Social Science Research Design: an Overview

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1. Stages in the research process

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Locate/develop theory → Identify research question/model to be tested → Collect data → Analyse data → Modify theory
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2. Research questions in qualitative and quantitative research

a. Qualitative research: A research question in qualitative research may seek to i) discover (e.g. grounded theory); ii) seek to understand (e.g. ethnography); iii)explore a process (e.g. case study); iv) describe the experiences (phenomenology); or v)report the stories.

b. Quantitative research: This focuses mainly on the relationships between variables that the investigator want to examine. Thus the researcher may compare a group of independent variables to a dependent variable. Here, the specification of research questions and hypotheses are often associated with testing a theory.

3. Four key tests of empirical social science research

a. *Construct validity:* simply put, it means measuring what you think you are measuring. Dimensions of construct validity include face validity, content validity and criterion related validity (which is tested through its relation with other variables). Many researchers approach this by adopting constructs developed by in established models. Increasingly, scholars and reviewers expect one of two things: either to develop new constructs, or test established constructs in a new context/study.

b. *Internal validity:* This is focused on establishing causal relationships, by which certain conditions are shown to lead to other conditions. It's relevant to explanatory and causal studies.

c. *External validity:* This has to do with how the findings of a study can be generalised in a wider context, beyond the immediate context of the study.

d. *Reliability:* This is tested mainly by replication of procedures, with the same results(Rattray & Jones, 2007; Yin, 2013)

4. Types of variables

Categorisation by level of measurement		Categorisation by type of (experimental) control
Categorical variables	**Continuous variables**	
1. *Nominal variable:* These belong to distinct categories, but they cannot be quantified or ranked, e.g. gender-male/female	1. *Continuous Ordinal variable:* The measurements are continuous, and can be ordered, but the ordering may not be on a linear scale	1. *Independent variable:* the variable being manipulated in order to observe the effect on a dependent variable. It is also called the predictor or explanatory variable. Example: revision time

		(independent variable), affecting exam grade (dependent variable)
2. *Discrete Ordinal variable:* They are similar to nominal variables, but they can be ordered. However, the intervals between the scale points are uneven. For example: low income, middle income, and upper income households.	2. *Interval -scale variables:* These can be ordered, and they have equal intervals. Example is temperature in degree Celsius.	2. *Dependent variable:* The variable that is being tested in an experiment/model. Like exam grade above, it is potentially being influenced by the predictor. Dependent variable is also known as the outcome variable.
	3. *Ratio- scale variables:* These are interval data, can be ordered, but on a non-linear scale. It has a clear definition of 0.0. That is, if it's equal to 0.0, there is none of that variable. Example is weight and height. A zero weight is no weight. This is unlike temperature, say, where a temperature of 0.0 does not mean "no heat".	3. *Control variable:* This is the variable that is kept constant in an experiment. It is not manipulated, and is not affected by changes.
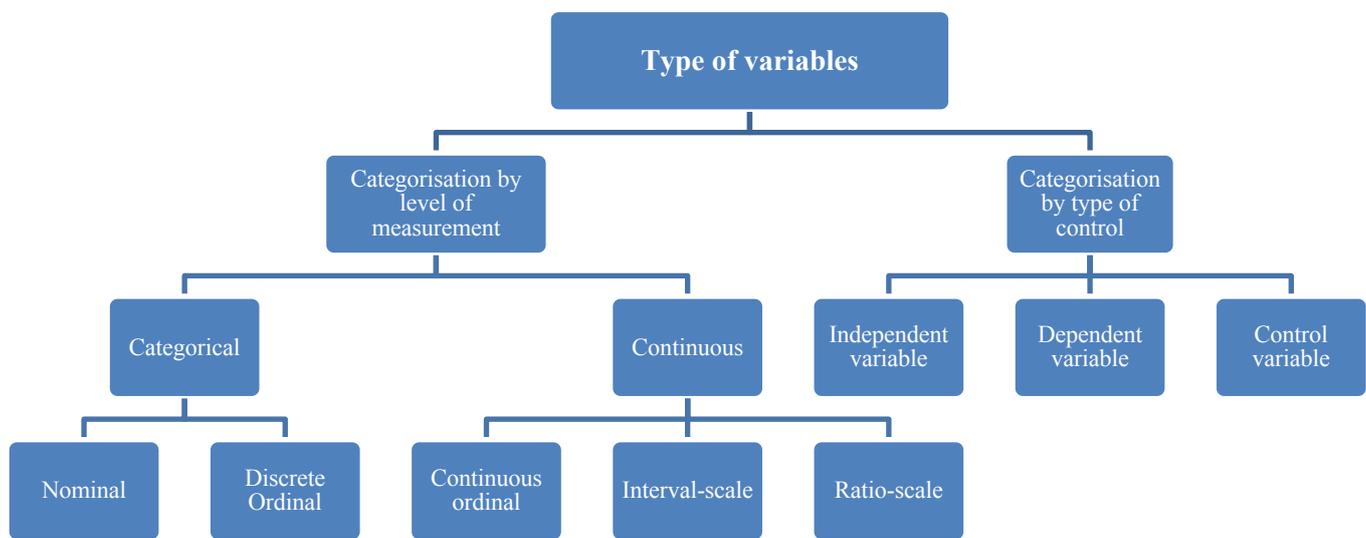
5. Designing a good questionnaire instrument: constructs, dimensions and indicator items

In addition to the foregoing, the design of a good questionnaire typically flows from: a) identification of the construct, e.g attitudes towards a mobile phone; b) identification of dimensions (and sometimes sub-dimensions) of the construct e.g. gender, sophistication, and ease of use; and c) development of indicator items for each dimension (Brinkman, 2009). The Likert Scale method, developed by American Psychologist Rensis Likert in 1932, helps social scientist to quantify variations in attitudes. A Likert scale item has two parts: the stem statement, and the response scale. A good Likert scale question should be clear and unambiguous, avoiding a) double barrelled questions, b) quantitative statements, and c) leading questions.

Bibliography

Brinkman, W.-P. (2009). Design of a Questionnaire Instrument. *Handbook of Mobile Technology Research Methods*, 31–57.

Rattray, J., & Jones, M. C. (2007). Essential elements of questionnaire design and development. *Journal of Clinical Nursing, 16*(2), 234–243. doi:10.1111/j.1365-2702.2006.01573.x

Yin, R. (2013). *Case study research: design and methods* (5th Edition). London, UK: SAGE Publications.