Wrap-up module 2 & 3
Intro to module 4 & 5

27 Nov 2023

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Quiz questions

1. What is the difference between a mediating and independent variable?
   A. A mediating variable impacts the variable of interest, an independent variable does not
   B. An independent variable is exogenous, a mediating variable is not
   C. An independent variable is an experimental condition, a mediating variable a disturbing effect

Quiz questions

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A: Yes, mediating variables affect dependent variable, but independent variable can do that too!
B: Correct! (Exogonous = not affected by any other variable in the model)
C: Independent variables could be experimental conditions. But

Quiz questions

2. A statement describing the relation between an independent and dependent variable is a
   A. Null hypothesis
   B. Alternate hypothesis

Quiz questions

3. What is a unit of analysis?
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   B. The discrete social unit that is subject of the conceptual model
   C. The discrete social unit that represents the independent variable

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A: Is the definition of unit of observation
B: Correct: Unit of analysis is the social unit that the RQ / conceptual model is about
C: Incorrect: An independent variable is the property of a discrete social unit (e.g. performance of company), not the unit itself (e.g. company)

Quiz questions

1. What is NOT a condition for causality?
   A. The independent variable (IV) and dependent variable (DV) should co-vary
   B. The IV should precede the DV
   C. No other (confounding) factor should cause a change in the DV
   D. The relation between IV and DV should derive from a logical explanation (theory)
   E. All the above are conditions for causality

Quiz questions

1. A supervisor asks a student whether his case study findings will also hold in other industries. This question relates to the study's
   A. Internal validity
   B. External validity
   C. Cross-sectional nature
   D. Experimental design

Quiz questions

1. Which statement is correct?
   I: A strength of surveys is their high external validity
   II: All things being equal, longitudinal studies have a higher internal validity than cross-sectional studies
   A. Only statement I is correct
   B. Only statement II is correct
   C. Both statements are correct
   D. None of the statements are correct

Feedback weekly assignment

Constructs – re-occurring mistakes

- 1) Constructs defined as abstract phenomena that cannot be operationalized
  - reasons not to participate in the platform-to-platform openness
  - digital platform business model
  - prerequisites for a company to be successful
  - Variables that can be directly observed
  - Or parts from the theory
- 2) The construct is defined circularly to some extent
  - - Customer trust: Amount of faith a customer has in the platform that has access to its data
  - - Motivation to share data: A business' willingness to openly share data on the platform
- 3) Many dependent variables are missing as a construct

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Tip - Constructs

- Constructs presented are objects and processes, not concepts as intended (“security”, “privacy”, “trust”)

Research Question:

What is the effect of anonymisation of datasets on the amount of fraudulent fabricated datasets?

Constructs:

1. Anonymisation: The process of making information in a dataset untraceable to the entity the information is about.
2. Fraudulent fabricated dataset: Information that is not gathered during a survey, experiment or research, but fabricated only for sales purposes.
3. Dataset: information gathered during research activities.

Hypothesis:

1. The anonymisation of datasets have led to an increased amount of fraudulent fabricated datasets. If a dataset is anonymized it becomes harder to validate the realness of the data, because it is hard to check where the data is coming from.
2. The anonymisation of datasets have led to a decreased amount of fraudulent fabricated datasets.
3. Anonymisation has no effect on the amount of fraudulent fabricated datasets. Other instruments prevent fraudulent datasets to be traded.

Unit of analysis

- 1) The unit of analysis is the major entity being studied
  - For instance: Organization, consumer, team, industry
- So it is not
  - Practices used by companies to optimize the data validity
  - Customer trust as well as confidence and comfort with which the customer shares its data with a platform
  - The Business Model of Data Platforms

Hypothesis – frequent mistakes

- 1) Constructs are not connected; cannot answer the main research question
- 2) A technology is in the hypotheses
  - - The risk mapping tool positively moderates the relation between the assessment of risks and the openness on business data
  - → Only put constructs = property of a unit of analysis

Hypothesis

Hypothesis is always the basis of your research!

