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"Future Nursing Research and Innovation for Sustainable Global Health"

to Commemorate the 125th Anniversary of the Birth of HRH Princess Srinagarindra

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Challenges in Nursing Research Methodology Toward Global Health: Mixed Methods Research

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A research approach or methodology:

• focuses on research questions that call for real-life contextual understanding, multi-level perspectives, and cultural influences;

• employs rigorous quantitative research assessing *magnitude* and *frequency* of constructs and rigorous qualitative research exploring the *meaning* and *understanding* of constructs;

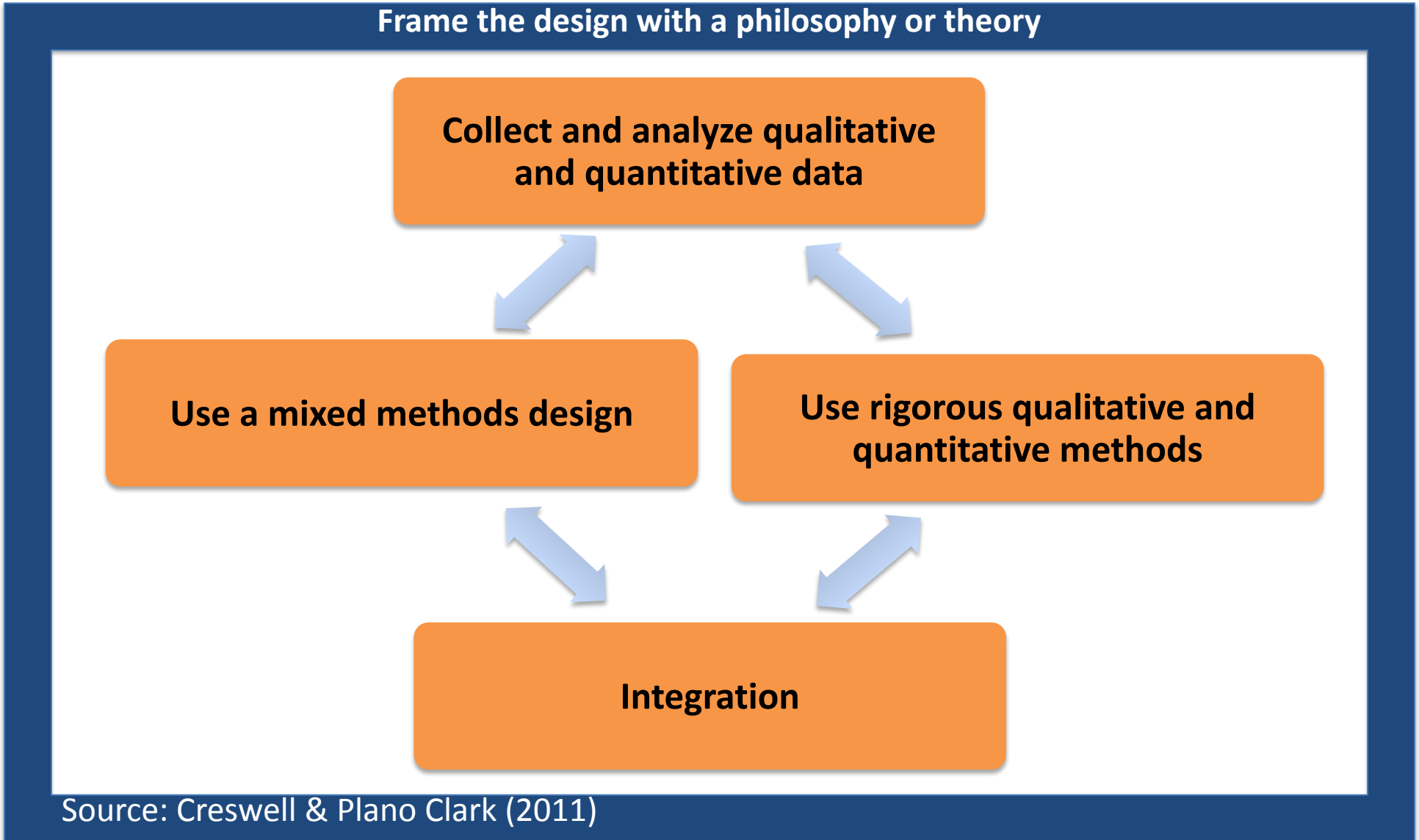
• utilizes multiple methods (e.g., intervention trials and in-depth interviews);

• intentionally integrates or combines these methods to draw on the strengths of each; and

• frame the investigation within philosophical and theoretical positions.

