



**PennState**  
College of Nursing

# Mixed Methods Research

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# Take Home Points



**By the end of this presentation we will have discussed**

- A review of the basics of qualitative research
  - What it is, types of problems it addresses, purpose statements, sources of data, analysis, rigor
- The basics of mixed methods research
  - Essential characteristics
  - Designs including examples
  - Best Practices: justification, aims, integration, validation, publications



# What is Qualitative research?

Office of Qualitative & Mixed Methods  
Research, University of Nebraska, Lincoln

**An approach wherein the inquirer:**

- aims to gain insight
- asks participants broad, general questions, primarily inductive reasoning
- collects detailed views of participants in the form of words or images
- ....in an effort to explore a central phenomenon (one key concept)

## QUANTITATIVE

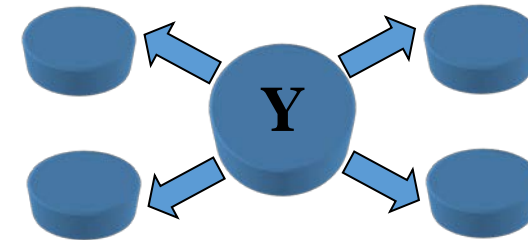
**explaining or  
predicting variables**



The independent variable (X)  
influences a dependent  
variable (Y)

## QUALITATIVE

**understanding or exploring  
a central phenomenon**



In-depth understanding of Y;  
external forces shape and are  
shaped by Y

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# Qualitative vs Quantitative

	<b>Qualitative Research</b>	<b>Quantitative Research</b>
Type of questions	Probing	Limited probing
Sample Size	Small	Large
Info. Per respondent	Much	Varies
Administration	Requires skilled researcher	Fewer specialist skills required
Type of Analysis	Subjective, interpretative	Statistical
Type of research	Exploratory	Descriptive or causal



## What types of problems are suited for qualitative research?

- when you are exploring a subject about which you don't know much in advance
- when you want to grasp the meanings, motives, reasons, patterns, etc, usually unnoticed in standardized approaches.

## What types of problems.... related to delirium research?

### A good qualitative purpose statement will include:

- Single sentence “The purpose of this study . . .”
- Central phenomena
- Qualitative words (e.g. “explore,” “understand,” “discover”)

“The purpose of the current exploratory study was to describe examples and qualitatively derived themes of nurse-facilitated PCC for hospitalized older adults with dementia and delirium.” Yevchak, A. et al. *J Gerontol Nurs*. 2017;26:1-8.

# Qualitative Approaches

## **DESCRIPTIVE**

- Discovers/describes the who, what, and where of events or experiences through interviews (individual or group) or open-ended questions on surveys

## **NARRATIVE**

- Explores the life of an individual using interviews and primary documents

## **PHENOMENOLOGY**

- Explores the unique perspective, lived experience in long interviews in up to 10 participants

## **GROUNDED THEORY**

- Investigates how inductively-derived theory about a phenomenon is grounded in the data of a particular setting through Interviews with 20-30 individuals to “saturate” categories and detail a theory

## **ETHNOGRAPHY**

- studies cultural patterns and perspectives of participants in their natural settings through observations, interviews, and possibly artifacts

## **CASE STUDY**

- examines the characteristics of a particular entity, phenomenon, or person through documents, archival records, interviews, observations, and physical artifacts

# Qualitative Methods:

## Selecting people/sites to study

- Can the people and sites help us learn about our central phenomenon? (purposefully select people and sites)
- How many people and sites should we study?
- Do we have access?
- Do we have permissions (obtain permissions)?



## SOURCES OF DATA

- Interviews: one-on one, focus groups, on-line (email, chat rooms, discussions)
- Observations: as a participant, as an observer, shifting positions
- Documents: journals (researcher or participant), medical records, public documents
- Audiovisual materials: films, videos, photographs, emails, tweets, facebook, text messages

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# Qualitative Methods: Data Collection

- How to Observe?

- Create an observational protocol
  - Record descriptive notes
  - Record reflective notes
- Decide on your observational stance
- Enter site slowly
- Conduct multiple observations
- Summarize at end of each observation

- How to Interview?

- Decide on the type of interview to use
  - Individual
  - Focus group
  - Telephone
  - e-mail
- Create an interview protocol
- Ask open-ended questions (5-7)
- Tape record and transcribe for analysis



### Basic Information about the Interview:

Time of interview:

Date:

Place:

Interviewer:

Interviewee:

Position of interviewee:

Recording/storing information about interview:

### Introduction

- ☐ Introduce yourself
- ☐ Discuss the purpose of the study
- ☐ Get informed consent signature
- ☐ Provide structure of the interview (audio recording, taking notes)
- ☐ Ask if they have questions
- ☐ Define any terms necessary

### Interview Content Questions

1. What has been your role in the incident? (ice-breaker)

Probes: Tell me more. Please explain.

2. What has happened since the event that you have been involved in? (content question)

Probes: Tell me more. Please explain.

3. What has been the impact on the university community of this incident? (content question)

Probes: Tell me more. Please explain.

4. What larger ramifications, if any, exist from the incident? (content question)

Probes: Tell me more. Please explain.

5. To whom should we talk to find out more about campus reaction to the incident? (follow up question)

Probes: Tell me more. Please explain.

### Closing Instructions

- ☐ Thank the individual for participating
- ☐ Assure individual of confidentiality
- ☐ If needed, request further interviews
- ☐ If asked, comment on how they will receive results of the study



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Figure 15.1 Sample Interview Protocol (Source: adapted from Creswell, 2013)

# The coding process involves several steps

1. Transcribe the interview

2. Read  
through data

3. Determine what the person is saying  
In coding frame (sentence, para, phrase)

4. Look for  
overlap  
among codes

## THEMES CAN:

- Describe a setting or what occurred
- Be what you would expect
- Be what you would not expect
- Also be related
- Create a conceptual map

