Establishing the Validity and Reliability of a Research Instrument

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Topics covered

- The concept of validity
- Types of validity
- The concept of reliability in quantitative research
- Factors affecting the reliability of a research instrument
- Methods of determining the reliability in quantitative research
- Validity and reliability in qualitative research

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The concept of validity

Validity is the ability of a research instrument to measure what it is designed to measure

"Validity is defined as the degree to which the researcher has measured what he has set out to measure" (Smith 1991, 106)

"The commonest definition of validity is epitomised by the question: Are we measuring what we thing we are measuring?" (Kerlinger, 1973, 457)

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Types of validity in quantitative research

Face and Content validity based on subjective logic

- Face validity: Logic link between research instrument and an research objective
- Content validity: All aspects of the issue being measured

Concurrent and Predictive validity based on types of comparison

- Concurrent validity: Judged by how well an instrument compares with a second assessment concurrently done (validity coefficient)
- Predictive validity: Judged by the degree to which an instrument can forecast an outcome

Construct validity based on statistical procedures

- Construct validity: Statistical procedures establish the contribution of each important factor (construct)

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The concept of reliability

- The research tool is consistent, stable, predictable and accurate when used repeatedly

" A scale or test is reliable to the extent that repeat measurements made by it under constant conditions will give the same result" (Moser & Kalton, 1989, 353)

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Factors affecting the reliability of a research instrument

- The wording of questions
- The physical setting
- The respondent's mood
- The interviewer's mood
- The nature of interaction
- The regression effect of an instrument

Methods of determining the reliability in quantitative research

External consistency procedures:

- Test and retest (the instrument is compared with itself)
- Parallel forms of the same test (two instruments measure the same issue)

Internal consistency procedures:

- The split-half technique (if measuring attitudes statements are divided in half and scores are correlated)

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Validity and reliability in qualitative research

Trustworthiness and authenticity

Four indicators that reflect validity and reliability in qualitative research:

- Credibility
- Transferability
- Dependability
- Confirmability

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Table 11.1 from Trochim and Donnell

Table 11.1 Criteria for judging research

Traditional criteria for judging quantitative research	Alternative criteria for judging qualitative research
Internal Validity	Credibility
External Validity	Transferability
Reliability	Dependability
Objectivity	Confirmability

(Trochim and Donnelly 2007: 149)

Summary

- Validity and reliability is used differently in quantitative and qualitative research
- Concepts of validity and reliability relate more to quantitative research
- Validity refers to whether a research instrument measures what is set out to measure
- Reliability refers to an instrument that produces consistent measurement each time
- There are not set procedures for validity and reliability in qualitative research

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