NIH Best Practices in Mixed Methods Research in the Health Sciences 2010; Creswell and Plano, 2011

Core characteristics of a rigorous mixed methods study



Source: Creswell & Plano Clark (2011)

Mixed methods research means “mixing” quantitative and qualitative data

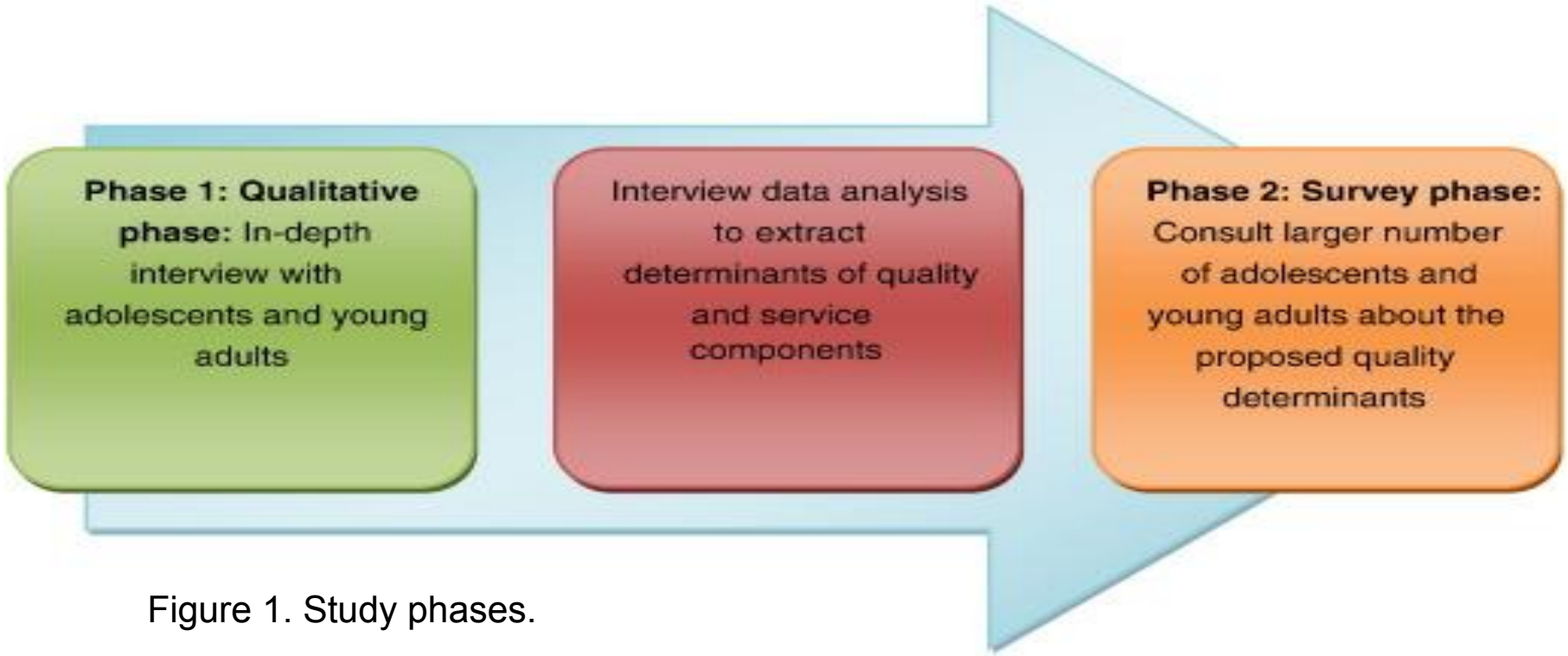


Figure 1. Study phases.

Nabeel Al-Yateem, Charles Docherty, Rachel Rossiter. **Determinants of Quality of Care for Adolescents and Young Adults With Chronic Illnesses: A Mixed Methods Study.** Journal of Pediatric Nursing, Volume 31, Issue 3, 2016, 255–266. http://dx.doi.org/10.1016/j.pedn.2015.12.003

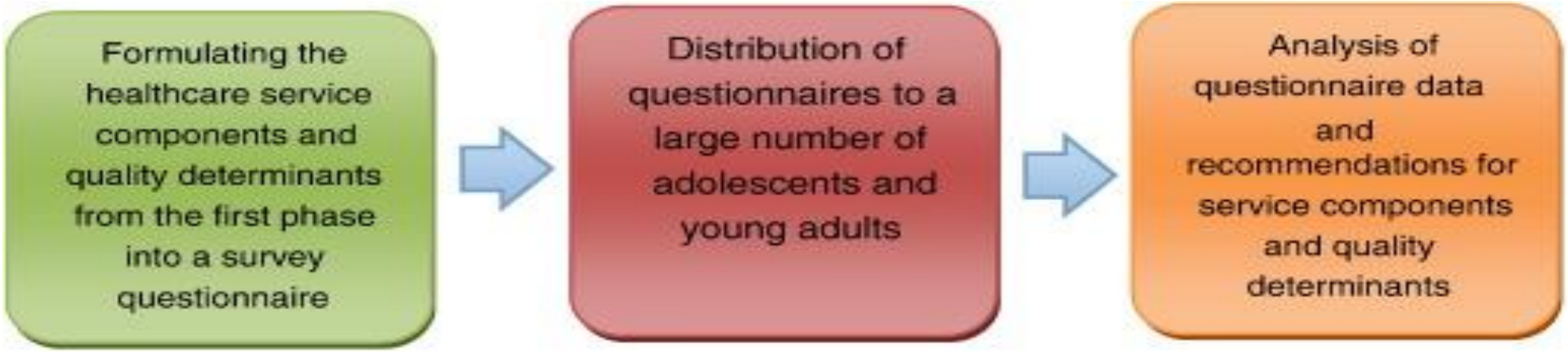


Figure 2. Phase 2: Questionnaire development, distribution and analysis.