MANY  
PAGES  
OF TEXT

MANY  
SEGMENTS  
OF TEXT

30-40  
CODES

CODES  
REDUCED  
TO 20

REDUCE CODES TO  
5-7 THEMES

Codes in left column

# Reporting Qualitative Findings

- Describe the setting
- Identify and discuss 5-7 themes (including multiple perspectives, good quotes (in vivo codes), useful dialogue, even metaphors or analogies)
- Write in detail; make the narrative as realistic as possible (even note tensions/contradictions)
- Report the narrative in a way consistent with our approach:
  - Descriptive – categories of information
  - Narrative – typically a chronology
  - Phenomenology – typically description building toward the essence of the phenomenon
  - Ethnography – description of the setting and cultural themes that display the way culture-sharing works
  - Grounded theory – categories of information leading to a theoretical model
  - Case study – description of the case and themes of the case



# Qualitative Data Collection: Rigor

## TRUSTWORTHINESS

- Member checks: recycling interpretation back to the key informants
- Searching for disconfirming evidence
- Triangulation: multiple data sources and multiple methods
- Thick description: a thorough description of the context of the study

## CONFIRMABILITY

- Collection of data in ways that allow for audits: Audio recordings, Full transcripts of interviews, Collection of low inference observational data
- Engaging a team approach
- Audit trail

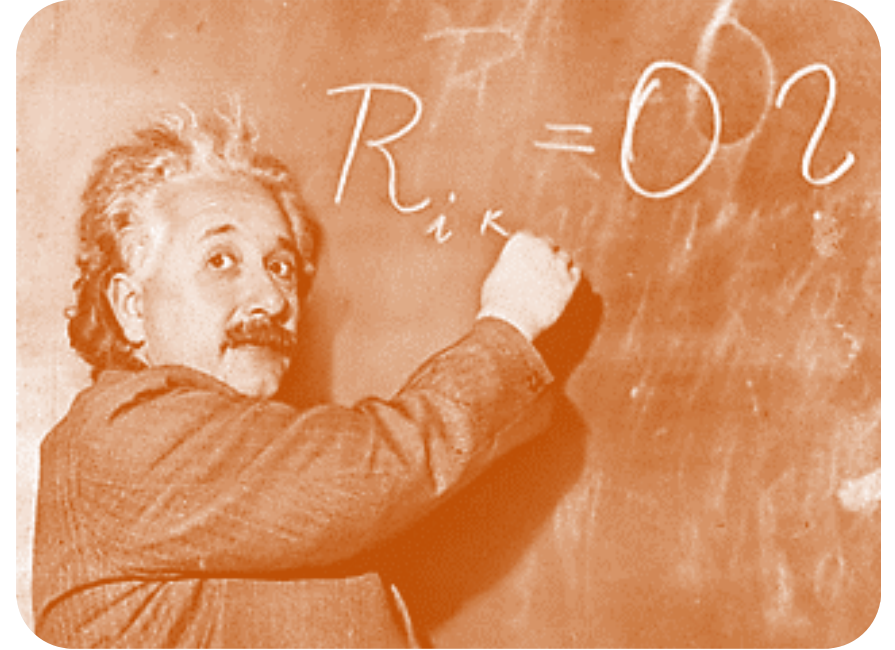
## REFLEXIVITY

- Document beliefs, framework, theories underlying approach to the problem before beginning the data collection.
- Actively journal reflections
- Engage other perspectives in team analysis.

# Common software packages available

- MAXQDA
- NVIVO
- Atlas.ti
- Dedoose

# Mixed Methods



*“The significant problems we face cannot be solved by the same level of thinking that created them.”*

Albert Einstein

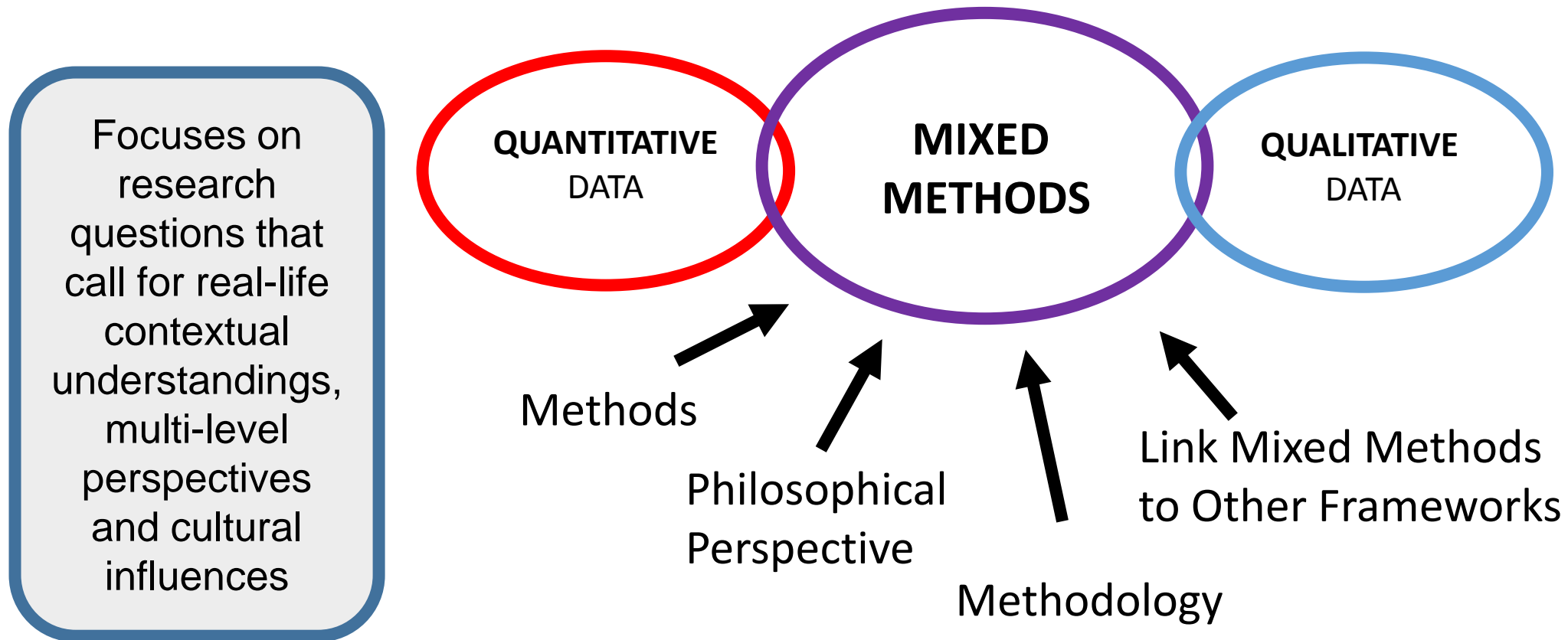
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# Mixed Methods

Design for collecting, analyzing, and mixing both quantitative and qualitative research (or data) in a single study or series of studies to understand a research problem.

