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## AN ASSESSMENT OF EXPERIMENTAL METHODS IN PSYCHOLOGICAL RESEARCH

BY

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**Abstract:**

*The paper began with the introduction followed by explanation on experimental and Scientific methods. Causality and experimentation, dependent and independent variables, reliability and validity were also extensively discussed. Experimental manipulation and control, basic experimental design and evaluation of experimental research were adequately elaborated. Finally, conclusion and recommendation were provided. It was recommended that psychological researchers should always understand the uniqueness of experimental methods as it goes beyond problem description towards providing explanation of how that comes about.*

**Keywords:** *Assessment, Experimental methods, Psychological Research*

## **INTRODUCTION:**

Research in psychology has two major objectives a) Describing behavior b) Providing explanation on behavior and its underlying psychological process. Experimental research goes beyond describing the uniqueness of a behavior, but provides explanation as to why and how that specific behavior comes about. Experimental design could be used to answer questions on causes of behavior and provide explanation on how that particular behavior comes about.

## **WHAT IS AN EXPERIMENT?**

An experiment is defined as a study wherein variables are both measured and manipulated (Gazzaniga and Hearshon, 2003). The basic idea is that one variable is manipulated in order to examine how it affects the second variable. The condition of the experiment referred to the experimental group to which a part is assigned the researcher. What is manipulated is referred to as the independent variable and what is measured is referred to as dependent variable.

Dependent variable in experimental research is the measure that is affected by the manipulation of the independent variable, while independent variable is the condition that is manipulated by the experimenter to examine its impact on the dependent variable. One of the major benefits of experimental research is that it allows the researcher to study the causal relationship between two variables. If the independent variable proves to influence the dependent variable in a systematic way, then the independent variable is assumed to be the cause of the change in the dependent variable. It is important to note that in making a decision on whether or not to perform an actual experiment the crucial issue is whether it is desirable to show a causal relationship between two variables (Gazzaniga and Hearshon, 2003).

## **CAUSALITY EXPERIMENTATION**

By control it refers to the steps taken to minimize the possibility that anything other than the independent variable may have been affecting the outcome of the study. A properly performed experiment requires making sure that the only thing that changes is the independent variable. Control represents the foundation of the experimental approach. It allows the researcher to rule out alternative causes that may unintentionally vary between the different experimental conditions of a study.

## **INDEPENDENT VARIABLES**

This has already been discussed in the above paragraph. However, one should note that in principle variables may be independent or dependent depending on the formation of the research hypotheses: they can be causes or effects in practice, however, some variables such as sex, age and type of life experience are fixed that is they cannot be manipulated within the experiment.

Another way of classifying independent variables is in terms of those which can be quantified in some way such that the experiment can determine the amount of levels presented in the study.

## **DEPENDENT VARIABLES**

Dependent variables sometimes referred to as (response variable) is the behavioural measure made by the experimenter; it is the outcome which may or may not be, depending on the hypothesis, be predicted to depend on the independent variables.

The fundamental problem of deciding on an appropriate dependent variable stems from the very nature of psychological inquiry. Most psychological research is interested in outcomes measures that are only indirectly related to the psychological process which we are interested.

## **RELIABILITY**

Reliability refers to as the consistency and stability of any experimental effect. The most common technique for establishing reliability is by replication. If the same experimental design leads to the same results on subsequent occasion and using different samples then the experimenter do not replicate their own experiment on more than one occasion for pragmatic reasons and so reliability is commonly established by other researchers replicating a particular experimental paradigm within their own research.

## **VALIDITY**

This refers to whether or not an experiment explains what it claims to explain. Validity can be dealt with to some extent by providing adequate operational definitions. Although this can sometimes be reduced to rather unhelpful truism. The importance of validity in psychological experimentation cannot be overemphasized because of the very real human consequence which potentially arise from of causality which arise from an independent measure

## **EXPERIMENTAL MANIPULATION AND CONTROL**

One should note that the power of experimental technique lies on its ability to ensure that only the independent variable is permitted to vary systematically across the conditions of the environment. In a situation where one or more variable unintentionally vary along-side other manipulated variables, then results is said to be confounding. Confounding variables render an experiment useless since the results cannot be interpreted. Even in Laboratory setting, confounding can easily occur such as testing people at different times of the day

## **BASIC EXPERIMENTAL DESIGN**

There are two basic experimental designs as far as psychological research is concerned, these are between subject designs and within subject designs which form the basis of all the more complex designs and which differ according to the way in which they deal with the control or subject variations. If two or more totally separate groups each receive various levels of independent variable then it constitutes between subjects designs. On the other hand if the same group of people receive all the various conditions or level of the independent variables then it is an example of within subject designs.

## **EVALUATING EXPERIMENTAL DESIGN**

There are two major issues to consider here:

- a) Whether or not experimental methods has a significant role to play in psychological research
- b) How to use our ability to combine different methodologies

In pursuing causal explanations experimental methods are identified as the only one of achieving such goals. It is important to note that experimental methods in dependent for its success on living along side with other methodologies.

## **CONCLUSION**

- 1) The paper highlighted issues one needs to know when designing effective psychological research.
- 2) The paper has also highlighted why the experimental method has a real contribution to offer.
- 3) One of the difficulties of experimental research is that where it is impossible to meet the criteria formally demanded by experimental research we resort to quasi-experimental design or adopt alternative methodology entirely.

## **RECOMMENDATIONS**

- 1) An experimental research should be able to describe and explain behaviour.
- 2) Experimental methods of research should be valid and reliable by providing adequate operational definitions of terms.
- 3) Basic experimental design and proper evaluations of experimental research should be adequately utilized.

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