Nabeel Al-Yateem, Charles Docherty, Rachel Rossiter. **Determinants of Quality of Care for Adolescents and Young Adults With Chronic Illnesses: A Mixed Methods Study.** Journal of Pediatric Nursing, Volume 31, Issue 3, 2016, 255–266. http://dx.doi.org/10.1016/j.pedn.2015.12.003

Why do mixed methods research?

Combine the strengths of qualitative data and quantitative data to answer complex research questions

Generate a better understanding of the phenomenon than either approach alone

Fetters & Freshwater, 2015

Intent and Nature of Research

Quantitative

- Measure a phenomenon
- Test theories a priori
- Reduces phenomenon to a singular reality
- Deductive or “top down”

Qualitative

- Explores a phenomenon
- Generate theories
- Embraces multiple realities
- Inductive or “bottom up”

Creswell and Plano Clark, Designing and Conducting Mixed Methods Research, 2007

Quantitative methods are suited to measure “known” phenomena, patterns of association, inferences of causality.

"How many?” "How often?” "What size?”
"What is the association between ___ and ____?”
"If _____, then _____”?
"Is _____ more effective than ____?”

Qualitative research methods are ideal to identify previously unknown processes, explanations of why and how phenomena occur, and the range of their effects.

"What meanings do patients/providers give to ____?"
"What patterns exist?"
"What is important?"
"What are provider/patients values regarding_____?"

Mixed methods can be used to…

- Generate hypotheses (qualitative) and test hypotheses (quantitative)
- Comprehensive understanding of magnitude (quantitative) AND nature of phenomenon (qualitative)
- Describe outcomes (quantitative) AND process (qualitative)
- Increase confidence in qualitative or quantitative findings
- Develop outcomes for an instrument when one is not available or needs adaptation (qualitative)
- Gather information to inform intervention or implementation (qualitative)

General Steps in Designing a Mixed Methods Study

Preliminary Considerations

- Philosophy or theory
- Resources (e.g., time, financial resources, skills)
- Research problems and reasons for using mixed methods

NIH Best Practices in Mixed Methods Research in the Health Sciences 2010

General Steps in Designing a Mixed Methods Study

- State study aims and research questions that call for qualitative, quantitative, and mixed methods, and that incorporate your reasons for conducting a mixed methods study
- Determine your methods of quantitative and qualitative data collection and analysis
  - When it will be collected
  - What emphasis will be given to each
  - How they will be integrated or mixed
- Select a mixed methods design that helps address your question and the data collection/integration procedures

NIH Best Practices in Mixed Methods Research in the Health Sciences 2010

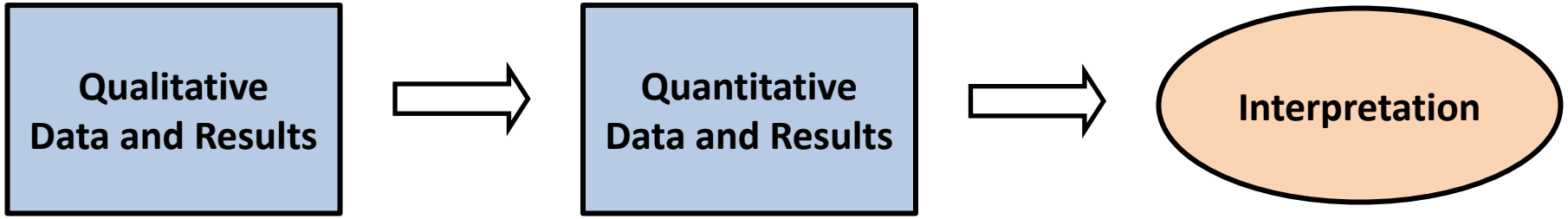
MIXED METHODS RESEARCH DESIGNS

Mixed Methods Designs and Levels of Integration

Integration Level	Approaches
Design	3 Core Designs • Exploratory Sequential • Explanatory Sequential • Convergent 5 Advanced Frameworks • Multistage • Intervention • Case Study • Participatory – Community-Based Participatory Research, Transformative • Instrument development
Methods	• Connecting • Building • Merging • Embedding
Interpretation and Reporting	• Narrative – Weaving, Contiguous and Staged • Data Transformation • Joint Display

Fetters MD, Curry LA, Creswell JW. Achieving integration in mixed methods designs – principles and practices. Health Serv Res, 48(6 Pt 2): 2134-56, 2013