(Adapted from Creswell and Plano Clark, 2007)







# Typical situations in which mixed methods are used...

- To compare results from quantitative and qualitative research
- To use qualitative research to help explain quantitative findings
  - Including adding stakeholder perspectives into our measured results
- To explore using qualitative research and then to generalize findings to a large population using quantitative research
- To develop an instrument because none are available or useful
- To inform intervention development/refinement
- To augment an experiment with qualitative data

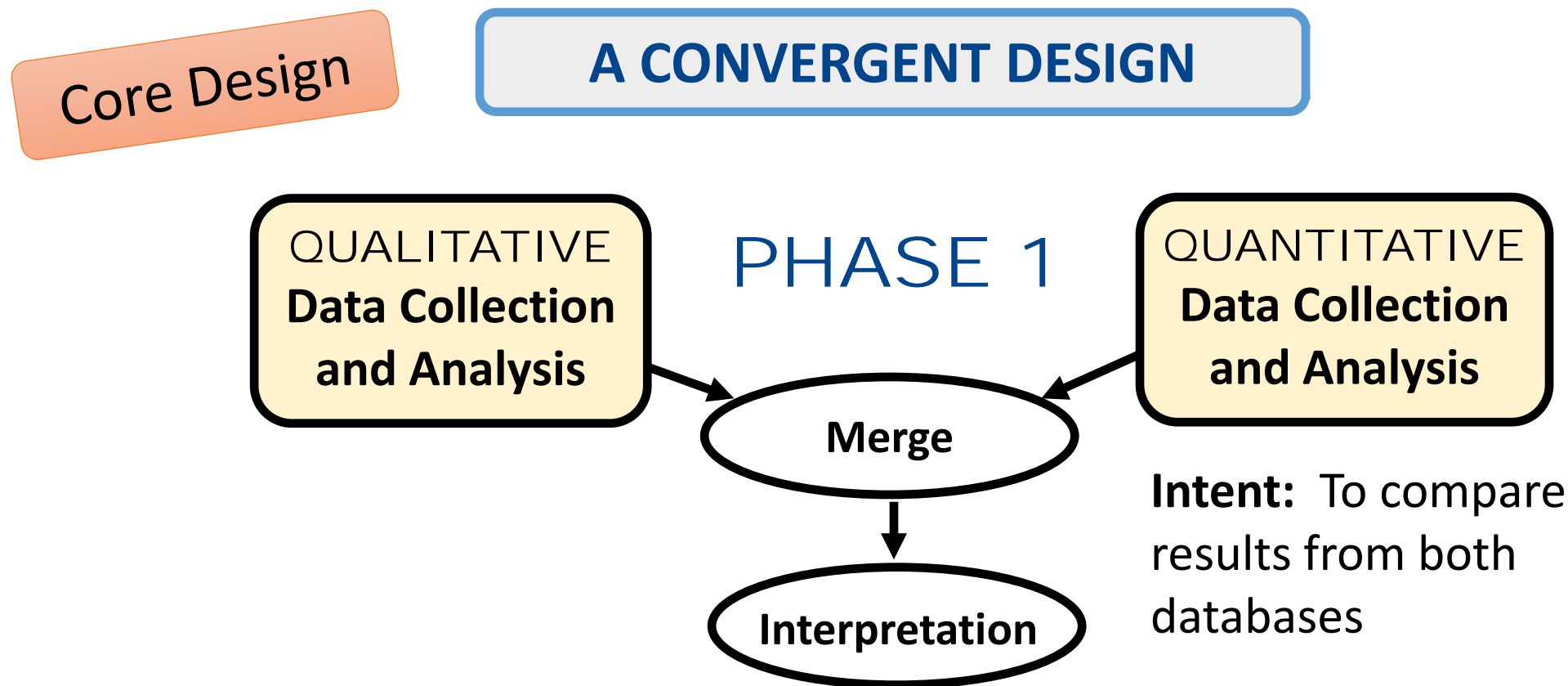


# Five Essential Characteristics of Mixed Methods Research

- The collection and analysis of BOTH quantitative and qualitative data to address to questions/hypotheses
- The use of rigorous procedures in conducting quantitative and qualitative research
- The integration (or combination) of the findings from the quantitative results and the qualitative findings
- The development of procedures in which this data collection, analysis, and integration occurs: mixed methods designs
- The use of theory (and philosophy) as it relates to these procedures

# Examples of mixed methods designs/ studies

Boltz, M., Resnick, B., Capezuti, E. & Shuluk, J. Activity restriction vs. self-direction: A Mixed Methods Study of Hospitalised older adults' response to fear of falling. *Int J Older People Nurs* 2014;9(1):44–53.

