

## **Independent and Dependent Variables**

The identification of independent and dependent variables is crucial in any research study as it helps form a structural basis for the experiments and provides contextual relationships for data analysis. Independent variables are predictor or explanatory variables, which acts as a cause for changes in the dependent variables. The dependent variables are also known as response, outcome, or criterion variables, and changes in these variables signify the effects of changes in the independent variables (Losh, 2017).

In an experiment performed by Schmidt, he used a mix of humorous and non-humorous sentences and tested participants' recall of sentences. He noted that the rate of sentence recall of the participants was higher for humorous sentences as compared to non-humorous sentences. Therefore, in this study, humor is the independent variable which acts as the cause, and participants' recall of sentences is the dependent variable which is the effect. The scale of measurement for the independent variable, which is humor in sentences, is nominally scaled as it does not have a quantitative value. The scale of measurement for the dependent variable, which is participants' recall of sentences, is a ratio as it can be expressed as the number of humorous sentences that were recalled versus the number of non-humorous sentences that were recalled by the participants.

An example of another simple study is if a researcher wants to analyse the impact of certain teaching strategies on the achievement of students in the subject of Geography. The researcher uses the teaching strategies, Project Method (PM) and Concept Attainment Model (CAM), to teach a specific set of units in Geography to the group of students chosen for the experiment following a standard procedure. Once the teaching is over, the effectiveness of these methods will be determined by measuring the achievement of students in written and oral examinations (Shukla, 2018).

In the above example, the purpose of the research is to examine the effects of specific teaching strategies on the achievements of students. The research question of this study is: What are the effects of the teaching strategies CAM and PM on the

achievements of students? The independent variable of this study is the specific teaching strategy being used, in this case, CAM and PM. This variable has been deliberately introduced in the study to examine its effects on the achievements of students and therefore it has a causal effect in the study. The dependent variable in the study is the achievements of students that is dependent on the independent variable which is the teaching strategy used. The student achievements are hypothesized to vary with the teaching strategy, and therefore it is the dependent variable.

## References

Losh, S. C. (2017). *Dependent and Independent Variables*. John Wiley & Sons.  
doi:10.1002/9781118430873.est0622

Shukla, S. (2018). Variables, Hypotheses, and Stages of Research. *Conference: Capacity Building Programme for Social Science*.