


# Chapter 12

## Current Directions in Laboratory Experiments in the Social Sciences

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### **ABSTRACT**

*Social scientific disciplines such as psychology, sociology, political science, and economics have been rampantly utilizing experimental designs in the last decades. However, the pace of adoption of experimental methods followed historically different trends in these disciplines. This chapter discusses the strength of experimentation in social sciences in drawing cause and effect relationships between studied phenomena and highlights ethical issues that deserve detailed consideration while getting ready for experimental studies. The chapter particularly focuses on laboratory experiments and discusses recent examples of laboratory experiments in these disciplines.*

### **INTRODUCTION**

The comprehension of contingencies within the natural order and the anticipation of global transformations stand as fundamental pursuits for humanity, transcending temporal and geographical limitations. Within the ambit of these capacities, humans aspire to exert influence over their surroundings. The systematic pursuit of scientific knowledge, facilitated by the application of scientific methodology, represents the preeminent approach toward realizing this aspiration. In the course of generating scientific knowledge through precise methodologies, the endeavor yields either

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the revelation of associational links among phenomena under examination or the discernment of causal relationships. Arguably, causal relationships constitute the paramount form of scientific information, as the articulation of causal statements not only facilitates the prediction of regularities but also furnishes the means to manipulate and regulate the world (Grünbaum, 1952).

Causal assertions afford the analytical distinction between what is deemed ‘necessary’ and ‘sufficient’ in delineating a causal nexus (Fişek, 1998). A conspicuous lacuna in many expositions on research methodologies within the behavioral and social sciences is the oversight of the nuanced significance inherent in such analyses. Consider the ensuing causal proposition to illuminate this oversight: ‘Heightened mental activity causes fatigue.’ If heightened mental activity serves as a sufficient causal factor, then instances of elevated mental activity should consistently culminate in states of fatigue. However, as sufficiency implies the potential for alternative factors to induce the outcome—in this case, fatigue—the exclusive focus on heightened mental activity merely appraises one plausible causal pathway to fatigue. Consequently, if factors beyond heightened mental activity can also precipitate fatigue, then heightened mental activity is deemed sufficient but not necessary.

Conversely, should an augmentation in mental activity be deemed a necessary antecedent for the manifestation of fatigue, it signifies that fatigue will not transpire unless heightened mental activity is present. Suppose heightened mental activity is a necessary yet not sole determinant, necessitating additional concomitant factors. In that case, it follows that heightened mental activity is indispensable but not fully adequate for the onset of fatigue. This illustration underscores the graduated degrees of control achievable through the discernment of causal relationships, contingent upon whether the ascribed causal factor is deemed necessary, sufficient, or both. The crux of the matter lies in identifying and validating causal relationships, and the experimental method is the exclusive methodological recourse for such endeavors.

The experimental method sets itself apart from other research methods by the way it can test causality among variables (independent and dependent variables, to be specific). In addition to being able to generate causal inferences, data obtained using experimental methods is also useful for the improvement of theories. Although different experimental approaches are possible, this chapter aims to outline the current understanding of the steps involved in laboratory experiments in social sciences by providing a brief historical context and evaluating key points such as the generation of experimental design that will lead to good experimental data, ethical considerations in experimentation, a comparison of laboratory experiments with other common experimental designs and a brief discussion of laboratory experiment examples from different social scientific disciplines.

Although certain other research approaches may label their variables as independent and dependent variables -for instance, a survey study investigating the

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