



Empirical Research Methods 1

Standardized questionnaires and construction of a new questionnaire

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Agenda

- Questionnaires in Edutech
 - Common ground: Questionnaires, tests, surveys, and instruments
 - Open, closed items
 - Knowledge and attitudinal items
 - How to formulate them

Common ground: Questionnaires, tests, surveys, and instruments

- ◇ Measure: a procedure for obtaining data
- ◇ Item: the basic building block (or element) of an instrument
- ◇ Scale: a group of items that are seek to measure one dimension of the variable of interest.
- ◇ (Research) Instrument: a tool or procedure used to measure (and quantify) subject characteristics
- ◇ Questionnaire: a written set of questions that a respondent completes typically used for research purposes which can be both qualitative as well as quantitative in nature.
- ◇ Test: an instrument meant to assess the ability to present a correct answer to a specific item/question, i.e. it measures performance
- ◇ Survey: a research method composed of instruments (e.g. tests, questionnaires, interviews) and it's also a broader concept that describes content, method, and analysis of the data obtained from the instruments

Common ground: Questionnaires, tests, surveys, and instruments

Good news!

The words: “measure”, “scale”, “instrument”, “questionnaire”, “test”, and “survey” are more or less used interchangeably when discussed informally

Same case for the words “item” and “question”

Questionnaires in EduTech Research

- ◇ Goal: Measuring...
 - ◇ Demographic aspects
 - ◇ Attitudes / opinions
 - ◇ Knowledge outcomes and knowledge gain

Example: Open item to measure knowledge

Translation

Beschreibe, wie man die Aufgaben von Problem 6 lösen kann.

Describe how one can solve the tasks of problem 6

Example: Closed items to measure knowledge:

Translation

Ergänze eines der folgenden Zeichen: > oder < oder =

Add one of these signs: > or < or =

$2 \square < 3$

$\frac{2}{10} \square \frac{1}{5}$

$\frac{1}{4} \square \frac{3}{4}$

$\frac{4}{8} \square \frac{4}{12}$

$\frac{1}{3} \square \frac{1}{2}$

$\frac{16}{17} \square \frac{13}{14}$

$\frac{1}{8} \square \frac{1}{4}$

$\frac{5}{2} \square 2$

Example: Closed items to measure attitudes

Beispiel: Wie sehr magst du die große Pause?



Wie sehr magst du Mathe?



Wie gerne lernst du alleine?



Wie gerne lernst du mit anderen zusammen?



Wie gerne gehst du in die Schule?



Smileyometer (Read, 2008)

Translated:

- How much do you like breaks (in school)?
- How much do you like mathematics?
- How much do you like learning alone?
- How much do you like learning with others?
- How much do you like going to school?

Attitude: feeling or opinion about something or someone [1]

Schmitt, L. J., & Weinberger, A. (2019). Fourth graders' dyadic learning on multi-touch interfaces - versatile effects of verbalization prompts. *Educational Technology Research and Development*, 67(3), 519-539. doi:10.1007/s11423-018-9619-5

[1]: <https://dictionary.cambridge.org/es/diccionario/ingles/attitude>

How to formulate items

- ◇ Positive wording: no double negative
- ◇ Simple sentences
- ◇ No undefined abbreviations, (technical) terms fitting to target group
- ◇ Only one construct per item
- ◇ No generalized expressions (always, never, no one...)
- ◇ No evaluation words/ descriptive adjectives
- ◇ Concretize time spans (“in the last two weeks“)
- ◇ No leading question

BTW

We will go more in-depth about the topic of questionnaires next semester in ERM2.

Exercise

- ◇ Build four groups; ~5 people per group
- ◇ Situation: you want to create an instrument for UoS students to assess their experience and attitudes towards the semester start and online/hybrid format of their classes
- ◇ Formulate 5-10 items regarding (10 minutes)
- ◇ Write the items here:
<https://unisaarlandde.sharepoint.com/:w:/s/123827EmpiricalResearchMethodsII/EVyw7pzdC2IOvhzMCAzwN-oBaVDgRtdOxBFjiKmnVAoHyg?e=pZmPNj>

Your examples

Criteria:

- Positive wording
- Simple sentences
- No undefined abbreviations
- Only one construct per item
- No generalized expressions
- No evaluation words
- Concretize time spans
- No leading question

◇ Rather good examples:

◇ ...

◇ Rather problematic examples

◇ ...

Reminders (again)

- ◇ Exercise sheets: deadlines and confirm submissions
- ◇ Register to everything ERM1
- ◇ SPSS!
- ◇ Use and keep an eye on the course Team for out-of-class info

Q&A:
TODAY'S TOPIC; ERM1 IN GENERAL

WEBCAMS ON FOR THE GOODBYE