2017

RBUS2900 Final Notes

TOPIC LIST

MODULE 1: THE RESEARCH PROCESS

Distinguishing Between Applied & Pure Research

- **Applied Research**: focus on an issue or decision that needs to be made; often short term
  - → May result in action or policy
  - → Appreciated by managers
  - → Identifies problem/opportunity (mimics SWOT)
  - → Diagnoses and assesses problem/opportunity
  - → Selects and implements courses of action (simulated solutions)
  - → Evaluates courses of action (and potential effects of changes – e.g. changes to social media)
  - → *Think: applicable to management*
- **Pure Research**: problem solving questions of a theoretical nature; not necessarily short term
  - → Once information is founded about a phenomena, it can be generalized/applied to other things
  - → More academic oriented; hence why its 'pure'

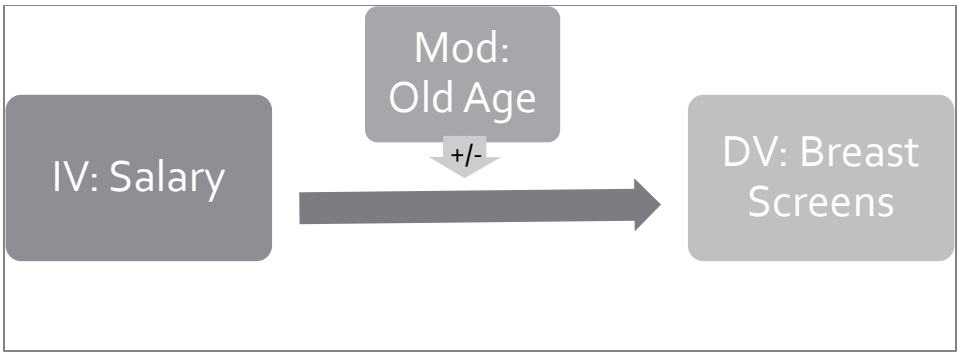
Defining Theory and Concepts/Constructs

- **Theory**: systematically interrelated concepts, definitions and propositions that explain and predict phenomena
  - → Summarizes what is KNOWN about the object of study
  - → Application in research business:
    - > Narrows down the range of facts required for the study
    - > Suggests system for researches to impose data in a meaningful way
    - > Predicts further facts
  - → Theoretical Framework: HOW the phenomena (e.g. concepts or variables) are related (AKA breaks down the model), and WHY they are associated (causal relationship)
- **Concept/Construct**: bundle of meaning/characteristics associated with 'something'
  - → Created by classifying and or categorizing objects that have common characteristics that can be seen beyond a single observation
    - > Concepts/Constructs could be unfounded if you just assumed they existed after one observation
  - → The 'label' to abstract bundles of meaning
  - → Application in research business:
    - > Design hypotheses using concepts
    - > Devise measurement concepts to test these hypotheses
    - > Gather data using these measurement concepts
  - → Conceptual definitions must eliminate ambiguity – they are the 'building blocks' of theories
  - → *Think: construct the bundle of meaning and give it a label*

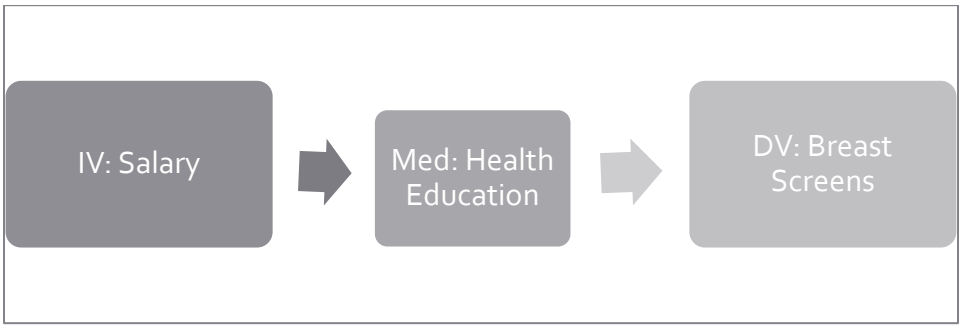
VARIABLES

- **Variables**: an attribute of 'something' that can change between observations – the relationship between the measured variables is important
- **Dependent Variable (DV):** represents the outcome of interest
  - → Systematically dependent on the IV
- **Independent Variable (IV)**: the explanatory variable that is thought to influence the DV
  - → Measured and manipulated to observe the change or effect in DV

- **Moderating Variable**: Changes the form or direction or strength between the IV and DV
  - → Doesn't impact the DV and IV directly… just the relationship
  - → *Think: Moderates (+/-) the direction of the relationship*
  - → E.G.



