Using Mixed Methods Research to Analyze Surveys

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What is Mixed Methods Research?

• Difficult to define
• Examples of Definitions
  – The use of qualitative and quantitative techniques in both the collection and analysis of data
  – Mixed Methods research is given a priority in the research and the integration of both the quantitative and qualitative results occurs at some point in the research process
  – Research that includes both quantitative and qualitative data in a single research study, and either the QUAN or QUAL data provides data that would not otherwise be obtainable when using only the primary method
Why is Mixed Methods Research Valuable?

• Answers questions that other modalities cannot
• Provides a deeper understanding of the examined behavior or a better idea of the meaning behind what is occurring
• The inferences made with mixed methods research can be stronger
• Mixed methods research allows for more divergent findings
• MM research can include culture in the design by giving a voice to everyone involved in the behavior being examined
Collaborative MM Research

- Seeks to include stakeholders in the design and the research process
- Can be very beneficial when many of the stakeholders are more likely to be critics
- Includes less powerful groups and helps to ensure that they have an equitable impact on the research
- Collaboration has the ability to stimulate ways of thinking that might not occur when working individually on a project
Setting-Up a Mixed Methods Research Study

• The key to any study is the research question(s) because this dictates the selection of the research methods
• In designing a study the underlying purpose is the reason for doing it, and is a necessary component
• Why are we doing the study?
• The quality of the study and the meaningfulness of the results are enhanced if we are clear about the purpose
Six Categories of MM Research Designs

- Sequential Explanatory Design
- Sequential Exploratory Design
- Sequential Transformative Design
- Concurrent Triangulation Design
- Concurrent Nested Design
- Concurrent Transformative Design
Sequential Explanatory Design

- Collection and analysis of QUAN data followed by the collection and analysis of QUAL data
- Priority is usually given to QUAN data
- Integration of QUAN and QUAL data usually occurs in the interpretation phase of the study
- The purpose is usually to use the QUAL results to help explain the QUAN results
Sequential Exploratory Design

- Conducted in two phases
- Priority is given to the first phase of QUAL data collection
- The second phase involves QUAN data collection
- Overall priority is given to QUAL data collection and analysis
- The findings are integrated in the interpretation phase
- Most basic purpose is to use QUAN data to help interpret the results of the QUAL phase
Sequential Transformative Design

- Has two distinct data collection phases
- A theoretical perspective is used to guide the study
- Purpose is to use methods that will best serve the theoretical perspective of the researcher
Concurrent Triangulation Design

- This is probably the most familiar MM design
- The QUAL and QUAN data collection are concurrent, and happen during one data collection phase
- Priority could be given to either QUAL or QUAN methods, but ideally the priority between the two methods would be equal
- Two methods are integrated in the interpretation phase
- The integration focuses on how the results from both methods are similar or different, with the primary purpose being to support each other
Concurrent Nested Design*

- Gathers both QUAL and QUAN data during the same phase
- Either QUAL or QUAN dominates the design
- The analysis phase mixes both the QUAL and QUAN data
- The QUAL data is used to help explain or better understand the QUAN data
Concurrent Transformative Design

• Guided by a specific theoretical perspective
• The QUAN and QUAL data are collected during the same phase
• The integration of data occurs during the analysis phase
• The integration of data could occur in the interpretation phase
• Again, the purpose is to use methods that will best serve the theoretical perspective of the researcher
Process of Integrating QUAL and QUAN data

- The process of integrating QUAL and QUAN research needs to be well thought out prior to the study
  - QUAL portion needs to be constructed in a way so that more novel information can be discovered
  - Need to decide if QUAL portion is exploratory or confirmatory

- If exploratory, the purpose is to identify other dimensions that the QUAN portion is missing

- If confirmatory, the purpose is to support the QUAN relationship

- QUAL results can also be used to explain why there wasn’t a statistically significantly difference
Guidelines for Integrating QUAL and QUAN results

