**Exam MEE115 Applied social science research methods – sensor guide**

**Autumn 2018**

*All questions are to be answered*

1. *Describe and explain what is meant by an abductive research strategy, and discuss what the strengths and limitations of an abductive research strategy are.*

The answer to this question it is possible to contrast the abductive research strategy with deduction, induction and retroduction. Furthermore, one should elaborate the discrepancy between Danermark et al. and Blaikie, i.e. their different understandings of abduction. The main part should be a discussion of the abductive research strategy. It could start directly from either Blakie, Danermark et al., and/or Dey. All three should be part of a good answer to the question, but the main focus should be on Danermark et al. and Dey. For them, the central issue is: what meaning is given to something interpreted within a particular conceptual framework?

The three features of an abductive research strategy highlighted by Danermark are 1) recontextualisation, i.e. to interpret and recontexualise individual phenomena within a conceptual framework or a set of ideas. To be able to understand something in a new way by observing and interpreting this something in a new framework. 2) It is a formal logic but it is not a strict logical inference. As Dey argue, unlike deduction, the result does not follow logically from the premises. 3) Hence, abduction builds on interpretation. An abductive research strategy offers a plausible interpretation rather than producing a logical conclusion. Using abductive inference is thus a matter of interpreting a phenomenon in terms of some theoretical frame of reference. This can be one of several possible interpretations, depending on the theory we adopt.

The strengths of abduction is that it provides guidance for the interpretative processes by which we ascribe meaning to events in larger context. The limitation is that there are no fixed criteria from which it is possible to assess in a definite way the validity of an abductive conclusion.

1. *Explain the Qualitative Comparative Analysis method and discuss how it relates to “small-N” case studies and “big-N” quantitative studies:*

* *What is QCA and how does it work?*

QCA is located on a middle ground between large and small N studies. Located on the side of case-oriented methods and emphasizing the case based nature of comparative research, QCA represents a strategy to integrate quantitative/variable- and qualitative/case-oriented research. Essentially, QCA links configurations of conditions to a specific outcome. The method demands that each case to be treated as a complex yet coherent configuration of different “attributes” or “conditions” which stand in relation to one another. According to QCA theory, the conditions are the factors which (alone or in combination) cause the matter of interest (or “outcome”). Grouping individual cases together according to their configurations of conditions thus allows to interpret the conditions *necessary* and/or *sufficient* to obtain particular outcomes. Where no patterns of causation can be found, the case-based nature of QCA demands the researcher to examine whether there are important omitted variables on which the individual cases. In order to be analytically fruitful, the study’s set of cases thus needs to be *calibrated*; this process requires a careful definition of the relevant population of cases, a precise definition of the meaning of all concepts used in the analysis, and a decision on the presence and nonpresence of a given phenomenon.

* *What is its advantage compared to analysing only a small number of cases?*

Compared to small-N studies, QCA is a method for comparing a medium number of cases. By bringing together a number of cases (with individual conditions and outcomes) in a set, and using the principles of logical minimization to look for commonalities among those cases with the same outcome, this methodology allows for an assessment of patterns of complex conjunctural causation across a number of cases without recourse to statistical testing.

* *What is its advantage compared to undertaking a statistical analysis?*

QCA is applied where there are insufficient numbers of cases for statistical testing. The logic of QCA comes close to statistical (regression) analysis, but remains qualitative and case-based and hence allows to a relatively large number of cases in depth. Depending on the *scores* assigned to the conditions and the outcome of individual cases during the configuration of the entire set of cases, existing patterns between cases can be uncovered in greater detail compared to large-N studies.

1. *In social sciences, we often rely on questionnaires (surveys) for measuring constructs. When you invite respondents to report on themselves, the reliability and validity of the answers is not always perfect. The construct measures contain error that we split in two parts; random error and bias.*
2. *What is random error and bias?*
   1. Random error is random
   2. Bias is a systematic error

*Multiple measures of constructs has been suggested as an important tool in social science measurement. (Main references are Churchill (1979), and Campbell & Fiske (1959).*

1. *What are multiple measures, and what do we achieve by using multiple measures of a construct?* 
   1. Multiple measures imply that we measure the same construct multiple times. If the domain of the construct is comprehensive, the measures could be a sample of items from the domain of the construct. For stable constructs, the multiple measures may be repeated over time. Multiple measures may also involve different measurement techniques, eg survey, observational data of the same construct etc.
   2. Multiple measures allow for control of (reduction) random error.
2. *Describe (very) briefly the steps involved in a construct validation process, e.g.:* 
   1. *Face validity*
      1. Is an *evaluation* of whether the measures:
         1. Look like they measure what they purport to measure (logically/semantically) do they make sense?
         2. Have been used (successfully) by others
   2. *Reliability*
      1. Is an assessment of the common variance of measures of a construct, e.g., absence of random error (often evaluated with Cronbach’s alpha)
   3. *Convergent validity*
   4. *Discriminant validity*
      1. Convergent and discriminant validity relate to bias and imply that measures of a construct really measure the construct and not something else. Can be evaluated by investigations of correlations (Campbell & Fiske (1959)), or more commonly with factor analysis: Measures of one construct must load on the same factor; Measures of different constructs must load on different factors.
   5. *Nomological validity*
      1. Nomological validity means that if measures of a construct are ok, then predictions from a nomological network involving the construct must be confirmed: The measures must make the construct behave as predicted in relationship to other constructs.