- **Mediating Variable**: A function of the IV that <u>explains</u> the DV; without the mediating variable, the relationship between the two variables might cease to exist…
  - → Impacts the FV and IV directly… it dictates the existence of the relationship
  - → *Think: Mediates the existence of the relationship*
  - → E.G.



HYPOTHESES, RELATIONSHIPS AND MODELS

- **Hypothesis**: tentative or conjectural (incomplete) declarative statement; founded from:
  - > **Deduction**: Theory based
  - > **Induction**: Observation based
  - > Must (1) predict, (2) be clear and unambiguous, (3) be testable

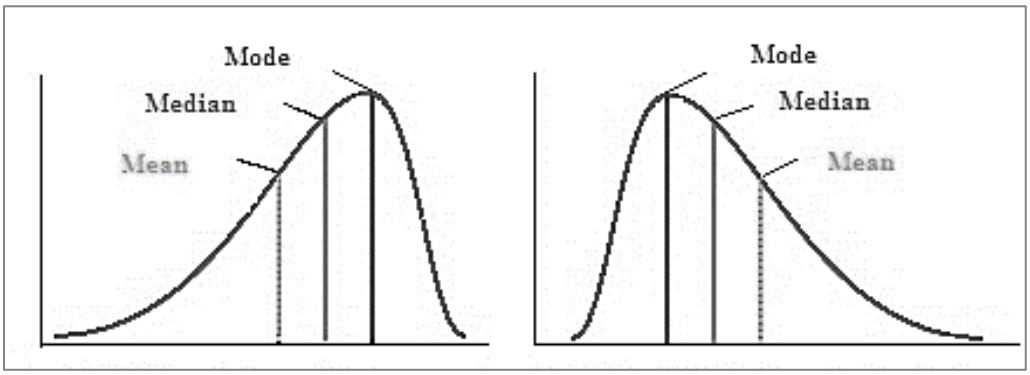
- **Relationships**: hypothesis serve to test the relationship/interaction between variables…
    - > **Causal Relationship**: existence of a clear and undeniable relationship where: A change in IV 'A' equates to an effect /change in DV 'B'
    - > **Correlational Relationship**: variables occur together but do not cause each other
    - > Positive: they move together in the same directional relationship (this can be up or down AKA ++ or --)
        - *Think: Positive moves together*
    - > Negative: the move away from each other in the opposite directional relationship (AKA +- or -+)
        - *Think: Negative does not move together*

- **Models**: representation of a system e.g. a diagram of a theory that links concepts together
    - > Efficient in communicating a phenomena/theory clearly and quickly
    - > Can be visual representation (see above at moderating/mediating examples) or equation form

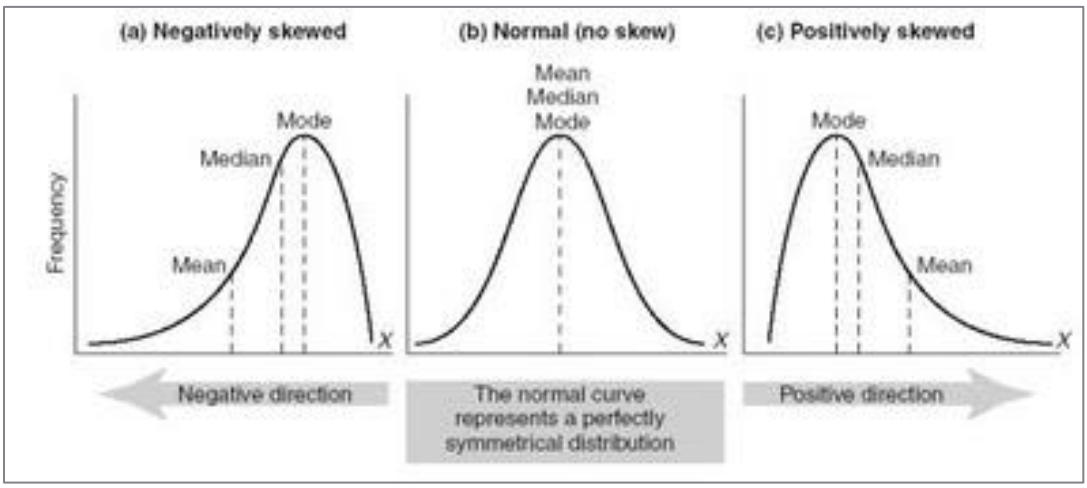
DESCRIPTIVE STATISTICS

- **Descriptive Statistics**: describes basic characteristics of the data; think of it as a 'summary'