Exploratory Sequential Design



Exploratory Sequential Design

Applications

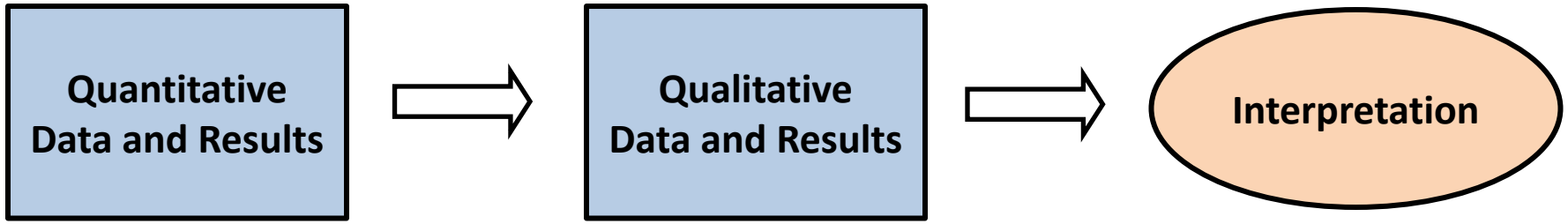
-To *explore* and identify variables to study quantitatively when these variables *are not known at first*

-To cognitively test instruments prior to a study

-To develop a theory or model first, then test it

-To develop a classification or typology to test quantitatively

Explanatory Sequential Design

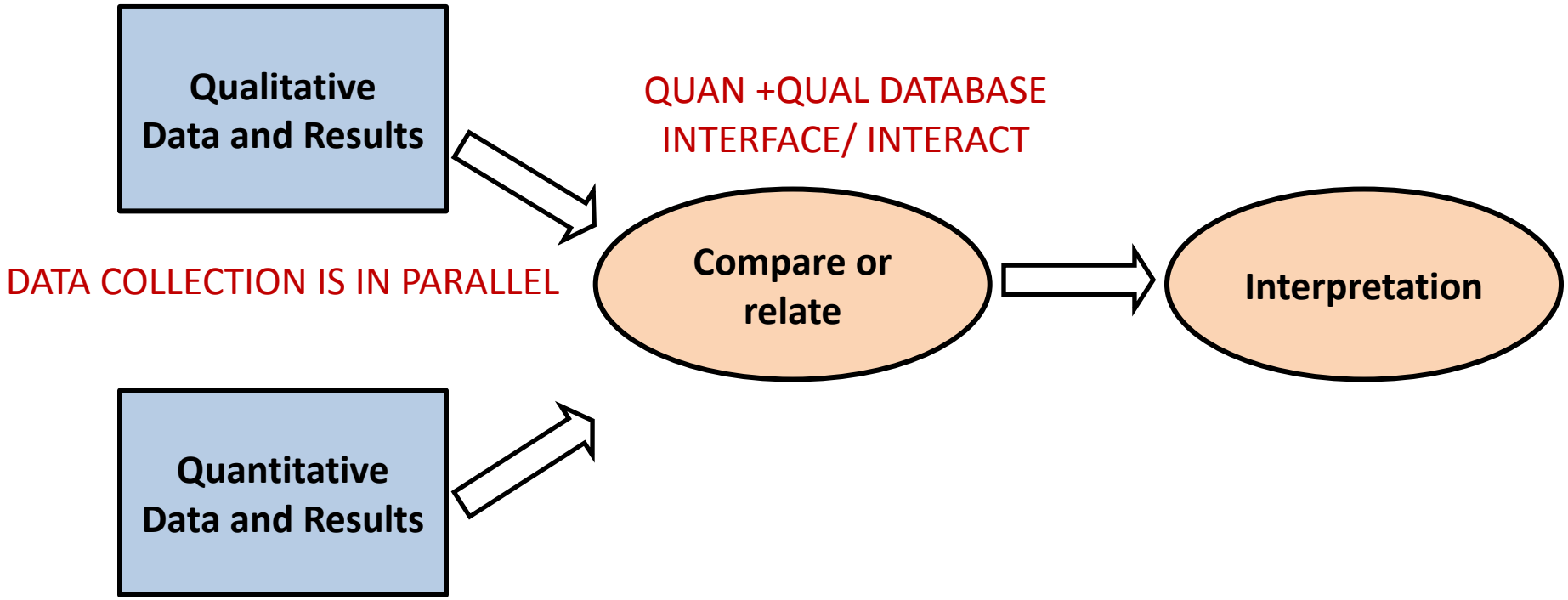


Explanatory Sequential Design

Applications

- To explain the quantitative results in more depth with qualitative data
  - Null findings
  - Outliers
  - Enrollment patterns
- To identify appropriate participants to study in more depth qualitatively
  - Smaller subsamples (e.g. minority group)
  - Surprising findings

Convergent Design



Convergent Design

Applications

- To acquire breadth of understanding (quantitative) with depth of understanding (qualitative)
- To validate or explain quantitative findings with qualitative data collected contemporaneously
- To expand your quantitative findings with some open-ended qualitative data (e.g., survey with closed- and open-ended data)

