduced from 25 to **21**, and only **16** of those are a part of your score. It is important to have a working knowledge of research methods and statistical techniques for descriptive and inferential statistics. It will be important to identify basic types of research, research design, research vocabulary, and appropriate statistics. Study material will emphasize recognizing and working with averages, variables, measurement scales, relationships, inferences, and interpretation statements.

Recent changes in the NCE are reflected in the name change for this chapter, program evaluation. Emphasis in program evaluation will highlight material in analyzing organizational and therapy effectiveness.

Be familiar with Sections E and G of the Code of Ethics of the American Counseling Association (ACA, 2005). Recent test questions have included research ethics and computer-assisted evaluation. Ethically, it is important to remember that subjects must not be harmed in any way. If a risk is involved, the subjects must be informed of the nature of the risk, and informed that participation is voluntary, and a signed release is secured before the study. If subjects are not aware of the nature of their participation in a study for control purposes, then the subjects should be debriefed at the conclusion of the study. It is not ethical to observe a subject without permission. The welfare of the subject is the responsibility of the researcher. Also, all data obtained from an individual should remain confidential. Scores or observations should be reported in group form (collapsed) rather than as individual scores.

The National Research Act of 1974 and, more specifically, Public Law 93-348 stipulate that research studies involving human subjects be approved by a panel of authorities. These panels are often referred to as an

institutional review board (IRB) of an institution (such as a college) or an ethics guidance program. The proposal and actual research are to be submitted to a review board before any aspect of the research is enacted, in order to protect subjects from possible harm and to ensure that they voluntarily participate through informed consent. It is the researcher's responsibility to identify potential sources of risk and to eliminate or reduce them.

2.2 CACREP OBJECTIVES

Research objectives are outlined in the CACREP 2001 Standards. Each objective is abbreviated and full statements are to be found on-line:

www.counseling.org/cacrep/2001standards700.htm

- a. importance of research and difficulties in conducting research
- b. research methods and outcome-based research
- c. technology and statistical methods
- d. principles and program evaluations
- e. use of research to improve counseling effectiveness
- f. ethical and legal considerations

Example research questions for the listed objectives:

Question 98: Objective a.

A specific difficulty in conducting a true experimental design is:

- a. defining measurable variables.
- b. locating appropriate dependent variables.
- c. securing permission.
- d. managing the controls.

Answer: d. Controls are not to be managed, therefore whatever happens to them can influence results.

Question 99: Objective b.

A research study designed to determine public attitude toward depression would be most like which research method?

- a. Historical
- b. Descriptive
- c. Casual-comparative
- d. Experimental

Answer: b. Descriptive–review section on methods.

Question 100: Objective c.

When using a table from a research text and completing the appropriate statistical analysis, the researcher would enter what type of table to read for significance?

- a. F-ratio table
- b. S-significance table
- c. I-interval table
- d. H-hypotheses table

Answer: a. F and T-ratio tables are found in most research textbooks. Using technology significance findings are tabulated using SPSS.

Question 101: Objective d.

When small amounts of data are available for research relevance, it has been common for researchers to combine small data research. This is a series of studies called:

- a. meta-analysis.
- b. formative analysis.
- c. qualitative.
- d. quantitative.

Answer: a. A meta-analysis combines small data sets and look for findings

Question 102: Objective e.

An elementary school counselor is attempting to conduct an effectiveness study in the work she does with a 3rd grade student. The more appropriate type of research might be:

- a. non-parametric.
- b. action.
- c. parametric.
- d. school-age.

Answer: b. Action research is the choice even though single subject may be the choice. Action research does not have to be one subject. It could be a single variable.

2.3 TERMS

Terms are defined at the end of this chapter.

Action Research	Meta Analysis
Analogue	Non-parametric statistic
Applied Research	Observer Effect
Attrition	Observational effect
Cohort Design	Parameter
Confidence Intervals	Pilot Study
Control Group	Placebo effect
Covariance	Population
Degrees of Freedom	Power
Dependent Variable	Quasi-experimental
Double Blind Procedure	Randomized-post-test
Ex Post Facto Design	Regression
External Validity	Stratified random
F-ratio chart	True Score
History	Type I (Alpha)
Inferential Statistics	Type II (Beta)
Maturation	

2.4 RESEARCH

Gay (1996) defines research as the "formal, systematic application of the scientific method to the study of problem" (p. 6). Barkley (1982) states that systematically collecting, organizing, and interpreting data so that questions can be answered as unambiguously as possible are the steps in research. The goal of research is the same as that of the scientific method, to explain, predict, or control phenomena. In summary, Heppner, Kivlighan, and Wampold (1992) indicate that the purpose of research is to answer questions, solve problems, or develop theories of interest to a specific area, and to add to the existing knowledge.

