

QUALITATIVE vs QUANTITATIVE RESEARCH





■ PROF.R.RAJESWARI

■ ICON

WHAT IS RESEARCH?

 It is a scientific way of answering questions and testing the Hypotheses

Primary goal of nursing research is: to:

-  develop a specified body of knowledge unique to nursing
-  Develop and test nursing theories
-  Understand nursing phenomena
-  Foster professional commitment and accountability

- **Help nurses to make informed decision in patient care**
- **Validate the effectiveness of particular nursing intervention**
- **Improve quality patient care**
- **Provide link between theory and practice**
- **Advance nursing as a profession**

WHAT IS MEANT BY APPROACH ?

- It is the whole design including assumptions, the process of enquiry, the type of data collected, and the measuring of findings. There are three approaches in research:
- **Qualitative research approach**
- **Quantitative research approach**
- **Mixed methods**

QUALITATIVE vs QUANTITATIVE RESEARCH

1. DEFINITION

The Quantitative approach views human phenomenon as being amenable to objective study and is able to be measured. It is a formal, objective, systematic process for obtaining information about the world. A method used to describe, test relationships, and examine cause and effect relationships.

Whereas

Qualitative research is an approach which seeks to understand by means of exploration, human experience , perceptions, motivations, intentions and behavior. It is interactive, inductive, flexible, holistic and reflexive method of data collection and analysis

2.PURPOSES

Quantitative –

- To test hypothesis
- To look cause & effect
- To make prediction

Qualitative –

- To understand social interaction
- To interpret social interaction

3. MAIN FEATURES

Quantitative research

- Describe the phenomenon
- Explore relationship among phenomenon
- Explain phenomenon and increase understanding
- Predict causes of relationship among phenomenon.
- Control phenomenon

Qualitative research

- Inductive approach to generate hypothesis
- Exploration to discover new people, customs
- Interactive & reflexive process to avoid bias
- Develop trust
- Holistic exploration
- Flexible methods

4. HYPOTHESIS

In Quantitative

- hypothesis is specific testable and stated prior to particular study
- Stating in advance research question
- Determine methods of data collection and analysis
- Stated in statistical language

Whereas in Qualitative

- are not written prior to study
- It is tentative, evolving and based on particular study

5. REVIEW OF RELATED LITERATURE

In Quantitative research

- Literature is available in extensive for review
- Does significantly affect particular study

In Qualitative research

- Review is very limited
- Does not significantly particular study

6. DESIGN AND METHOD

In Quantitative

- Structure inflexible, specified in detail in advance of study
- Involve intervention, manipulation and control
- Descriptive
- Correlation
- Causal: comparative and experimental

Whereas in Qualitative

- Flexible, non interventional, minimum disturbance
- Ethnography, phenomenology, grounded theory, case study

7. RESEARCH VARIABLES

In **Qualitative research**, study of the whole variables where as in **Quantitative research** specific variables are studied

8. RESEARCH SETTING

In Quantitative

- Control to the degree possible

Whereas in Qualitative

- Naturalistic as is to the degree possible
- Naturalistic setting refers to the fact that the variables being investigated are studied where they naturally occur, as they naturally occurred
- Not in researcher controlled environment
- Not in under controlled condition

