Course : Research statistics   **Lecturer : Pr. Saliha CHELLI**

 Level : Master 1

Part one : Basics of research

Lecture : 1

Variables

Learning objectives : Recognizing and identifying types of variables

1. Definition of variable

In order to carry out any sort of measurement, we need to think about variables; that is, characteristics that vary from one person to person, text to text, or object to object. Simply put, variables are features or qualities that change (Mack & Gass, 2005).

2. Types of variables

 The independent and the dependent variables are the most important ones.**The independent Variable** is the one we believe may cause the results. It is manipulated to determine its effects on the dependent variable. While **the Dependent Variable** is the one we measure to see the effect of the independent variable on it.

Task : Identifyning variables

Task: identify the type of variables in each of the following research questions and hypotheses.

-Does feedback type affect subsequent performance?

-Is there a relationship between parents education and their children success?

-Does the process approach develop learners' writing strategies?

-Does the use of authentic activities help learners acquire listening competencies?

- We hypothesize that learners' lexical competence will be developed through mobile assisted learning.

-If leaners are trained in the use of signals, their writing productions will improve in terms of accuracy.

*The researcher can also take into consideration other types of variables such as

Extraneous variables, also called **confounding variables,** are all the variables other than the independent variable that are not part of the study, but could affect the dependent variable; therefore, the results .

The researcher should be very careful because they could alter the results leading to misinterpretations and flawed conclusions.

Moderator variables are types of an independent variable that may not be the main focus of the study, but may modify the relationship between the independent variable and the dependent variable. For example, when dealing with any research question, gender may affect them.

Intervening variables are similar to moderator variables because the researcher has not considered the possibility of their effort or because they cannot be identified in a precise way. For example, learners' abilities may be due to test-taking abilities rather than the treatment in an experiment.

Control variables: When conducting research, one ideally wants to study the effects of the independent variable on a dependent variable. For example, consider the impact of feedback type on a performance measure.

The findings may not be caused by the independent variable.What do you think they can be due to ?

May be to the possibility that learners with different levels of proficiency respond differently to different types of feedback. Another possibility can be the difference of their prior language experiences.

Whenever possible, researchers need to identify these possible factors and control them in some way, although it should be recognized that identifying them in L2 and foreign language learning may be difficult.

3. Categorical versus continuous variables

Categorical variables are variables that can take on specific values within a degree range of values.They can be measured with a greater degree of precision. For example, gender, can be male or female. In contrast with categorical variables, **continuous variables** are variables that can take on values along the continuum. For example**,** age, income, weight and height. Therefore, the type of data produced differs from one category to another.

4. Qualitative versus quantitative variables

 Qualitative variables are those that vary in kind. Rating something as 'attractive' or not, 'helpful' or not or 'consistent' or not are examples of qualitative variables that vary in kind. Whereas, reporting the number of times something happened or the number of times someone engages in a particular behaviour are examples **of quantitative variables** because they provide information regarding the amount of something (Marczik, DeMatteo, Festinger, 2005).

References

Mackey, A & Gass, S.M. (2005). Second language research: Method and design. London Lawrence Erlbaun, Associate Publihers, Mahwah.

Marczik,G, Dematteo,G & Festinger, D. (2005). Essentials of research design and methodology New Jersey: John Wiley & Sons.