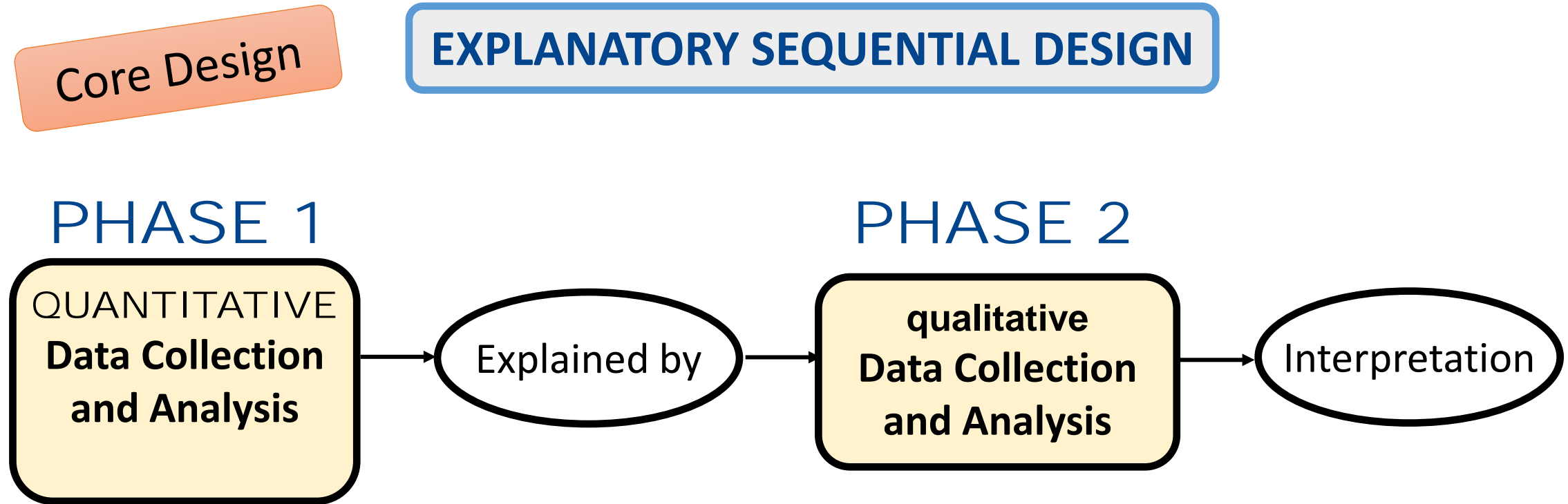


**QUANT:** 1) chart extraction of demo and health charac; 2) eval of FOF, depression, cognition, co-morbidity, gait/balance association with function (BI)

**QUAL semi-structured interviews:** explore pt. views of factors associated with FOF.



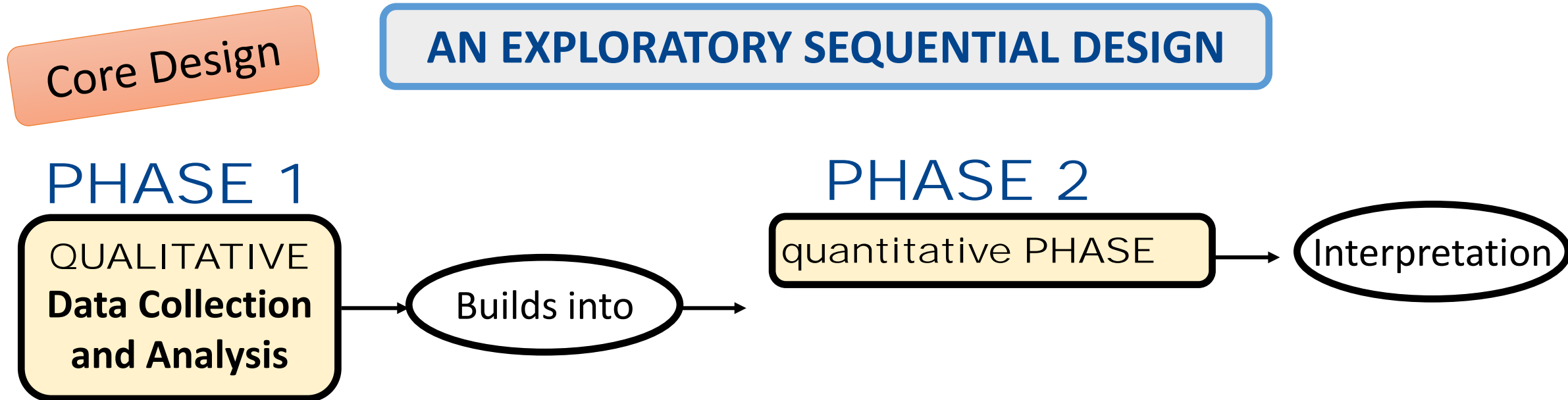
Jellesmark, A., et al. Fear of falling and changed functional ability following hip fracture among community-dwelling elderly people: an explanatory sequential mixed method study. *Disabil Rehabil* 2012;34 (25):2124-2131.



**QUANT:** Survey assessing FOF (Falls Efficacy Scale-International, FES-I), avoidance of activities (Modified survey of Activities and Fear of Falling, mSAFFE), functional ability (Functional Recovery Score, FRS), and mobility (New Mobility Score, NMS)