9. APPROACH TO INQUIRY

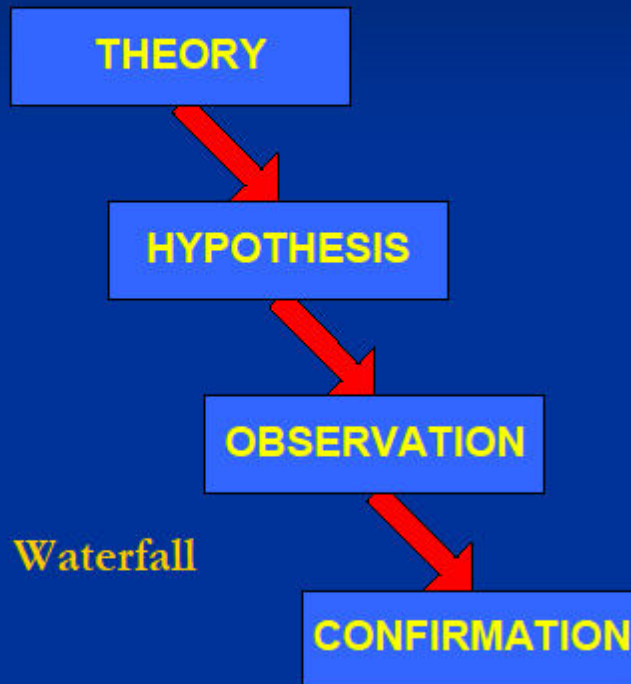
In Quantitative research

- Deductive
- Objective
- Outcome oriented

In Qualitative research

- Inductive
- Subjective
- Holistic
- Process oriented

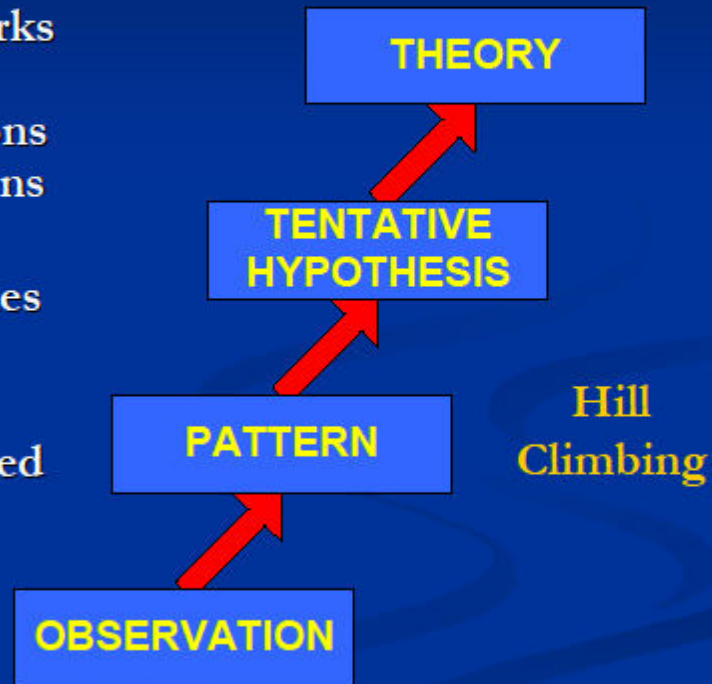
Deductive Research Approach



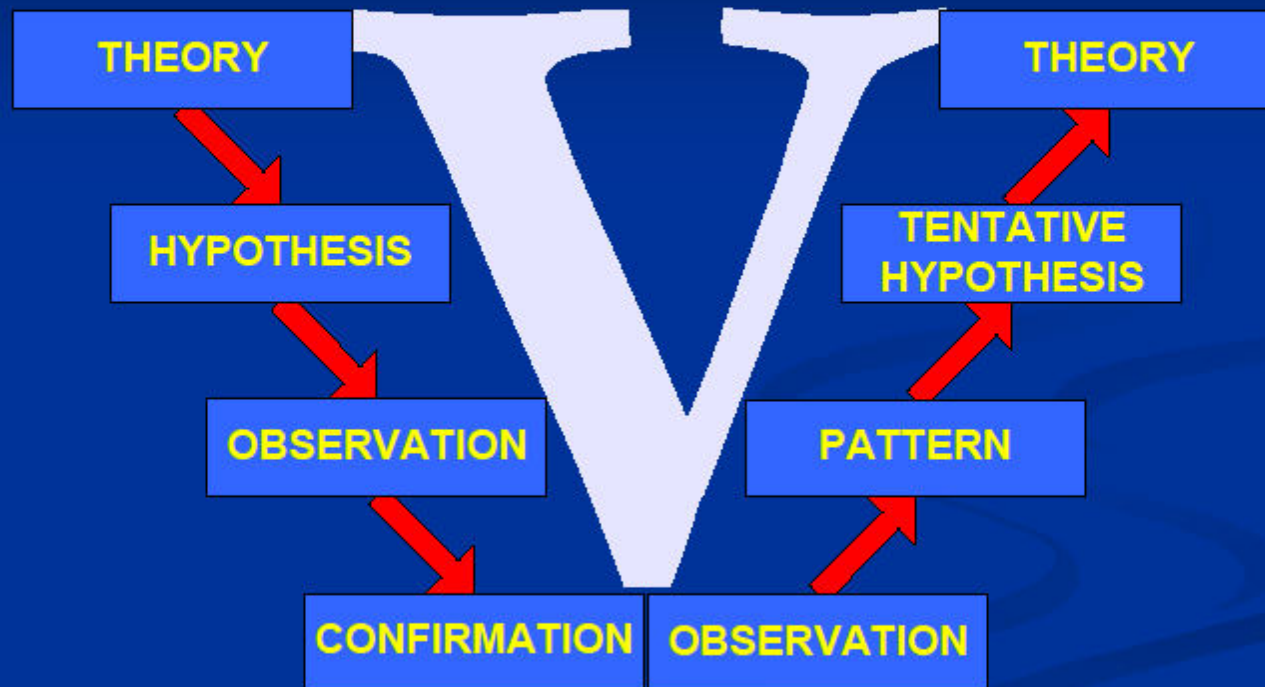
- Deductive reasoning works from the more general to the more specific.
- Sometimes this is informally called a "top-down" approach.
- Conclusion follows logically from premises (available facts)

