

# Variables in Research

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2020

# A variable

- Anything that can vary can be considered as a variable.
- Anything that can take on differing or varying values>

Example:

Exam score , income , etc...

# What are the types of variables

- 1- Dependent variable
- 2- Independent variable.
- 3- Intervening variable (Mediator variable).
- 4- Moderator variable.
- 5- Control variable.

# Dependent Variable

If I do have two variables like:

Consumption and Income

Where Consumption = C

And Income = Y

Hence,  $C = f(Y)$

So, which variable is dependent one?

Dependent variable (DV): the variable of primary interest to the researcher.

Hence, the consumption in our example is the (DV).

The (DV) is the variable being tested and measured in the experiment, that's why it is (dependent) on the (IV).

# Independent Variable (IV)

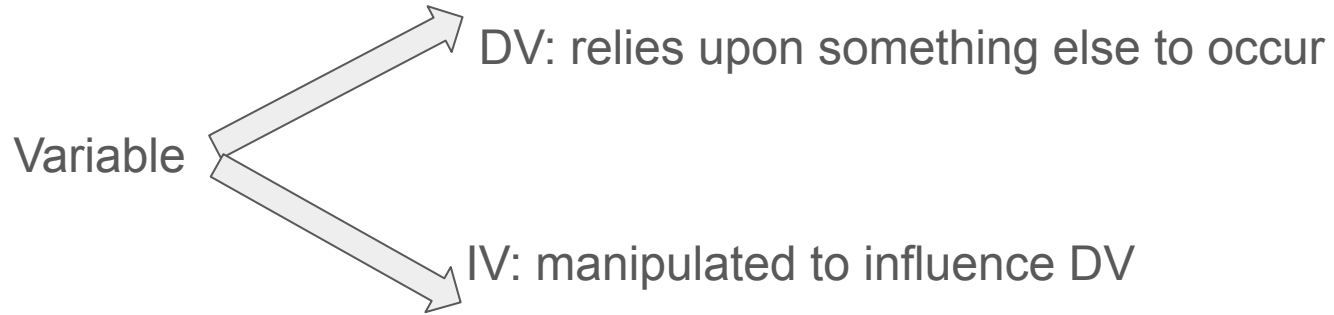
The variable that influence the (DV) in either a positive way or negative way.

Hence, in our example above

The Y = Income will be our (IV)

Thus: (IV) is the variable experimental changes or controls, and is assumed to have a direct effect on the (DV).

In any experiment, the researcher is looking for the possible effect on the (DV) that might be caused by changing the (IV).



IV	DV
Manipulator	Result
Cause	Effect
Influencer	Outcome
Predictor	Predictable
Experimental	Response
Explanatory	

# Moderating Variable

- Variable that has a contingent (Conditional) effect on the relationship between the (IV) and (DV).
- Change the strength or direction of the relationship between (IV) and (DV).
- It can increase or decrease the relationship between IV and DV.
- It can be considered a special type of IV.
- The presence of a third variable (ModV) modifies the originally expected relationship between IV and DV.



# Mediator Variable (Intervening Variable)

- Is the variable that helps explain the relationship between two variables (IV) and ( DV).
- Is one that surfaces between the time, the IV starts operating to influence the DV and the time, their impact is felt on it.
- It caused by IV and is itself a cause of the DV.
- Represents the relationship between IV and DV.
- The variable whose existence is inferred but it can't be measured.
- Med. Var. must be a causal result of the IV and a causal antecedent of the DV.

# Control Variable

- Variable that are kept the same in each trial.
- Is used in empirical research to reduce the risk of attributing explanatory power to IV, that in fact are not responsible for the occurrence of variation in the DV.
- Those variable that don't have a biasing effect on the other variable, we can control them.

# Example

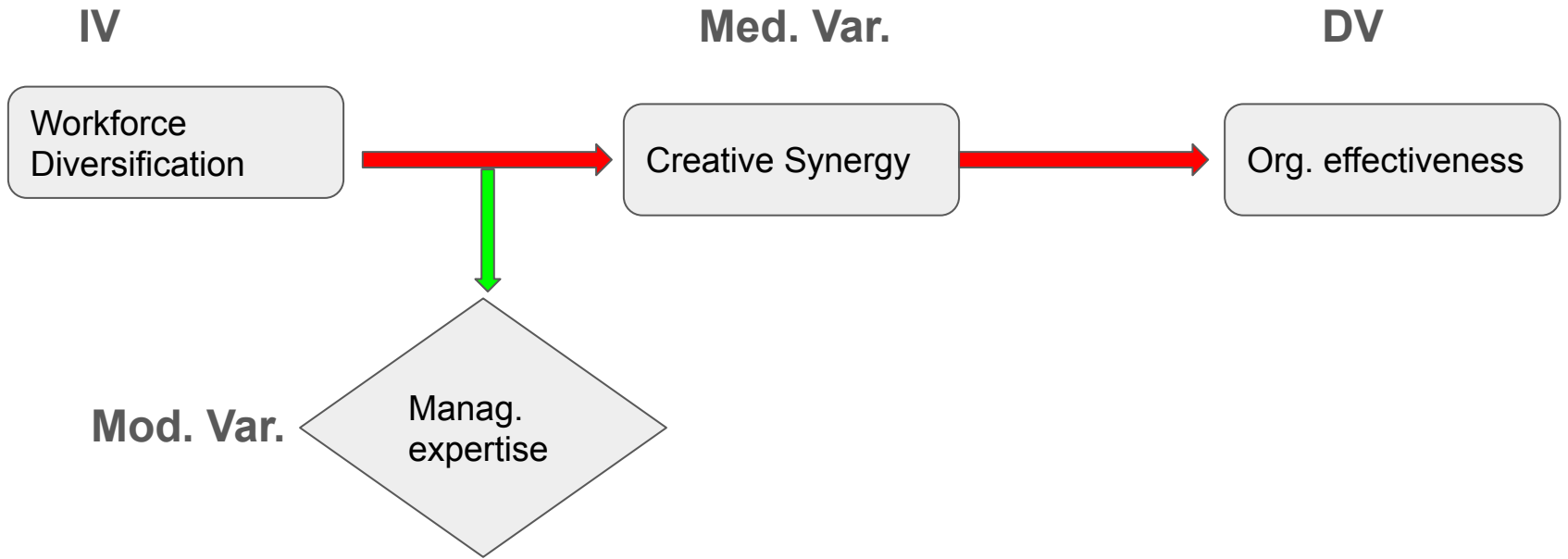
Strong relationship has been observed between workforce diversity (X) and organizational effectiveness (Y).

?

Which var. Is the IV? X or Y

Which variable is the DV? X or Y

**Now:** If we have another var. like managerial expert and creative synergy, which one should be the moderator and which one will be the mediator?



**Finally: If we have variable like firm size, this will be our control variable.**