**qual:** by in-depth interviews of four participants analyzed using systematic text condensation.

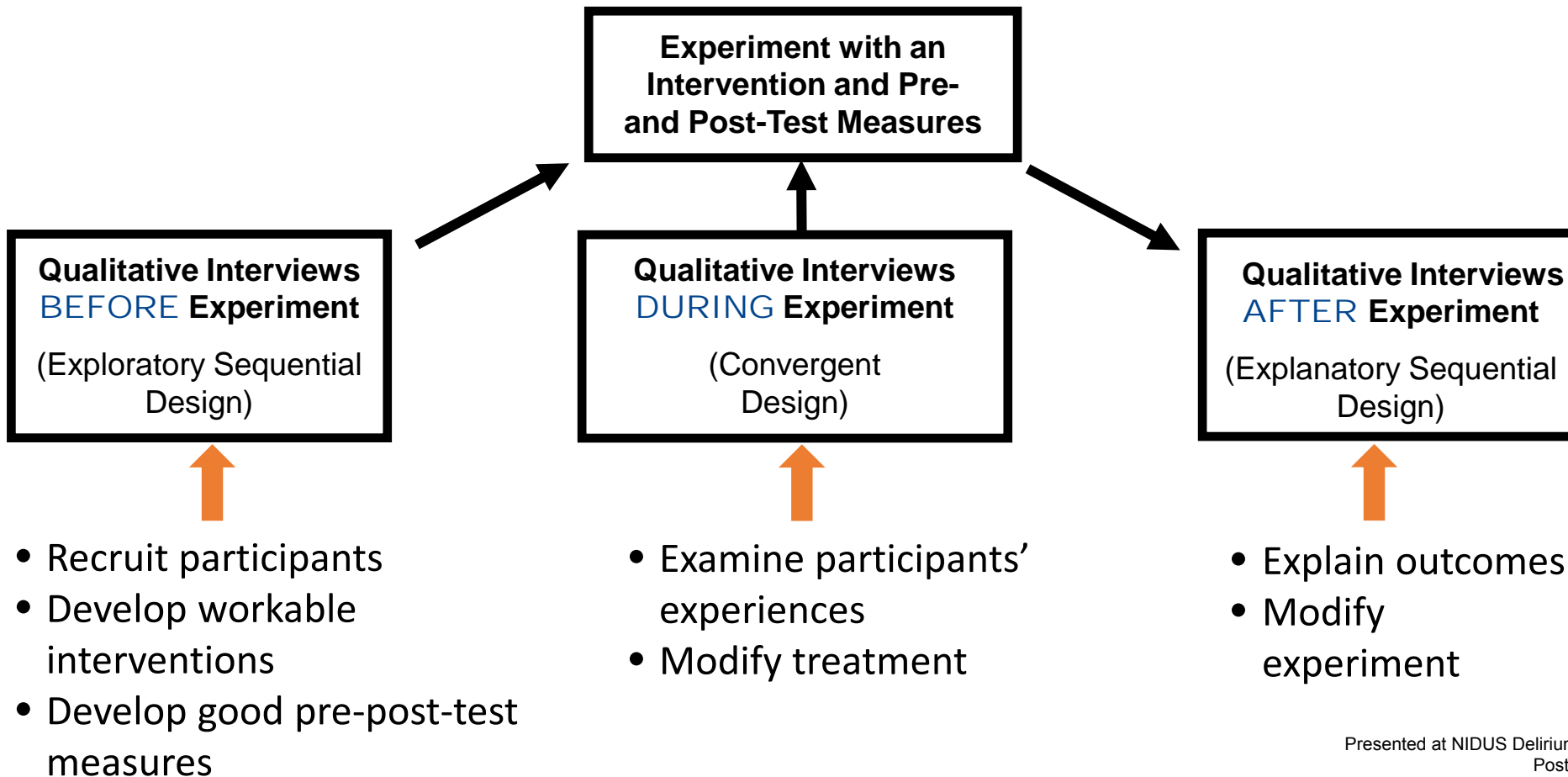
Cline, D., Dickson, V., Kovner, C., Boltz, M., Capezuti, E. (2013). Factors Influencing RN Perceptions of Quality Geriatric Care in Rural Hospitals. *Western Journal of Nursing Research*



**QUAL:** in-depth, semi-structured interviews  
**quant:** questionnaire measuring the work environment and RN characteristics collected to augment qualitative data

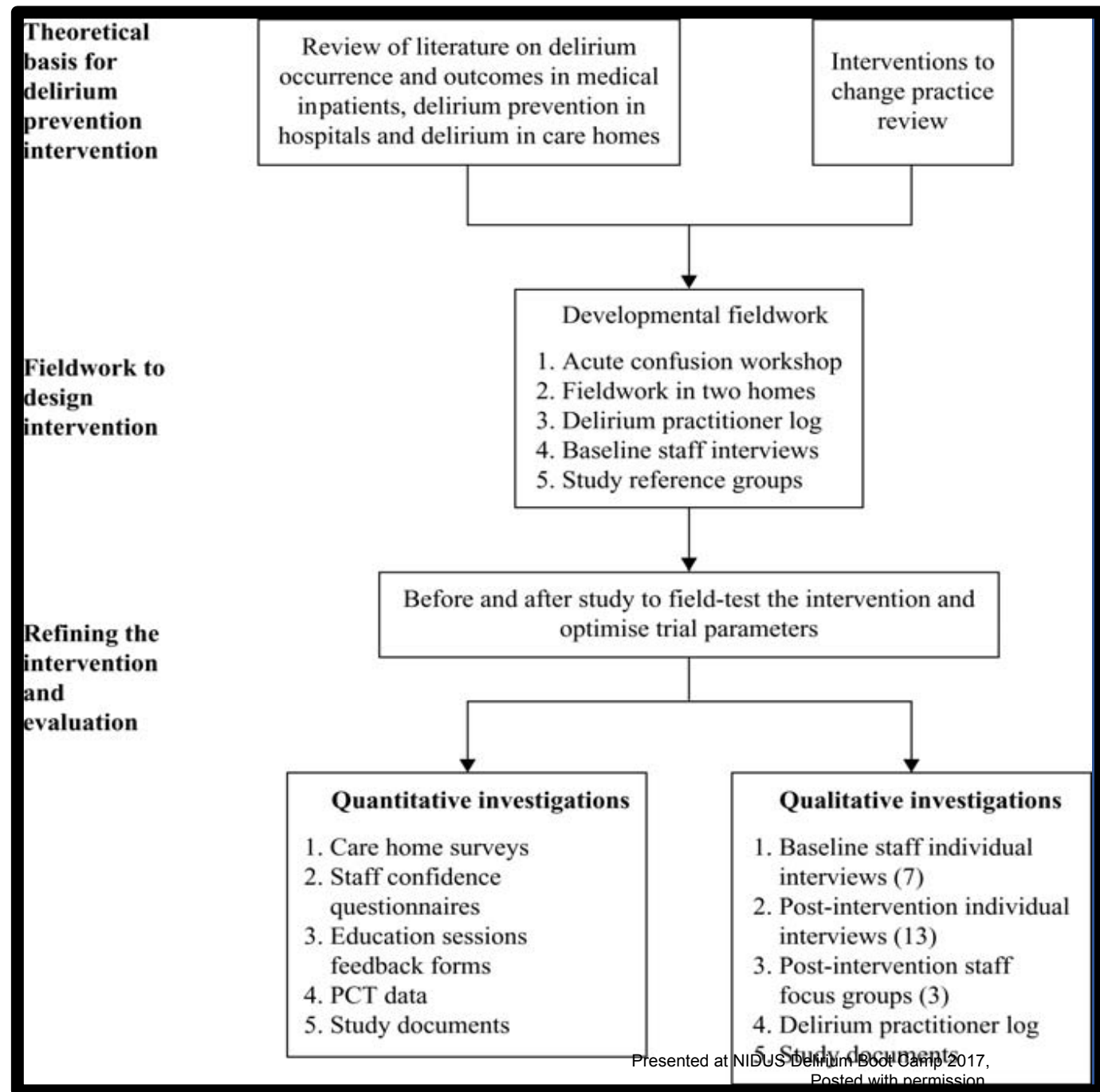
# Use an Explanatory Sequential Design, and Exploratory Sequential Design, or a Convergent Design in an Intervention Trial

## Intervention Mixed Methods Design





Siddiqi N, et al. Stop Delirium! A complex intervention to prevent delirium in care homes: a mixed-methods feasibility study. *Age and Ageing* 2011; 40: 90–98.