Inductive Research Approach

- Inductive reasoning works the other way, moving from specific observations to broader generalizations and theories.
- Informally, we sometimes call this a "bottom up" approach
- Conclusion is likely based on premises.
- Involves a degree of uncertainty



Deductive Vs. Inductive



10.. SAMPLING

In Quantitative research

- **Random:** intend to select “large” representative sample in order to generalize results to population

Whereas in Qualitative research

- **Purposive**
- **Intend to select “small” not necessarily representative sample in order to acquire in depth understanding**

11.. DATA COLLECTION STRATEGIES

In Quantitative research

- Non participant observation
- Semi structured formal interview
- Administration of test and questionnaire

Whereas in Qualitative

- Document collection
- Participation observation
- Unstructured informal interview
- Taking of extensive detailed field notes

12. TYPE OF DATA COLLECTED

In **Qualitative** research,
words, images and objects
&

in **Quantitative** research
number and statistics

13.. DATA ANALYSIS & MEASUREMENTS

In Quantitative research

- Raw data are numbers performed at the end of the study involves statistics both standardized and numerical at the end
- Type of data analysis is to identify comparison, association, and relationship
- Both descriptive and inferential statistics are used

In Qualitative research

- Raw data are words, images or objects
- The type of data analysis is pattern, features, themes
- Non standardized narrative and ongoing

- passage of text about a Terry moving out of his parents home and becoming independent.

Terry

“When you move into your own home, you're alone. There is no bustle of people around the house. I miss having someone to chat to when I get home. I put the TV or some music so there's some background noise, the silence makes me feel so alone. Sometimes I will be sat watching trash TV

- Sometimes I will be sat watching trash TV and thinking I should be out doing something rather than watching this rubbish. I read a lot but sometimes I am too tired and just want to veg out. But it's been good to move out of mum and dad's as it's not healthy to rely on them as they won't last forever. I become independent and made my own decisions. It's good they still there when I need them. It's good to have some distance as when I was at home I was arguing a lot with my dad and that was what made me decide it was time to go."