Advanced Frameworks

Integration Level	Approaches
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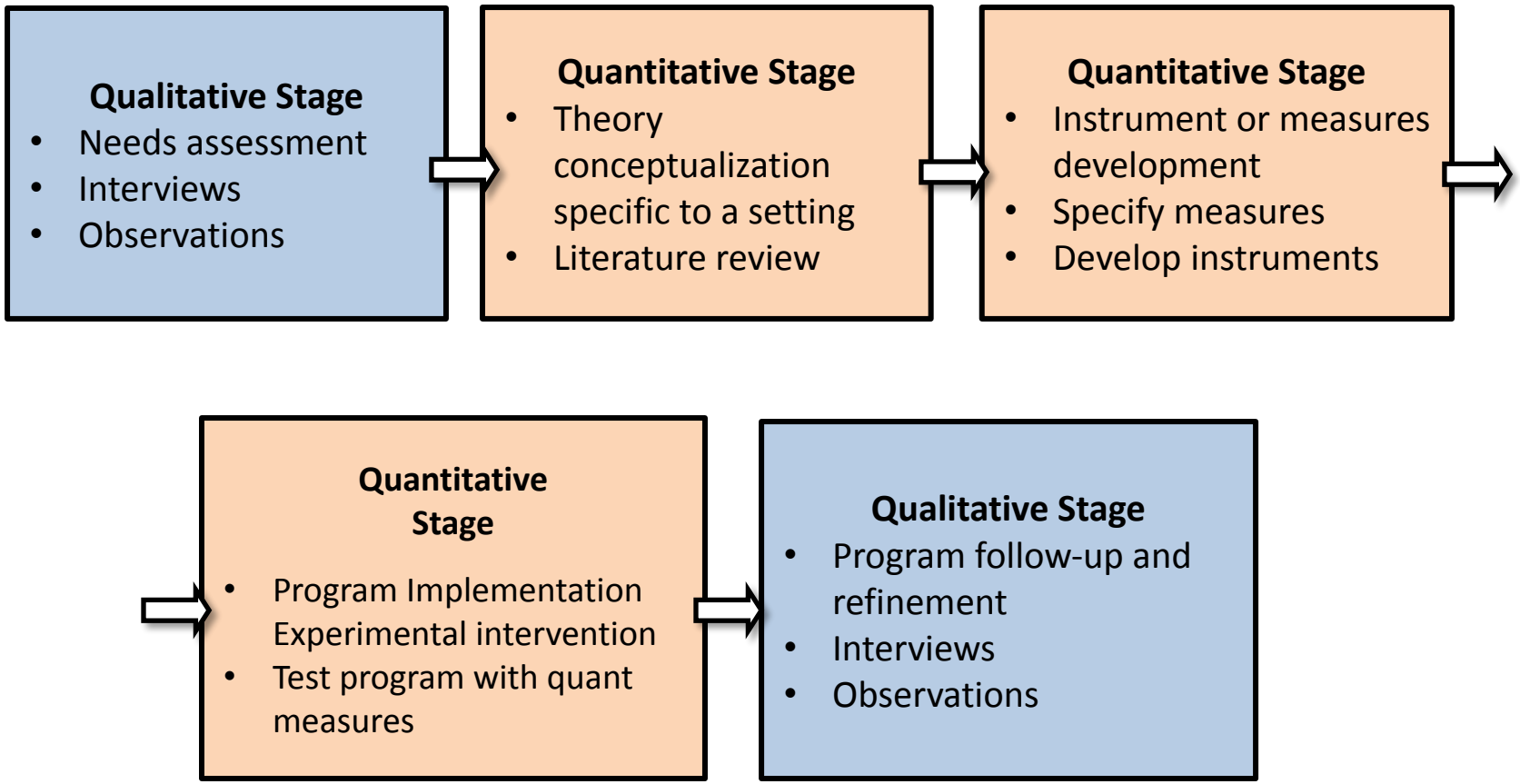
Multistage Design

Three or more stages or phases

Made up of one or more of the core designs

Good fit for longitudinal studies focused on evaluating the design, implementation, and assessment of a program or intervention.

Multistage Evaluation Design Example



Creswell, 2015

Intervention Design

Conduct an experiment or intervention – adding qualitative data

QUANITATIVE is Central

Qualitative data are collected primarily to:

Support the development of the intervention (*before* intervention)

Understand contextual factors and/or processes *during* the intervention that could affect the outcome

Explain results *after* the intervention is completed

May involve any combination of the above

Participatory Advanced Frameworks

Perspectives and voices of individuals in the target population are included in the research

Participation is active and reciprocal

Addresses inequities, disparities, social injustice

Focus is to empower marginalized populations

Ex: Community-based participatory research

Instrument Design Framework

Builds on exploratory sequential design

Collect qualitative data first, followed by building the instrument, then collecting quantitative data to test the instrument

Combines qualitative inquiry, quantitative inquiry and measurement/psychometrics

MIXED METHODS INTEGRATION

Mixed Methods Integration

Where qualitative data and quantitative data meet, greet, and interact

Fetters MD, Curry LA, Creswell JW. Achieving integration in mixed methods designs – principles and practices. Health Serv Res, 48(6 Pt 2): 2134-56, 2013

Integration Principles

- Intentionally combine the quantitative and qualitative data
- **Goal is** to maximize the strengths of the quantitat*i*ve and qualitative data and minimize their weaknesses
- **Goal is not** to separately collect qualitative and quantitative data that never interface, interact, integrate