# Writing an R Grant

## MIXED METHODS RESEARCH

### BEST PRACTICES FOR MIXED METHODS RESEARCH IN THE HEALTH SCIENCES

TABLE OF CONTENTS ([Download PDF's for each section](#)) [Download Full PDF version \(292KB\)](#)

- Acknowledgement
- Introduction and Background
- The Need for Best Practices
- The Nature and Design of Mixed Methods Research
- Teamwork, Infrastructure, Resources, and Training for Mixed Methods Research
- Developing an R Series Plan that Incorporates Mixed Methods Research
- Beyond the R Series - High-Quality Mixed Methods Activities in Successful Fellowship, Career, Training, and Center Grant Applications
- Reviewing Mixed Methods Applications
- Overall Recommendations
- Appendix A. NIH Working Group on Developing Best Practices for Mixed Methods Research

#### UPCOMING EVENTS

24  
OCT

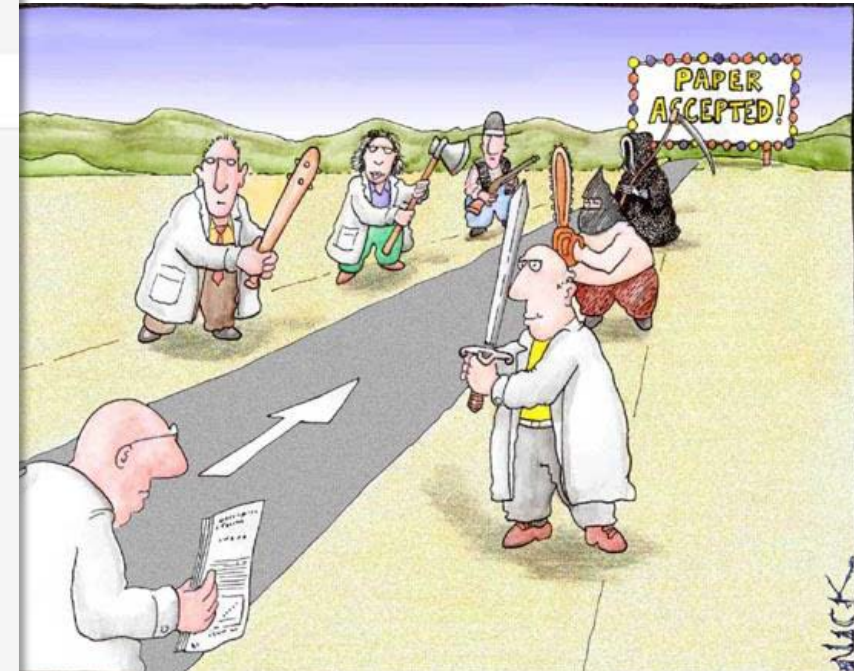
Director's Webinar Series  
presents Vitaly Napadow, Ph.D.,  
LAc.

28  
NOV

Director's Webinar Series  
presents Tamara Somers, Ph.D.

08  
DEC

NIH Behavioral and Social  
Sciences Research Festival





# NIH Best Practices for Mixed Methods Research in the Health Sciences

- The **theoretical and conceptual orientation** informs the design and is consistent across all phases of design
- Clearly identify **integration** (point of interface) in designs (Plano Clark & Ivankova, 2016)
- **Explicit** quantitative **aims**, qualitative aims, and mixed methods aims
- Innovation and Approach: why mixed methods?
- **Validation strategies** for each phase
  - Mixed methods – has its own validity, called “legitimation”  
(Onwuegbuzie & Johnson, 2006; Creswell & Plano Clark, 2011)
- Mixed methods **team** needs experience together and includes a qualitative researcher
- **Publications:** Joint displays used represent integration in a results or discussion

Creswell JW, Klassen AC, Plano Clark VL, Smith KC for the Office of Behavioral and Social Sciences Research.  
*Best practices for mixed methods research in the health sciences*. August 2011. National Institutes of Health

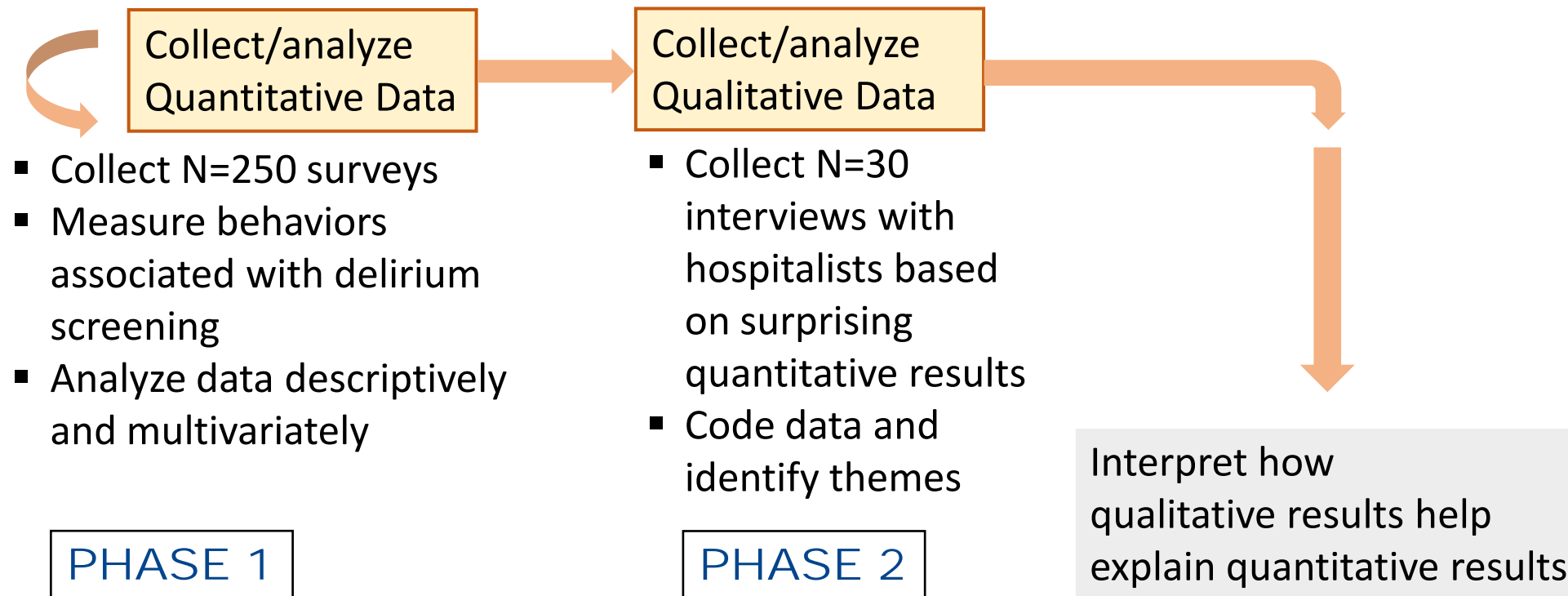
<https://obssr.od.nih.gov/training/mixed-methods-research/>