- The analyst has read the text carefully and circled what seem to be key terms or key events or actions. A short note of what these are has been written besides the circling. These are the start of descriptive, or what grounded theorists refer to as open coding. An initial coding list from this might be:

- Own home
- Lonely
- Independence
- Moving out of parents
- Conflict
- Dependence
- Desire for company

When you move into your own home, you're alone. There is no bustle of people around the house. I miss having someone to chat to when I get home. I put the TV or some music so there's some background noise, the silence makes me feel so alone. Sometimes I will be sat watching trash TV and thinking I should be out doing something rather than watching this rubbish. I read a lot but sometimes I am too tired and just want to veg out. But it's been good to move out of mum and dads as it's not healthy to rely on them as they won't last forever. I become independent and made my own decisions. It's good they still there when I need them. It's good to have some distance as when I was at home I was arguing a lot with my dad and that was made me decide it was time to go.

feelings

Living alone

New relationship with parents

Independence

Old relationship with parents

Argument with Dad
Relation with father

- The analyst has also used a highlighter to identify words that refer to feelings and these words suggest that the passage about living alone is **actually about the emotions and feelings associated with living alone.**

14. DATA INTERPRETATION

In Quantitative studies

- Conclusions and generalization formulated at the end of the study stated with predetermined degree of certainty

Whereas in Qualitative research

- Conclusions are tentative, reviewed on an ongoing basis, generalization speculative or non existent

15. RESULTS

In **Qualitative** research,
particular or specialized
findings that is less
generalizable

where as

in find **Quantitative** research,
generalizable findings that can
be applied to other population

16. FINAL REPORT

Quantitative research

- Statistical report with correlations, comparison of means and statistical significance of findings

Whereas in Qualitative research

- Narrative report with contextual description and direct quotations from research participants

VALUE OF QUANTITATIVE RESEARCH IN NURSING

- **Help nurses to grasp the reality as measurement is central to everything that nurses do, symptom relief, improvement in patients, i.e., physical psychological and psycho social phenomenon**
- **Provide data for many question that arrives during practice**
- **Useful in identifying trends**
- **Need assessment of patients and nurses**
- **Evaluation of interventions.**
- **Useful for providing decision makers with required information**

LIMITATIONS OF QUANTITATIVE APPROACH

- **It is difficult to understand human phenomenon for example when studying human behaviour it is possible only to study what is observable so the phenomenon is revealed partially**
- **Some researchers claim that many influences affect peoples response to questions therefore it is not purely objective.**
- **Some standardized scale are differently interpreted by participants**

VALUE OF QUALITATIVE RESEARCH IN NURSING

- Explores patients experience and behaviour
- Explore the experiences of behaviour of nurses and other health professionals
- Explore core concept relevant to nursing and health

LIMITATIONS OF QUALITATIVE RESEARCH

- **It is anecdotal (stories told for dramatic quality without critical evaluation)**
- **Unscientific**
- **Producing findings are not generalisable**
- **Impressionistic**
- **Subjective**

EXAMPLES OF QUANTITATIVE RESEARCH

- Effectiveness of antenatal nutrition education on pregnancy and labour outcome among primi Para mothers attending OPD of selected hospitals, Angamali 2010-2012 (**Pretest-post test control group design**)
- Effectiveness of selected nursing intervention on knowledge and level of satisfaction among clients with stroke admitted at High tech Hospital, Thrissur 2010-2011 (**Pre-experimental design**)

● Effectiveness of education on partograph in assessing labour progress among nurses working in Labour room at Govt Hospitals, Kerala 2010-2011(**Quasi exp. Non equivalent control group design**)

● **A descriptive study** on the prevalence of back ache among nurses working in critical care units of GSVM medical college hospitals, Kanpur.

Qualitative Research

Characteristics:

- Comparison
- Setting
- timeframe

Comparison

- Between groups
- Between one group's status at two or more points
- Different circumstances
- Relative rankings
- External data

Setting

- Select the site
- Gaining access

Time frame

- Cross sectional
- Longitudinal(cohort)

■ Anthropology

Anthropology –study about the culture

- Ethnography (holistic view of culture)
- Ethnoscience (cognitive aspect of culture)
- **An ethnographic study** on socio cultural beliefs of people about child marriage in selected rural communities of Rajasthan

■ Phenomenology(lived experience of people)

Hermeneutics (interpretation and meaning of individual life experiences)

- Ethology (behaviour observed over time)
Ecological psychology (influence of environment and behaviour)
- Grounded theory (social structural process with in social setting)
 - Ethnomethodology (manner by which shared experience is acheived)
 - semiotics (manner by which people make sense of social interactions)

