Variables in designing a research program essay sample

Design

Most researchers are faced with difficulties in designing their research mainly because they emphasize on the variables they are required to measure rather than how to achieve the objectives of the research (Cobb L, 2000). In research, the following are the requirements; data analysis, paper writing and constructively criticizing other research designs. Research designs are categorized into experimental and quasi-experimental. Experimental design arises when treatment and control groups are assigned subjects randomly whereas quasi-experimental design applies when statistical controls are used to assign subjects (Creswell J. W. 2002).

In simple terms, a variable is that which changes as opposed to a constant. There are two major classifications for variables; dependent and independent. Statistically, variables refer to attributes that can be measured as the change. Those variables that are discrete have finite values while those that are continuous have a distribution function that is infinite. An example of continuous variable is temperature whereas the number of people is discrete. This concept of variables is mainly employed in social, medical and natural sciences.

An independent variable is that variable that once chosen, it does not change. This is the variable that is manipulated in an experiment to yield the required results. It is also known as experimental variable. Contrary to this is the dependent variable which entirely depends on the independent variable. It is the variable under observation. It can also be called a response variable. In multiple linear regression, experimental variables are forecast automatically but response variables are forecast using the multiple linear regression. It should be clear that a constant would be that which is the

same between the two. There exists other variables outside of the independent variables that affect the study undertaken. They are referred to as confounding variables. These extraneous variables interfere with the expected results and can mess up a researcher’s work. It is therefore advisable to address these confounds before they get to alter the results.

The technicalities of these variables must be well understood if they are to be controlled in any research experiment. Physical control could be one of the best methods to achieve this. Here, every subject is exposed to independent variables equally. All the subjects will be affected equally prior to the research experiment. This serves to control the confounding variables that would be affecting the dependent variable. Alternatively, selective control may be used where indirect manipulation is conducted, inputting or outputting variables that are beyond control. Lastly, variables that do not blend well with the two systems discussed before may be statistically controlled using statistical techniques. An example of this is covariance. Other ways to conceptualize variables as important components in a research system would be to know the source of the data. By doing so, the researcher gets to know what factors might alter the expected results. Any anomalies experienced should be quickly corrected using the appropriate ways. The best way to also check on this would be to conduct multiple techniques of measurements. With this, the average result would be the best result and a good representation of the whole. All the variables need to be checked in any research experiment.

WORKS CITED

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Creswell John W., Research design: Qualitative, quantitative, and mixed methods approaches, Sage Publications, 2002.