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# Theory Informing an Explanatory Sequential Design

## THEORY OF BEHAVIORAL CHANGE

### INTEGRATION



# Study Aims

## State an overall goal that addresses the overarching research problem or question

- Types: address multiple levels of influence (theory development and testing), process and outcomes , context and meanings)
- Goal should inform the specific aims and questions leading to a MM approach.

## Study aims should identify discrete components of the goal

- Order the aims so that they are congruent with research strategy section
  - If concurrently addressed – address in order of priority
    - At least one aim that calls for integration of qual and quant data

Example: *To **understand** the treatment outcomes within the context of the treatment process, which requires an integrated, mixed methods approach*

- If aims are addressed sequentially - list in chronological order to be addressed.

# Content Order for the Study Aims

**Template = Content followed by methods (NIH Best Practices, 2011)**

**Example (Explanatory Sequential Design Example):**

1. Relate personal isolation to depression among older adults based on survey data.  
(**QUAN aim**)
2. Explore personal isolation among older adults using semi-structured interviews.  
(**QUAL aim**)
3. Explain how personal isolation affects depression among older adults by obtaining personal experiences.  
(**MIXED METHODS aim**)
4. Develop an intervention (experiment) and compare different groups of isolated older adults  
(**FUTURE RESEARCH aim**)

# Innovation

- Has prior research in the area used a mixed method approach?
- Any new tools and products that will be part of the mixed method approach?



# Research Strategy

- Introduce mixed method research and specific design
- Provide a definition and cite studies that have used from health/area of interest (Use search terms such as “mixed methods” or “quantitative and qualitative”)
- Name specific mixed methods design being used and cite studies (Search NIH RePORTER)
- Explain rationale: seeking a more comprehensive account of a phenomenon, examining structure and process, or generating and testing hypotheses
- Provide a diagram of overall quant and qual procedures: See Ivankova, Cressweel Stick (2006)
- Create a table outlining sampling, procedures, and analytic strategies utilized to address each of the study aims.



# Validity/Methodological Issues

## DESCRIBE:

- Rigorous and systematic sampling, recruitment, data sources and collection and analysis
- Validation strategies for both qualitative (trustworthiness, credibility, transferability) and quantitative (including threats to internal and external validity) data
- How quantitative and qualitative components will be combined
  - Concurrent: comparing, relating and synthesizing (how ill divergent findings be managed?)
  - Sequential: procedures for connecting
- Need a plan to resolve differences ...

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.

Onwuegbuzie, A. J., & Johnson, R. B. The validity issue in mixed research. *Research in the Schools*, 2006;13(1):48-63.

# Integration (point of interface) can occur during:

- Data collection (e.g., collecting quant and qual items on the same survey)
- Data analysis (e.g., qual data are converted into quant scores or when themes are analyzed based on quant dataset)
- Data interpretation (e.g., when results of quantitative analyses are compared with themes that emerge from the qualitative data)



# Mixed Methods *Integration* Statements

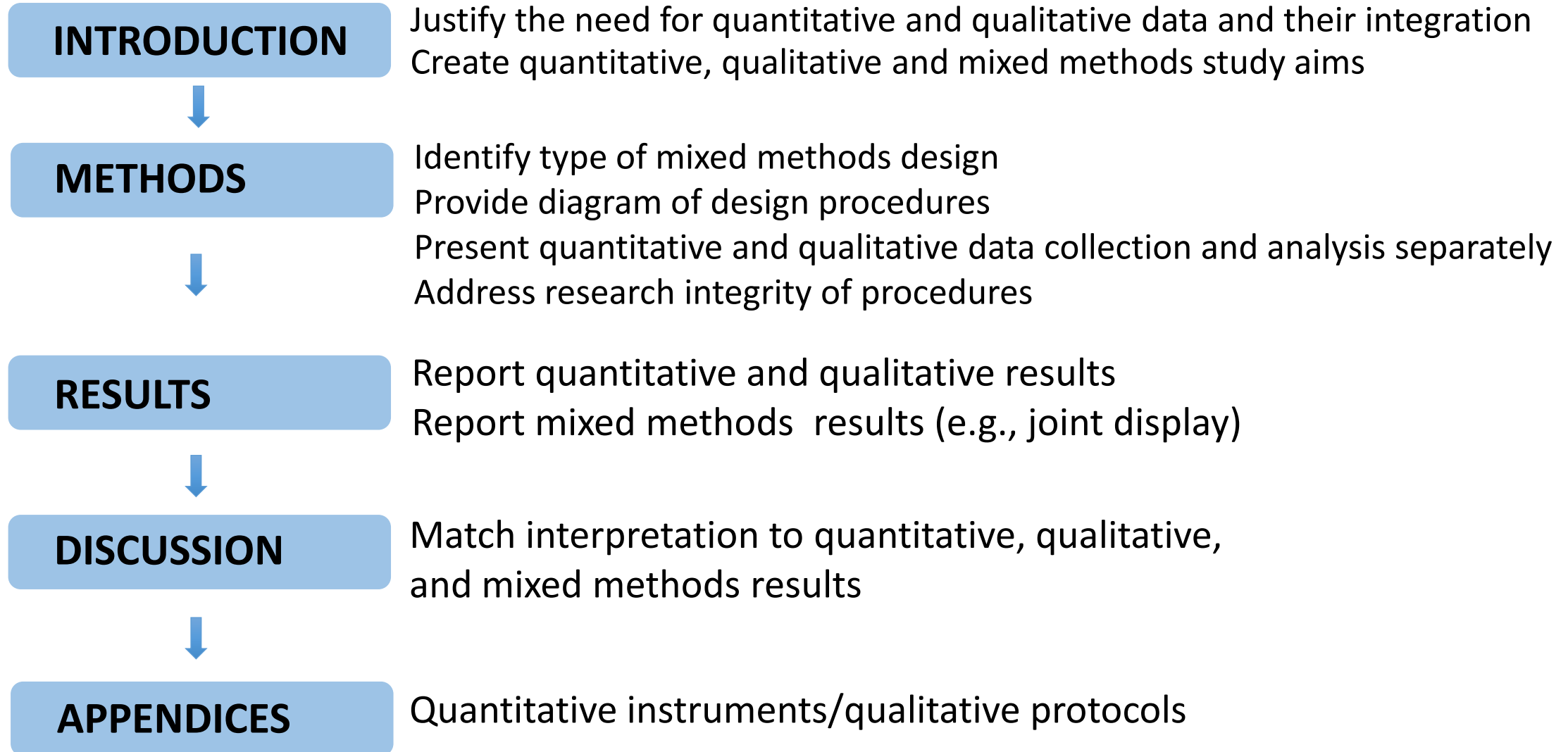
Integration = INTERSECTION of qualitative and quantitative data (Plano Clark & Ivankova, 2016)