Good practice:

- Directional:
  - The success of printed products (number of sales) will be higher when customer satisfaction is higher.
  - Introduction of green hydrogen in the transportation sector has a positive impact on reducing GHG.
- Non-directional:
  - Perception of the ease of use of the electric vehicles among users has an impact on their perception on the e-mobility in general.

Internal validity (many problems with this)

- 1) Criteria should be discussed rather than only mentioned
- - the experience to share data and the openness of data should co-vary
- 2) Relate the internal validity discussion to the chosen research strategy, criteria differ per research strategy, also explain how you want to guarantee internal validity

Unit of analysis and research strategy

Unit of analysis:

- Should always match up with research question
- If your research question is about a dryer unit than the unit of analysis is the dryer unit, not the full production process

Research strategy:

- Mostly used: Case study
- Make sure to have a clear explanation of why you chose your strategy.
  - Only stating that you should collect data is too limited
- Incorporate internal validity in the explanation

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Q&A

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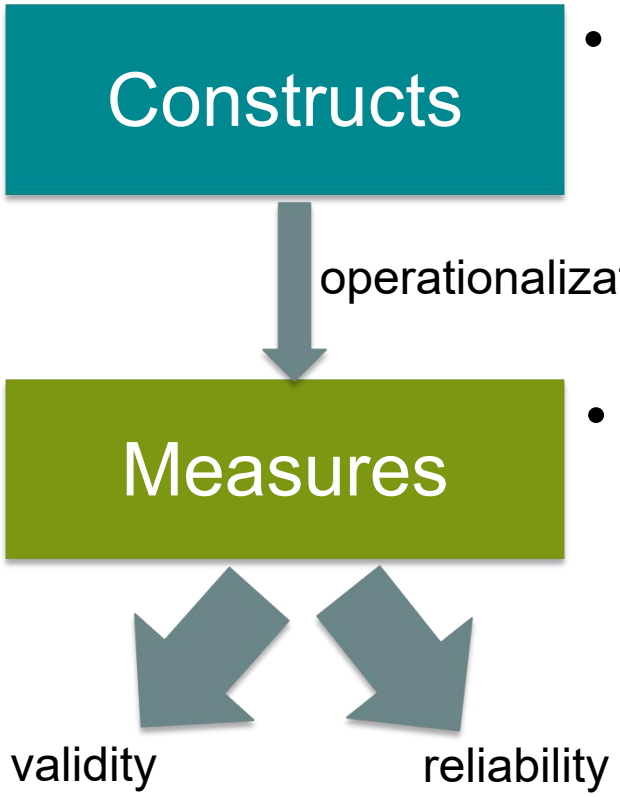
Intro to module 4: Measurement



- Not observable
  - E.g., intelligence, status, trust, reputation
- Empirical
  - E.g., questionnaire item

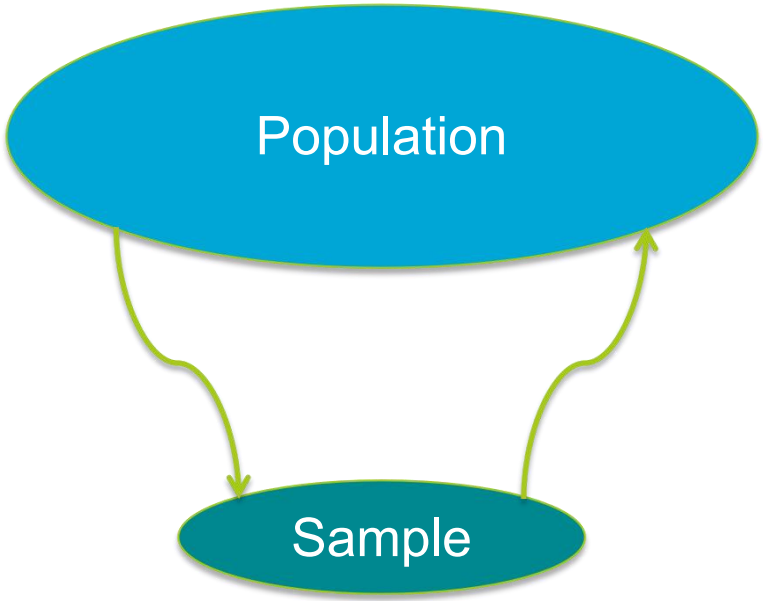
What makes a good measure?

