Research Methods

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The research methods section should reiterate the research questions and hypotheses, present the research design, discuss the participants, the instruments to be used, the procedure, the data analysis plan, and the sample size justification.

Research Questions and Null Hypotheses

In the research questions and null hypotheses section, the research questions should be restated in statistical language. For example, “Is there a difference in GPA by gender?” is a t-test type of question, whereas “Is there a relationship between GPA and income level?” is a correlation type of question. The important thing to remember is to use the language that foreshadows the data analysis plan. The null hypotheses are just the research questions stated in the null; for example, "There is no difference in GPA by gender," or "There is no relationship between GPA and income level."

Research Design

The research design has several possibilities. First, you must decide if you are doing quantitative, qualitative, or mixed methods research. In a quantitative study, you are assessing participants’ responses on a measure. For example, participants can endorse their level of agreement on some scale. A qualitative design is a typically a semi-structured interview which gets transcribed, and the themes among the participants are derived. A mixed methods project is a mixture of both a quantitative and qualitative study.

Participants

In research methods, the participants are typically a sample of the population you want to study. You are probably not going to study all school children, but you may sample from the population of social children. You should probably speak about the characteristics of the population in your study (Are you sampling all males? teachers with under five years of experience?).

Instruments

The instruments section is a critical research methods section. The instruments section should include the name of the instruments, the scales or subscales, how the scales are computed, and the reliability and validity of the scales. The instruments section should have references to the researchers who created the
instruments.

**Procedure**

The procedure section of the method is simply how you are going to administer the instruments that you just described to the participants you are going to select. You should walk the reader through the procedure in detail so that they can replicate your steps and your study.

**Data Analysis Plan**

The *data analysis plan* is just that — how you are going to analyze the data when you get the data from your participants. It includes the statistical tests you are going to use, the statistical assumptions of these tests, and the justification for the statistical tests.

**Sample Size Justification/Power Analysis**

*Sample size justification* (or power analysis) is selecting how many participants you need to have in your study. The sample size is based on several criteria: the power you select (which is typically .80), the alpha level selected (which is typically .05), and the effect size (typically, a large or medium effect size is selected). Importantly, once these criteria are selected, the sample size is going to be based on the type of statistic: an ANOVA is going to have a different sample size calculation than a multiple regression.

**Research Methods Resources**


**Related pages:**

- [Data Analysis Plan](#)
- [Sample Size Calculator](#)
- [Directory of Survey Instruments](#)
- [Theoretical Framework](#)