- “Integration will involve **merging** the results from the quantitative and qualitative data so that a **comparison** could be made and a more complete understanding emerge than what was provided by the quantitative or the qualitative results alone.” (Convergent Design)
- “Integration will involve **connecting** the results from the initial quantitative phase to help plan the follow up qualitative data collection phase. This plan would include what questions need to be further probed and what individuals can help best explain the quantitative results.” (Explanatory Sequential Design)
- “Integration will involve gathering initial qualitative data, analyzing it, and then using the qualitative results to **build** a new intervention (or measure or instrument) that will be tested quantitatively.” (Exploratory Sequential Design)

Bryman, A. Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 2006;6:97-113.  
Fetters et al. (2013). Achieving integration in mixed methods designs—principles and practices. *Health Services Research*. Morse, J. M., & Niehaus, L. *Mixed methods design: Principles and procedures*. Walnut Creek, CA: Left Coast Press, 2009.

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# The Flow of Components in a Mixed Methods Publication





# Publishing a Mixed Methods Project

- TYPE OF DESIGN

- TEMPLATE FOR METHODS SECTION

- **CONVERGENT Design**

- Methods – separate quan and qual
- Results – separate quan and qual
- Discussion – integration

- **EXPLANATORY Sequential Design**

- Methods – quan first, then qual
- Results and Discussion – quan, results to be explained, qual

- **EXPLORATORY Sequential Design**

- Methods – qual, use of qual, quan
- Results and Discussion – qual, use of qual, quan

# Summary Checklist for Incorporating NIH Latest Best Practices into a Mixed Methods Study

(<https://obssr.od.nih.gov/training/mixed-methods-research/>)

## DID YOU:

- \_\_\_\_\_ Identify the **basic** mixed methods design in your project?
- \_\_\_\_\_ Know how the mixed methods basic design might be **applied** in your project (e.g., evaluation project)
- \_\_\_\_\_ Provide a **diagram** that incorporates the basic design and your application?
- \_\_\_\_\_ Contain advanced **features** of drawing the diagram? (e.g., timeline)
- \_\_\_\_\_ **Justify** the use of mixed methods? And the type of design?
- \_\_\_\_\_ Specifically mention **integration** and how it relates to your type of design?
- \_\_\_\_\_ Write clear qualitative, quantitative, and **mixed methods aims**?
- \_\_\_\_\_ **Relate** your mixed methods aim to your type of design?
- \_\_\_\_\_ Represent integration with a **joint display** and relate it to your type of design?
- \_\_\_\_\_ Report **validity (research integrity)** considerations that relate to your type of design?
- \_\_\_\_\_ Discuss your quan, qual, and mixed methods **skills**?
- \_\_\_\_\_ Give consideration as to how to form a mixed methods **team**?
- \_\_\_\_\_ Use a **conceptual framework** and link it into your mixed methods design?
- \_\_\_\_\_ Craft **multiple publications** (quan, qual, overview, methodological) from your study?
- \_\_\_\_\_ Use recent **guidelines** for how to write a mixed methods study for publication?

# Questions?



# Resources

- John Creswell Mixed Methods Site <http://johnwcreswell.com/> (includes books and trainings)
- Creswell JW, Klassen AC, Plano Clark VL, Smith KC for the Office of Behavioral and Social Sciences Research. *Best practices for mixed methods research in the health sciences*. August 2011. National Institutes of Health <https://obssr.od.nih.gov/training/mixed-methods-research>
- Ivankova, N.V., Creswell, J., & Stick, S. (2006). Using mixed methods sequential explanatory design: From Theory to Practice. *Field Methods*, 18 (1), 3-20. (developing diagrams)
- Krueger, R.A & Casey, M.A. Focus Groups: A Practical Guide for Applied Research, 4th Edition. Thousand Oaks, CA: Sage.
- Miles, M.B., Humberman, A.M, Qualitative Data Analysis: A Methods Sourcebook 3rd Edition. Thousand Oaks, CA: Sage.
- Plano Clark, V. L. (2010). The adoption and practice of mixed methods: U.S. trends in federally funded healthrelated research. *Qualitative Inquiry*, 6(6), 428-440.
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- Song, M., Sandelowski, M., & Happ, M. B. (2010). Current practices and emerging trends in conducting mixed methods intervention studies in the health sciences. In: A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (2nd ed., pp. 725–747). Thousand Oaks, CA: Sage.