

Data integration MMR

- Integration: how the researcher relates the quantitative and qualitative datasets.
- There is a continuum of integration. That is, the extent to which the two methods and datasets are related to each other varies.
- At one end of the continuum there are "component designs" (in which integration occurs only during data analysis and interpretation).
- Component designs offer minimal integration, integrated ones offer max integration.
- At the other end of the continuum there are "integrated designs" (in which integration is built into the entire design structure)
- John Creswell identifies four types of integration:
 1. Merging data: quantitative & qualitative results brought together and compared.
 2. Explaining the data: qualitative data are used to explain quantitative data results.
 3. Building the data: qualitative findings are used to build the quantitative phase.
 4. Embedding the data: a set of data is used to augment or support the other set.

Sequential exploratory design- data collection.

- the data collection would occur in 2 phases with the initial qualitative data collection followed by the second quantitative data collection. The challenge is how to use the information from the initial phase in the second phase.
- qualitative data analysis can be used to develop an instrument with good psychometric properties (validity, reliability). And will yield quotes, codes, themes.
- The development of an instrument can proceed by using the quotes to write items for an instrument, the codes to develop variables that group the items, and themes that that group the codes into scales.
- A researcher can analyze the qualitative data to develop new variables, that will be explored further in a quantitative phase .
- is the sample for the qualitative phase is the same for the quantitative phase. This cannot be, because the qualitative sample is typically much smaller than a quantitative sample needed to generalize from a sample to a population. Sometimes mixed methods researchers will use entirely different samples.

data analysis

- the researcher analyses the two databases separately and uses the findings from the initial exploratory database to build into quantitative measures.

Interpretation

- Researchers interpret mixed methods results in the discussion section.
- The order: first report the qualitative findings and their use, (e.g., the development of an instrument), then quantitative results of the final phase.

sequential transformative design

- 2 distinct data collection phases either type of data can be collected first.
- Both types of methods are combined in this design, but the research is also explicitly driven by a transformative theoretical perspective.
- theoretical perspective (lens) is used to guide the study (transformative framework).
- Purpose is to use the methods that will best serve the theoretical perspective of the researcher.
- After separate analysis of qualitative and quantitative data, integration of outcomes will take place during the interpretation phase.
- The researcher uses a theoretical based framework to advance needs of underrepresented or marginalized population (women, people with disabilities, racial and ethnic minorities, religious minorities).
- Seeks to address issues of social justice and call for change.

- Strength: very straight forward in terms of implementation and reporting.
- Weakness: time consuming. Little guidance due to relative lack of literature on transformative nature of moving from 1st phase of data collection to 2nd. EX: A sequential transformative study was conducted to examine the cultural influences on mental health problems. The study commenced with a quantitative telephone survey of the community which included the General Health Questionnaire.
- quantitative phase was followed by qualitative interviews which were theoretically driven, enabled researchers to explore cultural health experiences related to non-use of mental health facilities by Vietnamese and West Indian participants living in an urban area of Montreal.

Concurrent triangulation design "Parallel"

- qualitative and quantitative data are collected simultaneously (= priority).
- The results are then integrated in the final interpretation.
- Merging of results during analysis and interpretation to provide an integrated conclusion and involves comparing, contrasting and synthesizing the 2 strands.
- Used when the researcher wants to validate quantitative findings with qualitative data. Particularly useful for decreasing the implementation time.
- Data collection priority (=)./ Sequence (concurrently)/ Use of data (compare similar/dissimilar). EX: In their longitudinal study of maternal and child well being conducted semi structured in depth interviews with mothers and collected quantitative data using several validated scales (e.g. Parenting Stress Index, Edinburgh Post Natal Depression Scale (EPDS), Rosenberg Self Esteem Scale) at the same home visit.
- The authors identified numerous family stressors in interviews, which were corroborated in quantitative maternal stress index scales. Similarly, the objective measures (EPDS) addressing emotional well-being that indicated a high level of maternal depression were supported by findings from the interviews, in which mothers reported low energy levels, despondency and anxiety attacks. The authors note that concurrent use of qualitative and quantitative measures adds to the depth and scope of finding

Concurrent transformative design

- Guided by a theoretical perspective of change.
- Concurrent collection of both quantitative and qualitative data.
- Similar to sequential transformative designs, useful for giving voice to diverse or alternative perspectives, advocating for research participants, and better understanding a phenomenon that may be changing as a result of being studied.
- Aims to address social issues faced by the group of people.

Concurrent embedded/ nested design

- Quantitative and qualitative data are collected and analyzed at the same time. However, priority is usually unequal and given to one of the two forms of data either quantitative or qualitative data.
 - both methods of data are collected simultaneously, but one is embedded in the other in a way that allows the researcher to address a question that is different from the one answered by the dominant method.
 - The integration of data occurs in the analysis.
 - Primarily purpose is: gaining a broader perspective than could be gained from using only the predominant data collection method.
 - Secondary purpose is use of embedded method to address different Qs.
- EX: Strasser et al. conducted a concurrent nested design to explore eating related distress of advanced male cancer patients and their female partners.
- primary method was focus groups attended by patients and their partners with the conduct of these groups and the analysis of the data based on grounded theory (qualitative).
 - The secondary or nested focus of the study was the differences in patients' and their partners' assessment of the intensity and symptoms and degree of cachexia related symptoms of eating related disorders of patients. This secondary information was collected by a structured questionnaire which was completed at the time of the first focus group.
 - The eating related distress differed for patients and their partners as indicated in the qualitative findings, and this was complemented by the quantitative findings.

Research Q in MMR

- Think about order of data collection:
 - If sequential, ask first question first, then second .
 - If concurrent, ask questions based on weight or importance if quan more heavily weighted , start with quan research hypothesis, if qual more heavily weighted, start with qual research Q.

Data analysis in MM

- It is unusual for qualitative and quantitative data to be analyzed together.
- Typically, we use analytic methods appropriate to our data collection strategy
- Each of our analyses must, therefore, meet standards of rigor specific to the overall approach
- The key is actually how we:
 - Use each form of analysis
 - Integrate our INTERPRETATION of our analyses

Advantages of MMR

- Compares quantitative and qualitative data.
- Reflects participants' point of view.
- Fosters scholarly interaction.
- Provides methodological flexibility.
- Collects rich, comprehensive data.
- Words, pictures, and narrative can be used to add meaning to numbers.
- Numbers can be used to add precision to words, pictures and narrative.

Weakness of MMR

- A researcher has to learn about multiple methods and approaches and understand how to mix them appropriately.
- Methodological purists contend that one should always work within either a qualitative or a quantitative paradigm.
- MMR can be difficult for a single researcher to carry out, especially if the two approaches are expected to be used concurrently.
- Mixed method research is more expensive and more time consuming.
- Little guidance on transformative methods in the literature.

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