- Discourse analysis(forms and rules of conversation)
- Historical analysis(description and interpretation of historical events)

Others

- Case studies
- Narrative analysis
- Descriptive qualitative studies
- Critical theory
- Participatory action research

EXAMPLES OF QUALITATIVE STUDIES

- **A Phenomenological** study of the lived experiences of earth quake victims in selected areas of Gujarat and Bhopal (phenomenological study)
- **A grounded theory** research on the adaptation level of patients with Quadriplegia
 - at Balarampur hospitals , Lucknow)

- **A case study** on the management of cervical cancer at selected oncology centers at Kanpur
- **An action research** on the proposed well-being training program to solve somatic morbidity among chronic mentally ill women suffering from post traumatic depression at Institute of mental Health, Chennai
- **A historical study** on the development of Kerala Nurses and Midwives council

DEFINITIONS

- It is a blue print to conduct research study. It describes the research approach, study setting, sampling plan, tools of measurement, data collection plan and analysis to answer for a specific question or to test the hypothesis.

PRINCIPLES

MAXMINCON

- The three principles of research design
 - **MAXimize** experimental variation
 - Variation in the DV influenced by the independent variable (IV)
 - One way to maximize experimental variance - design experimental conditions as different as possible so any differences in the dependent variable can manifest themselves

– **MINimize** error variance

- Variation in the DV due to random fluctuations related to individual differences, measurement error, the reliability of instruments, guessing, inattention, fatigue, etc.
- Two ways to minimize error variance
 - Reduction of errors through controlled conditions associated with the study
 - Increase the reliability of the instruments
- Reducing error variance results in increasing the probability of seeing systematic variance (i.e., that variance attributed to the IV)

– **CONtrol** extraneous variance

■ Variation in the DV due to the influence of IVs extraneous to the purpose of the study

- The effectiveness of an instructional strategy could depend on the academic level of the students being exposed to the program
- The effectiveness of a leadership strategy could depend on the gender of those being exposed to it

■ Five ways to control extraneous variance

- Eliminate all but one level of the extraneous variable from the study
 - Study only males or females, but not both
 - Always results in a loss of generalizability

Factors

- Nature of the problem
- Purpose of the study
- Researcher's knowledge and experience
- Motivation and interest
- Time

- Resources
- Availability of subjects
- Ethical principles
- Users of research findings
- Control of extraneous variables

