Section 2: Week 3: Designing an Experiment

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# Designing an Experiment

NCU-Cares (NCU-C) is a politically neutral nonprofit organization, seeking to make the world a better place through targeted lobbying efforts. The death of George Floyd has risen the debate of police violence and reform to the national stage (Crary & Morrison, 2020). While the topic rests on American’s hearts and minds, it has also become highly partisan with many efforts to undermind the conversation (McCaskill, 2020). Separating the seed from the chaff requires a well-structured experiment that identifies independent and dependent variables (IV versus DV). Next, precise controls must exist to reduce interference from either internal or external threats to conclusive validity. These controls will guide data collection requirements and dictate analysis procedures that follow.

# Section I: Identify the Problem

The first step to designing an experiment is to define clearly the specific problem of research. Harris (2008) uses an example of investigating the “influence of music on driving ability.” In this situation, music is the independent variable versus driving ability the dependent result. However, music could refer to either the categorical genre or perhaps the volume level. Meanwhile, the driver’s ability could be a measurement of maintaining lane alignment or parallel parking. These nuances to the question have a substantial impact on all aspects of the design and must be declared upfront.

Similarly, an exploration of police violence needs explicit constraints to avoid boiling the ocean through open-ended discovery. The collective perspective of the Black Lives Matter movement is that police exert disproportionate force against people of color (BLM, 2020). This statement infers that *race* is the independent variable that shapes the *response*. Meanwhile, others believe that *sanity*, such as caused by mental illness or narcotics, applies more pressure to the situation (Lamb, Weinberger, & DeCuir, 2014). NCU-C would like to understand which of these independent variables is the most dominant factor. After assessing this information, the organization could then more effectively fight police violence through either (a) civil rights policies or (b) mental health programs.

# Section II: Methodology

# Section III: Threats to Validity

## Internal Threats

## External Threats

## Statistical Conclusion Threats

## Construction Threats

# Section IV: Data Requirements

## Collection Process

## Data Analysis Procedures