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**Quantitative Study Design**



**Learning Objectives**

* Identify the types of designs used in quantitative research and be able to differentiate between them
* Describe the types of assessments and instruments used in accordance with different study designs
* Explain the differences between internal and external validity and describe the threats to each
* Describe different methods of sampling and how they can be used to recruit participants

**Activities**

1. Create a research question and adapt it three different ways to represent a non-experimental study design, pre-experimental study design, and true experiment.
2. Using the case study on page 84, discuss the type of sampling An will use to recruit participants for her study. Develop a recruitment plan that describes the best method(s) and how you’ll go about assisting her in obtaining participants (e.g., where you will recruit, means of recruitment, verbiage used on promotional materials, etc.).

**Additional Readings and Websites**

Devonis, D. (2013). *Research methods: Experimental design*. Retrieved from

<https://www.youtube.com/watch?v=qtLnBz6lbRQ>

* This video explains the basic tenets of experimental design and provides an applicable example to illustrate the process.

Hopkins, W. G. (2000). Quantitative research design. *Sportscience, 4*(1). Retrieved from

<http://www.sportsci.org/jour/0001/wghdesign.html>

Sui, W., & Prapavessis, H. (2018). Standing up for student health: An application of the health

action process approach for reducing student sedentary behavior – Randomized control

pilot trial. *Applied Psychology: Health and Well-Being, 10*(1), 87-107.

**Short Answer Questions**

1. Discuss the difference between internal and external validity, and explain the “trade-off” that exists between them when conducting true experiments.

Internal validity involves the researcher’s ability to claim that any change in the dependent variable is the result of the independent variable (i.e., treatment or intervention) and not due to other factors. Conducting a true experiment in a controlled laboratory setting helps to enhance internal validity. External validity refers to the applicability or generalizability of the results to the “real world.” Because researchers want to be able to infer cause and effect when conducting a true experiment (i.e., attribute any changes in the dependent variable to the independent variable), external validity can be sacrificed for the sake of maximizing internal validity. This “trade-off” means that the study results will be less generalizable outside of the lab setting. (pp. 65-66)

1. Explain the threat of “experimental drop-out” and discuss its implications.

“Experimental drop-out,” also referred to as mortality, is a threat to internal validity that involves participants dropping out of the study in either the control or treatment group. Known reasons could include boredom, sickness, injury, time (inconvenience), or unmet expectations. This threat is less concerning in large samples where the impact will be less pronounced. In smaller studies, this attrition can weaken the assertions that can be made upon completion of the study. Researchers can use these data to compare the drop-outs statistically to those who completed the study. (p. 78)