

Reliability & Validity: Qt RD & QI RD

Neuman (2003: Chap. 7:
169-209, esp. 178-187)

Reliability: Common Sense & Qt RD

- In common sense English the term “reliable” means dependable, predictable
- In Qt RD reliability refers to:
 - Stability over time
 - Representativeness across subgroups
 - Equivalence across indicators

Types of Qt Reliability

- *Stability Reliability*
 - Test-retest method
- *Representative Reliability*
 - Sub-population analysis
- *Equivalence Reliability* = where multiple indicators are being used
 - Split half method
 - Inter-coder reliability

Reliability: QI RD

- In QI RD the emphasis is on dependability with regard to “consistency”
- QI RD encourages “stability” in the ways in which something is being studied
- QI research does not emphasize reliability in quite the same way nor to quite the same degree as Qt RD
- Validity is more important in QI RD than reliability per se since reliability is assumed to emerge as a result of intensive study

Qt RD & Types of Validity

- Face = scientific community -“Interpretant”
- Content = Is the full definition being met?
- Criterion = Is the standard being met?
- Concurrent = Other indicators or measures, too?
- Predictive = Does the indicator predict behavior?
- Construct = Are the multiple indicators accurate within a clear operational def.?
- Convergent = They hang together & make sense.
- Discriminant = They diverge from one another in the manner one assumes should be the case.

Internal & External Validity

- Internal Validity = no errors internal to the design of the project (RD is good)
- Internal Validity mainly refers to strict Qt RD,
 - Experimental Design (e.g. TED)
- External Validity = valid generalizations can be made for the world outside of the lab; findings can be generalized to ordinary life situations
 - Again, primarily used in Experimental Design, but sometimes used by extension to cover both Qt RD and QI RD

“Authenticity” in QI RD

- The key to validity in Qualitative Research Design is the notion of giving a fair, honest, and balanced account.
- This is often called “authenticity” and it means that the researcher is “telling the truth” in an authentic manner
- A QI study should be a candid account: the truth, the whole truth and nothing but the truth!
- What is *really* going on here (& now)?
- “Ecological validity” in field work & ethnography is whether the whole “field” (eco-unit) is present

Conceptualization of Constructs

- In Qt RD the conceptualization of the constructs lends itself easily to “variables” and the jump from concept to numerical measurement is not as rigorously questioned.
- In QI RD the conceptualization of the constructs does not usually lend itself easily to “variables” in the strict sense and the leap from concept to numerical measurement is more rigorously questioned.
- Hence, what is clearly “interval” in Qt RD may be regarded as more “ordinal” in QI RD

How important are all the terms?

- There are many fine-grained distinctions that are made in the discussion of reliability and validity
- For a student in an introductory course the sub-points are not as important as the main thrust of the discussion
- *Low Reliability* and *Low Validity* = All over the board, with no clear idea of what is going on
- *High Reliability* but *Low Validity* = you get the same results but they may actually miss the mark; you may simply be repeating errors!
- *High Reliability* and *High Validity* = Bull's Eye!

Type I Error

- Type I Error occurs when a researcher says that a relationship exists, when in fact none exists (e.g. yelling “Fire!”).
- Hence, it means falsely rejecting the null hypothesis (or, hypotheses)
 - In most cases the null hypothesis states that no relationship exists
- Type I also means falsely accepting the research hypothesis (or, hypotheses)

Type II Error

- Here, instead of falsely accepting a hypothesis we falsely reject it!
- There is a fire in the building, but we fail to call out: “Fire!” (like recent Rhode Island fire where one hundred people died).
- We falsely reject the hypothesis and accept the null hypothesis.
- We falsely accept the null hypothesis.

False Positive & False Negative

- The same concept as Type I and Type II Errors occurs in everyday life
- If a jury decides that a person is guilty of a crime (when in fact she or he is innocent) or
- If a jury decides that a person is innocent of a crime (when in fact she or she is guilty)
- Then that is very similar; it depends on our criterion for guilty versus innocent: innocent until proven guilty (high level of significance) or guilty until proven innocent (low level of significance)
- Valid results must be viewed in this context, too!