Mixed Methods: Levels of Integration

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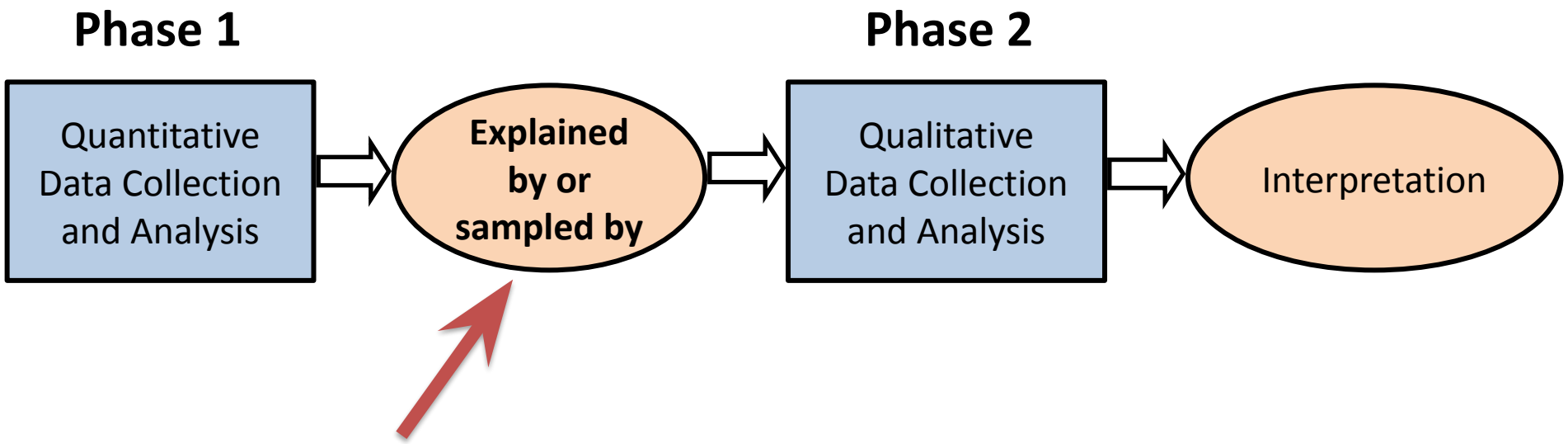
Integration though Connecting

Purposely selecting the qualitative follow-up sample based on the individuals who provided unexpected survey responses