2.4.1 QUESTIONS

Research questions can be grouped as descriptive, differences, and as a relationship (Drew & Hardman, 1985). Descriptive questions ask what an event is like and are answered through surveys, inventories, and interviews. Difference questions make a comparison between groups of people and are analyzed through between-group and within-group designs. Relationship questions analyze the degree to which two events (constructs) are related. Correlations and regression equations are appropriate statistical tools for this measurement.

SOURCES OF KNOWLEDGE:

Ary, Jacobs, and Razavieh (1996) list five methods in which answers are derived for questions. They categorize these sources of knowledge as experience, authority, deductive reasoning, inductive reasoning, and the scientific approach.

- 1. Experience:** The ability for human beings to learn from their experience is a prime characteristic of human intelligence. However, while researchers can profit from personal experiences as well as the experiences of others, experience has limitations as a source of truth.
- 2. Authority:** Researchers often seek answers to questions from those who have had experience or are considered a reliable source of expertise with a similar problem.
- 3. Deductive reasoning:** If the premise is true, the conclusion is considered to be true. Deductive reasoning enables researchers to organize premises into patterns that provide conclusive evidence for the validity of a conclusion. However, scientific inquiry cannot be conducted through deductive reasoning alone because of the difficulty involved in establishing a universal truth for many statements dealing with scientific phenomena.
- 4. Inductive reasoning:** A conclusion is reached by observing examples and generalizing from those examples to the group being studied. These inductive conclusions are generally imperfect, because all examples would have to be observed to derive a perfectly true induction. In scientific research one observes a sample of a group and infers from the sample what is characteristic of the entire group. When this is done, the researcher is relying on imperfect induction based upon incomplete observation.
- 5. Scientific approach:** The scientific approach integrates the most important aspects of inductive and deductive methodology. Charles Darwin is usually referred to as the first person to use the scientific approach. He utilized this method while developing his theory of evolution.

Scientific Method

The scientific method is the most efficient and reliable source of knowledge (Gay, 1992, 1996). Leedy (1993) defines the scientific method as a way to seek insight into an undiscovered truth by:

1. identifying the problem
2. gathering data
3. proposing a tentative hypothesis
4. empirically testing the hypothesis

With the scientific method, only the facts should be considered, and conclusions should be drawn from them alone. According to Leedy, inductive logic is primarily used.

Inductive logic begins not with a major premise, but with an observation. This type of logic is a generalization based on specific observations. Example: Katie can read. Katie is five years old. Therefore, all five-year old children can read.

Deductive logic begins with a major premise or what seems to be true (Leedy, 1993). It involves reaching specific conclusions based on generalizations. Example: Children in kindergarten can read. Katie is in kindergarten. Therefore Katie can read.

Both types of logic have flaws, but as Gay (1992) points out, both are necessary. Gay writes that the scientific process calls for the induction of hypotheses based on observations, the deduction of implications of the hypotheses, testing the implications, and accepting or not accepting the hypotheses.

2.4.2 CLASSIFICATION OF RESEARCH

Research can be classified by the method or purpose (Gay, 1996). Though there are procedures common to all research, such as data collection and analysis, specific procedures used in a study are determined by the method of research. There are many methods of research; however the following five methods of research will be explored because of their unique applications and frequency of use.

2.4.2 - 1 METHODS OF RESEARCH

Historical Method

This method involves studying and explaining past events. The purpose is to arrive at a conclusion concerning cause, effect, or trends of past events that help explain current or predict future events (Gay, 1992, 1996). A new treatment cannot be administered using the historical method.

Primary data source—firsthand knowledge, eyewitness reports.

Secondary source—secondhand information, the person giving information was not there when it happened.

External criticism—assesses the authenticity of data.

Internal criticism—evaluates the worth or accuracy of data.

Example: A study of the effects of the decisions of the U.S. Supreme Court on mental health care.

Descriptive

Descriptive research involves collecting data in order to answer questions about the current status of a subject (Gay, 1996, 1992). It determines and reports the way things are now.

Self-report—method of collecting data that often involves a questionnaire, a survey, or an interview.

Observation—method of collecting data by direct participatory or non-participatory observation. Individuals are not asked for information.

Ethnography—collects intense data for extended periods of time in a natural setting.

Example: A study to determine public attitude towards people with depression.

Correlational

Correlational research relates two or more variables to determine whether and to what degree a relationship exists between them, but it does not establish a cause-and-effect relationship, nor does it involve a treatment. This type of research involves one group of people who have two or more variables measured, and it must have a formal hypothesis. The degree of a relationship is expressed as a correlation coefficient (range is -1.00 to +1.00).

Directional Hypothesis— x and y are positively or negatively related.