Thank You

Integration of qualitative and quantitative methods

Origin

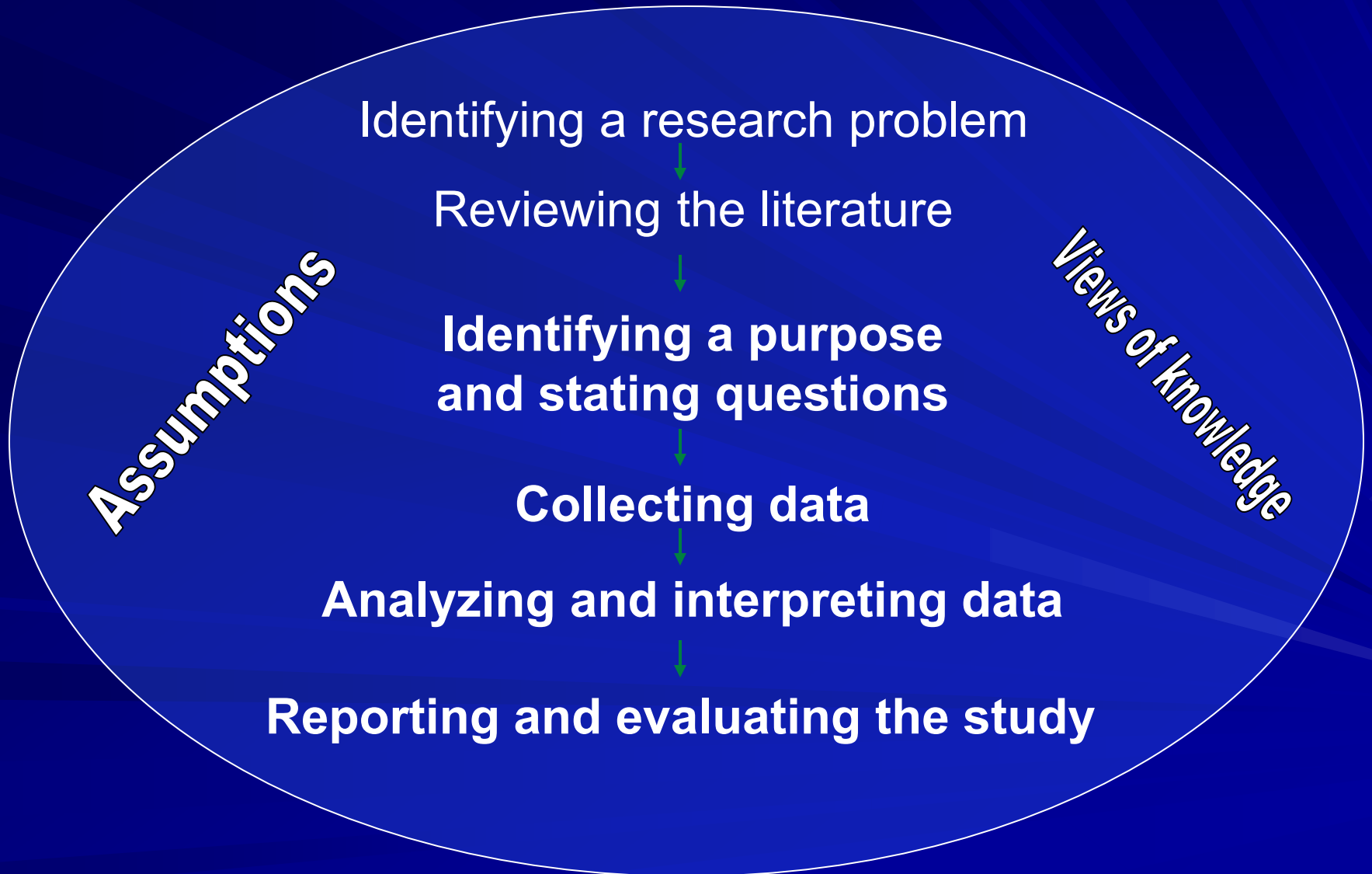
The emergence of mixed methods(Integration) as a third methodological movement in the social and behavioral sciences began during the 1980's." (Tashakkori & Teddlie, 2003: 697)

Development of NIH guidelines (1999)

**“Combining qualitative and quantitative methods has gained broad appeal in public health research.”
(1999)**

- Mentioned several approaches for combining qualitative and quantitative research
- Advanced considerations for deciding what model to use (literature available, prior studies, realistic design, expertise)
- Suggested to describe each method thoroughly

Mixed methods is not that different from other methods



Mixed Methods within Designs

Case Study Research

Ethnography

Narrative research

Experimental
research



Qual -  - Quan

Qual -  - Quan

Qual -  - Quan

Qual -  - Quan

What is this Method Called?

- Multi-method
- Triangulation
- Integrated
- Combined
- Quantitative and qualitative methods
- Multi-methodology
- Mixed methodology
- Mixed-method
- Mixed research

Why Mixed methods?

- Validity – to corroborate **quan and qual** data
- Completeness – more comprehensive account than **qual or quan alone**
- Process – **Quan** provides outcomes; **qual**, the processes
- Explanation – **qual** can explain **quan** results or vice-versa
- Unexpected results – surprising results from one, other explains
- Instrument development – **qual** employed to design instrument
- Credibility – both approaches enhance integrity of findings
- Context – **qual** provides context; **quan** provides general.
- Utility – more useful to practitioners

Mixing (How)