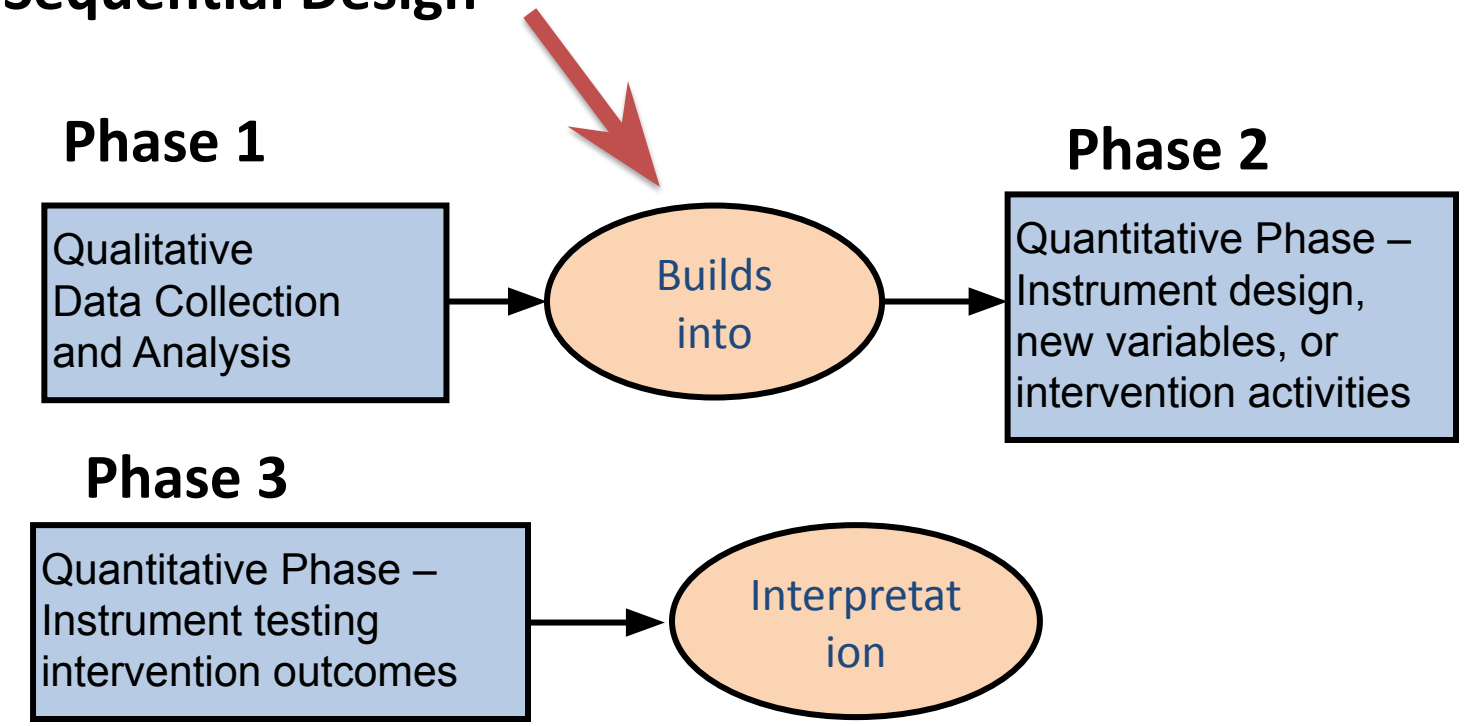
Explanatory Sequential Design



Integration through Building

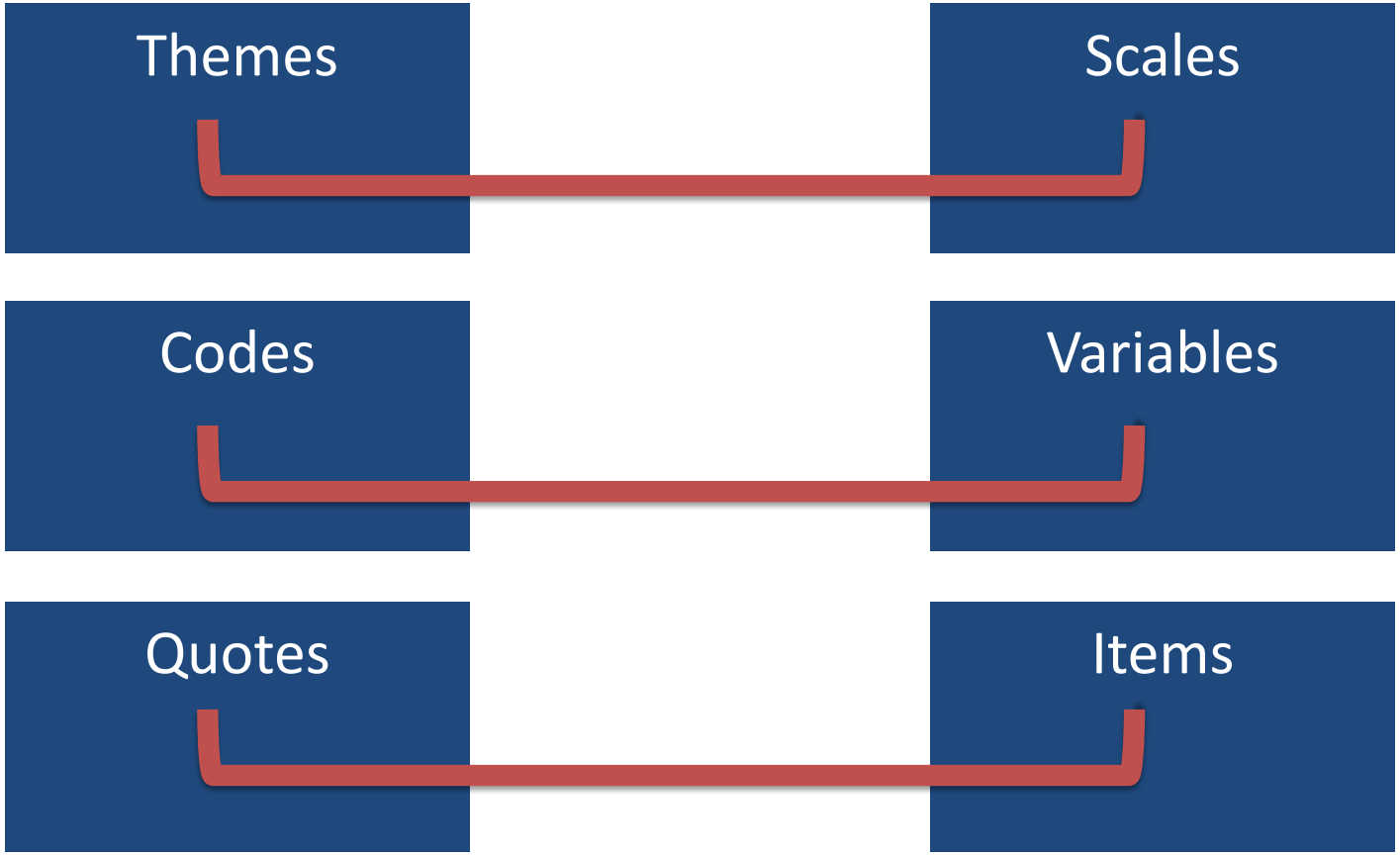
The results of one component informs the data collection of the other.