Nondirectional Hypothesis— x and y are related or unrelated. Null hypothesis— x and y are unrelated.

The Correlational Method **does not establish cause and effect.**

Example: A study to determine if there is a correlation between shoe size and intelligence (IQ).

Causal Comparative

Causal comparative research is sometimes called ex post facto research because both the effect and the cause of the effect have already occurred. It involves group comparisons but involves no planned treatment. It can establish a cause-and-effect relationship; however, these are tentative and need to be followed up by an experimental research study. There is no treatment applied during the actual study. The function of a causal comparative research is to determine the reasons for the present status of things (Wiseman, 1999).

Example: A study of the effect of gender on depression.

Experimental

Experimental research method is the same as causal-comparative except that a treatment must be administered to the experimental group and not to the control group. This method is the only one that can establish a true cause-and-effect relationship. With the experimental method, the researcher will manipulate one or more independent variables in a

controlled setting in order to determine the effect on the dependent variable (Ary, Jacobs, & Razavieh, 1996).

Independent variable—an independent variable is (experimental variable) the treatment, or the characteristic that is believed to make a difference. The experimenter manipulates the independent variable. It is the "cause."

Dependent variable—is (criterion variable) the characteristic that is measured. The experimenter has no control over this variable. It is dependent upon the independent variable. It is the "effect." The dependent variable is the test score or observation.

Internal validity—Determines if the differences in the dependent variable are the direct result of the independent variable. This is the confidence one has in inferring a causal relationship among the variables while eliminating other hypotheses.

External validity—Determines if the results are generalizable to groups outside the experimental setting.

Example: A study to determine the effect of career counseling on job satisfaction. Assuming random sampling and sufficient participants, counseling would be the independent variable, and the amount of satisfaction as measured by observations or instruments would be the dependent variable.

Question 103:

From a group of flight attendants at Jet Airlines, a researcher randomly selected 60 employees. The flight attendants were divided into two groups by random assignment of 30 to group A, a traditional in-service program on customer attitudes, and 30 to group B, a new program designed to help flight attendants cope with customer attitudes while on the airplane. The two programs were compared at the end of a six-month period by change scores on a scale designed to measure attitudes toward customers. The independent variable is:

- a. the type of in-service curriculum.
- b. the score on the customer attitude scale.
- c. randomly selected 60 flight attendants.
- d. the change in the attitude scores toward customers.

Answer: a.

The independent variable is what is being manipulated such as a program of treatment.

Question 104:

The operational definition of the dependent variable is:

- a. a new program designed to deal with the history of customer service complaints.
- b. the scores from a scale designed to measure attitudes toward customers.
- c. the attitude toward customers.
- d. an unknown variable which is not described.

Answer: b.

An operational definition means specifying the activities or operations which are necessary to measure the construct. In the above example, attitudes toward customers are to be measured.

Qualitative Method: Ary, Jacobs, and Razavieh (1990, 1996) discuss qualitative inquiry as a generic term for a variety of approaches to research and evaluation. Naturalistic inquiry, case studies, field work, field studies, and participant observation are all examples of qualitative inquiry. The qualitative method involves the researcher observing people or events in their natural setting. The major purpose of qualitative research is to understand the effect of the particular context on the events. Qualitative inquiry differs from quantitative inquiry in the study of social and behavioral phenomena in their basic aim and methods (Ary, et al., 1996).

2.4.2 - 2 PURPOSE OF RESEARCH

Classifying research by purpose entails determining to what degree the findings can be applied or generalized to other situations (Gay, 1992, 1996).

Basic

Concerned with the **development** of a theory. It is the most like scientific laboratory research (Gay, 1996).

Example: Piaget's theory of development.

Applied

Concerned with the **application** of a theory. It evaluates theory and its usefulness by using existing theories and knowledge (Gay, 1996).

Example: Testing principles of conditioning to determine if they can be used to improve discipline (behavior modification).

Evaluation

Determines the **effectiveness** of an existing program. It requires the collection, analysis, and interpretation of data to determine not if something is good or bad, but rather to determine which alternative is better (Gay, 1996).

Example: Whether to adopt a new philosophy or not.

Research and Development (R & D) Functions to develop products, not to develop or test theory (Gay, 1996). Field testing a product.

Example: Field-testing of a set of behavioral objectives in a mental hospital.

Action Research

Lewin coined action research for the use of the scientific method to solve research questions that have social value (as cited in Johnson & Johnson, 1997). The purpose is "to solve practical problems through the use of the scientific methods" (Gay, 1996, p. 10). The goal is a solution to a specific problem. There is no concern as to whether or not the solution is generalizable.

Example: Research to find a solution for nonattentiveness among clients at the Day Treatment program in City X.