Validity = does it measure what is intended?	**Reliability = is it consistent?**
• Concurrent validity • Predictive validity • Face validity • Convergent validity • Discriminant validity	• Test-retest reliability • Parallel-form reliability • Inter-item reliability • Split-half reliability

Data collection

- Primary vs secondary data
- Different forms of survey
- Structured vs unstructured interviews
- Constructing a questionnaire

Intro to module 5: Sampling

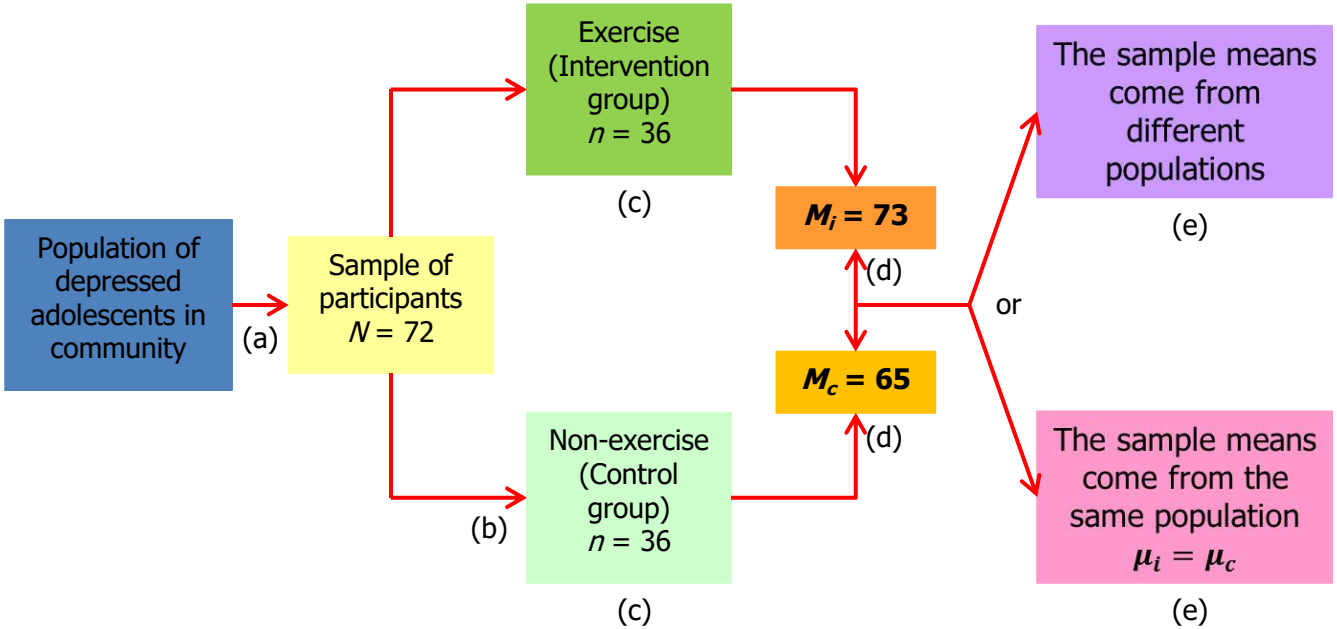


Selecting a ***sufficient*** number of elements from the population, so that results from analyzing the sample are ***generalizable*** to the population.

Forms of sampling

Probability sampling = equal chance of being chosen	Non-probability sampling = skewed samples
• Simple random sampling • Systematic sampling • Cluster sampling • Stratified sampling	• Convenience sampling • Judgment sampling • Quota sampling

Inferential statistics



Key:
(a) Selection of sample from population

(b) Assignment of participants to groups

(c) Experiment conducted

(d) Outcome of experiment

(e) Decision based on result of inferential statistic

Tomorrow's lecture

- Practice with the materials of module 3.a and 3.b.
- Preparation needed!
  - Watch the learning videos from module 3.a and 3.b
  - Read chapters 7, 9, 12, 13 from S&B