Exploratory Sequential Design



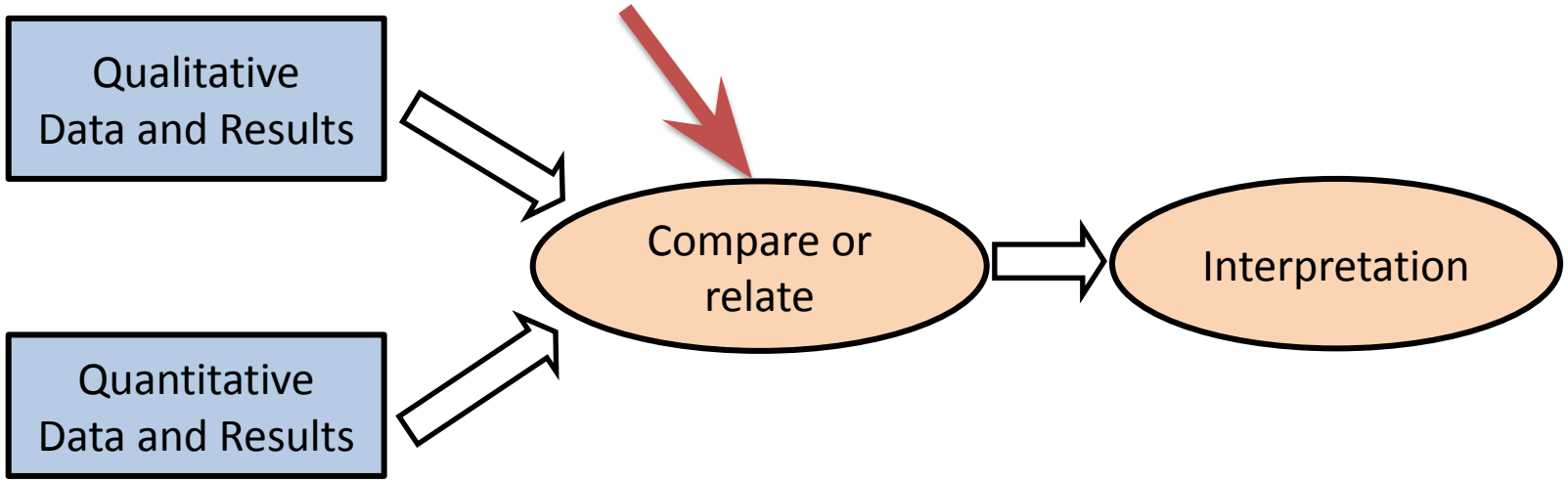
Building

Going from qualitative findings to a quantitative instrument



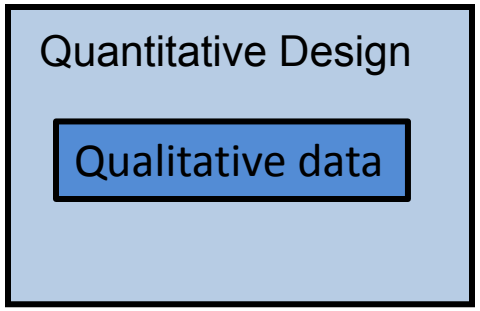
Merging

- Qualitative and quantitative results are brought together and compared
- Convergent design



Embedding

- Qualitative data are used to augment or support quantitative data
- Embedding (or nesting) is often found in an intervention design



Sampling Considerations

Quantitative Data: Random sampling

Qualitative Data: Purposeful sampling

Same database/sample, same size vs. Same database, unequal size

MIXED METHODS INTERPRETATION AND REPORTING

Mixed Methods: Interpretation and Reporting

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Creswell, J & Inoue, M. A process for conduring mixed methods data analysis. J Gen Fam Med. 2025; 26:4-11

Interpretation and Reporting

- Narrative
  - combines qualitative storytelling with quantitative data to provide a more complete understanding of a phenomenon

Example: Doran, P., Burden, S., & Shryane, N. (2021). Integration of Narratives Into Mixed Methods Research: An Example From a Study on the Value of Social Support to Older People With Cancer. Journal of Mixed Methods Research, 16(4), 418-437.

Interpretation and Reporting

- Data Transformation
  - converting one type of data to match the other
    - Quantitating
    - Qualitizing
  - allows for a more unified understanding of the findings, which can then be displayed in joint displays or integrated to answer a broader research question

Interpretation and Reporting

Joint Display

- A visual means of facilitating or representing the integration of qualitative and quantitative research.

Social support					
Perceived support	Themes: Loneliness; cancer knowledge; complexity	I was really getting stressed out at home trying to look after her. She'd do silly things. She was shouting my name every two minutes, I couldn't go out of the room. (Dan)	Having low support from expected sources of support (children, partner) was more detrimental than not having any support from that source	Partner low support: B = −5.83 (SE = 0.31) p<0.01**	Complementary - loneliness is a key issue, and having a low level of support (from partners, children and other family) was more detrimental than having no support

Example: Doran, P., Burden, S., & Shryane, N. (2021). Integration of Narratives Into Mixed Methods Research: An Example From a Study on the Value of Social Support to Older People With Cancer. Journal of Mixed Methods Research, 16(4), 418-437.

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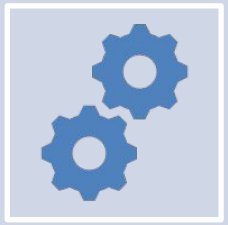
Common Pitfalls



In Results
- Integration
1. explicit description of how and where integration occurs? (data collection, analysis, interpretation).
2. integration leads to new insights beyond separate analyses
3. joint displays, matrices, or merged results tables

In Discussion
- Interpretation reflecting both strands and the integration
- meta-inference (overall conclusion) coherent and justified

Thank you

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