<table>
<tr><th colspan="3">Types of variables within the context of a research study</th></tr>
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- *Qualitative variables*

Are those that express a qualitative attribute such as religion, race, gender, social status, education level, and so on. The values of a qualitative variable do not imply a meaningful numerical ordering. A qualitative variable is a characteristic that is not capable of being measured but can be categorized to possess or not to possess some characteristics.
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<tr><td>Categorical variables</td><td>They are also referred as classificatory variables since they have a limited number of distinct values, that is, they can be classified into distinct limited categories.

The attributes (or sub-values or subsets) of a categorical variable vary in kind rather than in degree, amount, level or quantity. For example, sex can be classified into two categories of male and female.

Categorical variables are further divided into ordinal, nominal, dichotomous, and polychotomous variables.</td><td>Ordinal variables are those which can be logically ordered or ranked in two or more categories but do not necessarily establish a numeric difference between each category, for example, examination grades (A+, A, B+, etc.), clothing size (L, S, M, XL, etc.).

Nominal variables are those that can neither be ranked nor logically ordered, such as religion, sex, etc. Classification of the values of this variable type is based on equality, sameness or difference and cannot be measured. A variable like “mode of study” could have values like “full-time”, “part-time”, “distance learning”, etc.

Dichotomous variables can also be ordered or ranked as the ordinal variables, but they have only two categories, unlike ordinal and nominal variables, that can have two or more categories or levels. For example, gender can be just male and female, or a test score can be dichotomized as high or low.

Polychotomous variables have more than two categories. For example, language proficiency level which could have subsets like “beginner”, “intermediate”, “advanced” …</td></tr>
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- *Quantitative variables*

Also referred as numeric variables, are those that are measured in terms of numbers. A simple example of a quantitative variable is a person’s age or family size, etc.
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<tr><td>Continuous variables</td><td>They can be measured by scales and the subsets or groupings are different from each or one another on the basis of quantity, degree, level or amount.

These variables can take an infinite number of intermediate values along a specific continuum or interval. For example, the time to complete an MCQ test or the waiting time in a queue are examples of continuous variables since the time can be, for</td><td>Continuous variables are further divided into interval and ratio variables.

Interval variables can be measured along a continuum in a scale and its subsets have a numerical value. The feature of rank ordering can be found in this type or variable. An interval scale is one where there is order and the difference between two values is meaningful. Temperature, rate of bank interest, blood pressure reading, etc., are examples of these variables.

Ratio variables have the features of magnitude and order and have an absolute or true zero point, unlike the interval variables. A ratio variable, has all the properties of an interval variable, but also has a clear definition of 0.0. Examples of ratio variables include test scores, height and weight.</td></tr>
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	example, 1.65 minutes, or 1.6584795214 minutes.	
Discrete Variable	Restricted to certain values, a discrete variable usually (but not necessarily) consists of whole numbers, such as the family size, number of defective items in a box, etc. They are often the results of *enumeration or counting*. Unlike the continuous variables, the discrete variables present round numbers, for instance, 5 children in a household, not 5.67 children, or 125 graduated professionals, not 125.77770. The possible scores are discrete on the scale. The specific values of the number of accidents in the twelve months or the number of students admitted to a school over a specified period, are examples of discrete variables.	
Moderating variable	In actual study situations, such a simple one-to-one relationship needs to be revised to take other variables into account to better explain the relationship. This emphasizes the need to consider a *second independent variable* that is expected to have a significant contributory or contingent effect on the originally stated dependent-independent relationship. The moderating variable has a conditional strong *influence to modify* the original relationship between the dependent and independent variables. It affects the direction or strength of these variables. For example, a research into the effect of quality of instruction on academic performance of students may have a moderating variable like the interest of students. The effect of quality of instruction is the main independent variable considered, but the interest of students might be another independent variable that might modify the effects on the dependent variable, which is the students' academic performance.	
Extraneaous variable	Several variables might conceivably affect our hypothesized independent-dependent variable relationship, thereby distorting the study. These variables are referred to as extraneous variables. They affect the research outcomes by interfering with the variables. Extraneous variables are not necessarily part of the study. They exert a confounding effect and thus need to be eliminated or controlled for.	
Intervening Variable	This variable acts like a link between the dependent and the independent variable, and in a way, accounts for the causal relationship between them. It cannot be directly measured or controlled and have direct and strong effect on the result or end product of a study. The intervening variable is also known as the **mediating variable** that explains the relationship between the dependent and the independent variable. It doesn't change this relation but explains it. For example, a research work which focuses on the association between management practices and staff productivity may have an intervening variable like job satisfaction. The management practices would lead to job satisfaction which in turn may lead to high staff productivity. In this case, this intervening variable functions like a dependent variable and at the same time like an independent one.	

The contents of this resource were taken and adapted from:
Abiodun-Oyebanji, O. (2017). Research variables: types, uses and definition of terms in Research in education.
iEduNote. (n.d). Variables: definition, types of variable in research.