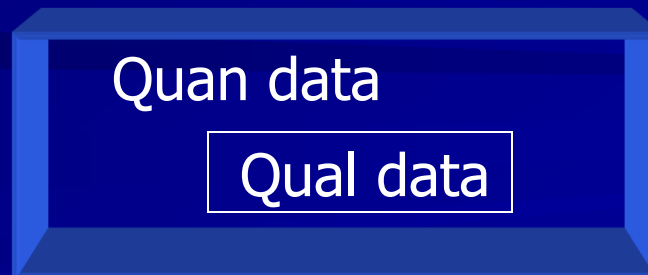
Converge data:



Connect data:

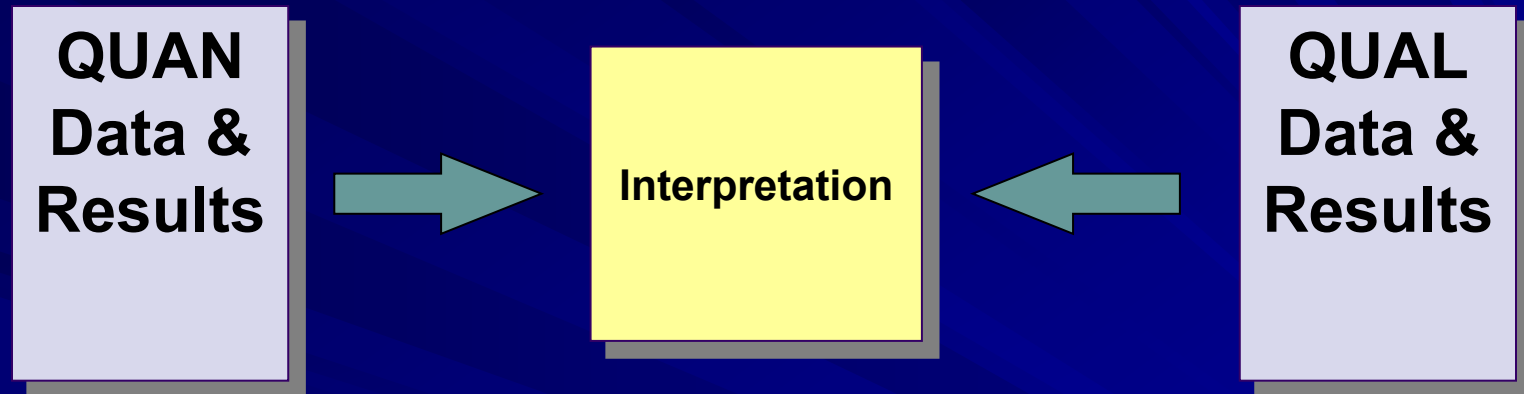


Embed the data:

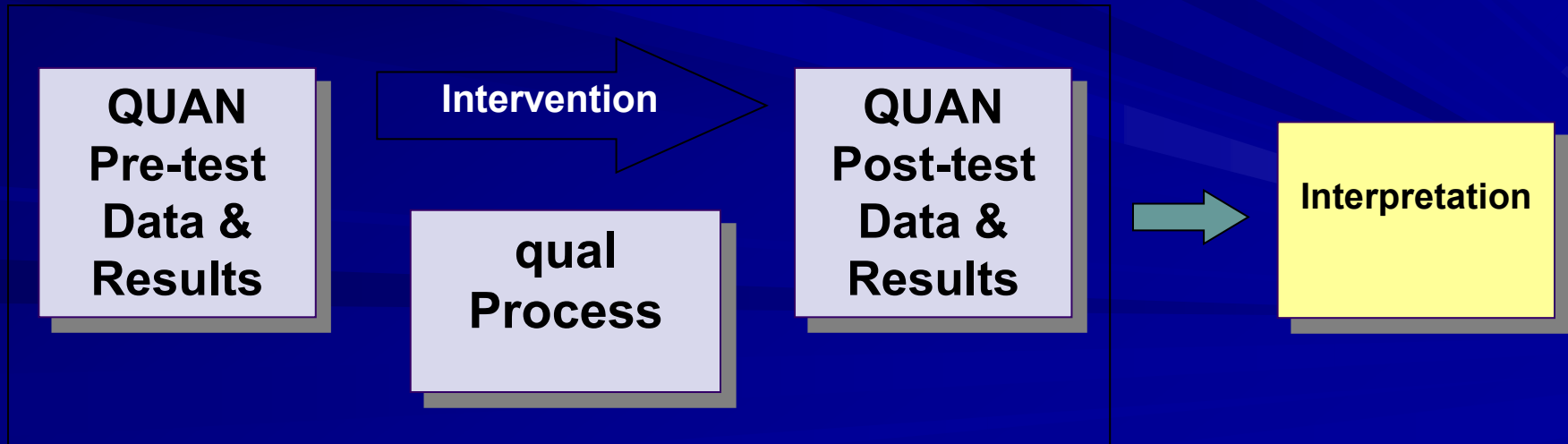


Parsimonious Designs (Creswell & Plano Clark, 2007)

Concurrent Mixed Methods Designs Triangulation Design



Embedded Design



Sequential Designs Mixed Methods Designs

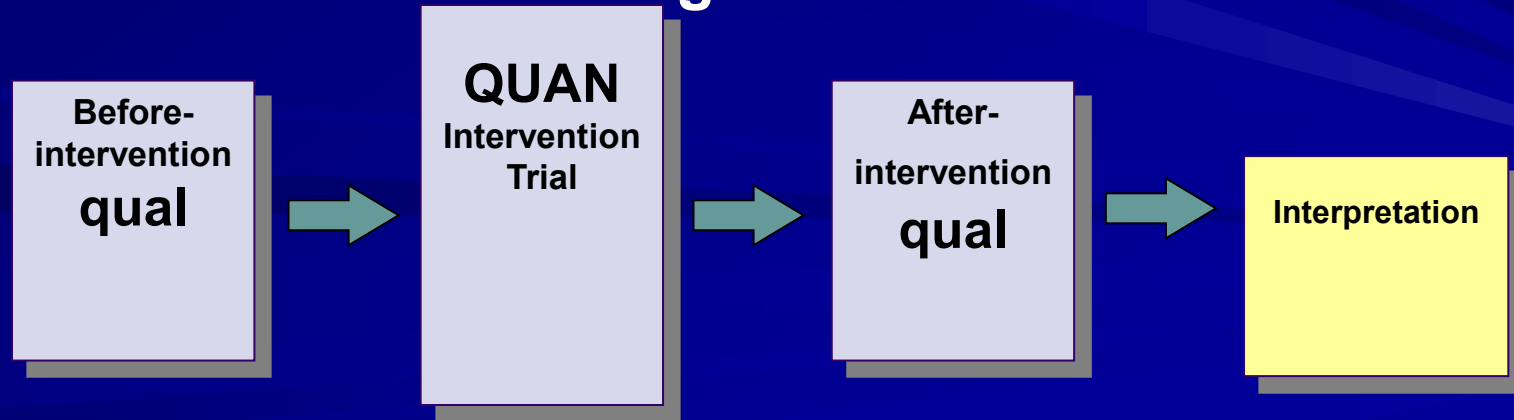
Explanatory Design



Exploratory Design



Sequential Embedded Design



Concurrent Triangulation Design Visual Model

Procedure

- Survey
- Structured observation checklist
- Chart audits

- Statistical analysis

QUAN
data collection

QUAN
data analysis

Product

- Numeric data

- Test statistic
- SEM

Procedure

- Semi-structured interviews
- Observations
- Documents
- Artifacts

- Coding
- Thematic analysis

QUAL
data collection

QUAL
data analysis

Product

- Text data
- Image data

- Codes
- Themes
- GROUNDED THEORY

RESULTS

Comparing results

Composite
Model

Summary

Approaches used in nursing research are:

Quantitative

Qualitative

Mixed Methods

Combining both qualitative and quantitative methods increase the researcher's ability to rule out rival explanations for phenomena(Hinds ,1989)

Strongest research findings are found in studies that use both research methods (Field & Morse)

Sequential and simultaneous use of the two methods i.e. qualitative method is used until hypotheses emerge. Hypotheses are tested using quantitative method

When both the methods are used simultaneously the technique is called *triangulation*.