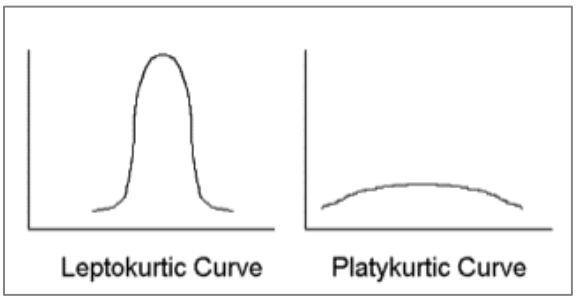
- **Location**: measures the central tendency of the data AKA where the 'bulk' of the data sits
    - > For the 'normality' assumption to be upheld, we check the following averages and if they are at least similar (or identical in value) then we can assume the assumption is upheld
    - > Note: for nominal data, only analyse the mode (frequency), the other two averages (mean and median) won't give any valuable information
    - → **Mean**: the average score
    - → **Median**: the middle score (can only yield the median when the data is re-organized to be ascending/descending in value)
    - → **Mode**: the most frequently occurring score



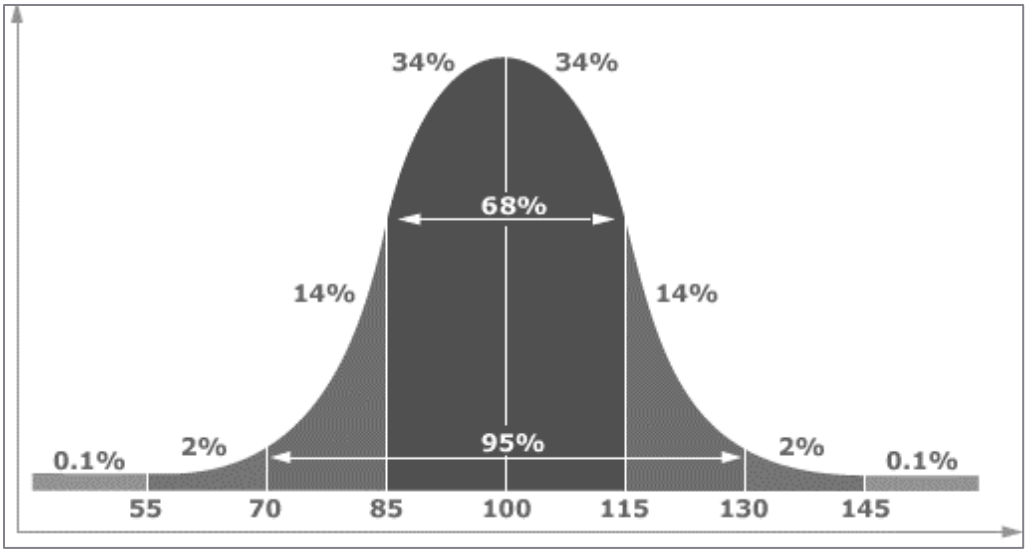
- **Shape**: (from interval or ratio data) where the data is positioned along a frequency scale AKA where the curve is (Left/Right) (Up or Down)
    - > For the 'normality' assumption to be upheld, we check for abnormality… If the scores are outside the range of -1 and +1 they are skewed or kurtotic, but so long as they are within the range of -3 and +3 it is accepted (not abnormal)
  - → **Skewness**: +/- deviations from the mean (moving left or right)
    - > Only reliable when the sample is large enough
    - > Think of the direction as where the outliers lie…
      - - Positive outliers = positive skew
      - - Negative outliers = negative skew



  - → **Kurtosis:** measures the peakedness or flatness of the curve (AKA steep or flat)
    - > **Leptokurtic:** if the slope is steep
    - > **Platykurtic:** if the slope is flat



- **Variability**: (from interval or ratio data) degree of difference (AKA variance) amongst and or between the sample (AKA how far each individual score is from the other)
  - → **Range**: spread of data (AKA minimum and maximum scores)
  - → **Inter-quartile Range (IQR):** difference between the 25th and 75th percentile (AKA the middle population in the bell curve – assuming the distribution is normal)
  - → **Standard Deviation**: the square root of the variance; the reason why you square root is so that it is expressed on the same scale as the data (in its original form)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