1. Selection of research methods need to be made after the research questions are asked
2. Some methods work well in some domains and not in others
3. There is no model of integration that is better than another
4. When there are results that support each other, it is possible that both the QUAN and QUAL results are biased and both are not valid
5. The main function of integration is to provide additional information where information obtained from one method only was is insufficient
6. If the results lead to divergent results, then more than one explanation is possible
Integrating QUAL and QUAN data

• One process of incorporating QUAL data with QUAN data is known as quantitizing, or quantifying the open-ended responses
  – Dummy Coding (i.e. binarizing) – refers to giving a code of 1 when a concept is present and a code of 0 if it is not present
Presenting MM Research Findings

• As with any research findings, if they cannot be communicated to the people who can use the information than the findings are worthless
• Presenting MM research can be more challenging because we are trying to communicate two types of information to readers
• For instance, writing-up QUAN research is very well defined, and QUAL research is more often about discovery
Insuring that MM Findings are Relevant

• Include stakeholders in the planning of the research
• Using MM research design may help a wider range of audiences connect to the material
• Make sure to define the language used in the report
• It is important to decide how the MM research findings are going to be written: combined or separately
MM Research Study Example

- The IR Office at Chaffey was asked to examine the satisfaction of K-12 Districts with Chaffey College students who were working at a K-12 school in Chaffey’s District as paid tutors
- 29 tutors were evaluated
The form was not developed by IR

Evaluated paid tutors on five job qualification areas
- Job skills
- Job knowledge
- Work habits
- Communication skills
- Attitude

Three point rubric was used to evaluate paid tutors
1. Did not meet the requirement
2. Met the requirement
3. Exceeded requirements

Evaluators were also asked to provide comments
MM Research Study Example

- How did I combine the qualification ratings (QUAN) with the evaluator comments (QUAL)?
- Found an example of how to do this from Sandelowski (2003)
- Sandelowski provided an example where the QUAN responses were categorized and themes for each category were generated from the open-ended comments
MM Research Study Example

- First step is to create the categories from the QUAN data
- This step involves being very familiar with your data, and also some creativity
- With the paid tutor evaluation it was fairly easy to develop the categories
  - Paid tutors who received a perfect rating in every category (n = 13)
  - Paid tutors who had an average ranking equal to or above the mean (n = 5)
  - Paid tutors who had an average below the mean (n = 11)
MM Research Study Example

• Mixing both the QUAL and QUAN data in the analysis phase
• After I created the three categories I printed out the comments associated with the paid tutors for each category and identified a theme for each one
MM Research Study Example

• Evaluator comments about tutors with a lower than average (i.e. 2.51) rating
• Themes identified included the following: lack of initiative, low attendance, and poor behavior management skills

Sample of Evaluator Comments

• “[NAME] had plenty of subject smatter knowledge just needs support in behavior management. Perhaps that could be included in prep program at Chaffey.”

• “She was late several times and therefore couldn't complete the task assigned. She was positive and caring with children. The students really liked her and were motivated, but she had some difficult to handle students who occasionally got out of control.”
MM Research Study Example

• Evaluator comments about tutors with an average or above average rating (2.57-2.99)
• Themes were very positive, but paid tutors were rated low in one or two areas

Sample of Evaluator Comments
• “[NAME] worked very well with my students. She had a lot of patience with them. “
• “[NAME] is an excellent role model for my students. His attendance is his weakness; we depend on him and it impacts our program when he doesn't come and work. “
Evaluator comments about tutors were rated as exceeding job expectations in all areas.

Received very positive comments.

Sample of Evaluator Comments:

- "[NAME]'s enthusiastic attitude, ability to relate to students, and knowledge of content assisted him in helping our students become successful."

- "[NAME] was reliable, hard working, and a wonderful communicator to the student. [NAME] always offered to do more no matter what the task. Thorough tutor!"
Creating QUAN Categories for a Second MM Research Study

• Students in Fall 2007 and Spring 2008 rated SI Leaders in nine areas on a four point agreement scale
• A much smaller percentage of students provided comments about their SI Leader
• An overall average was computed for those who commented by summing student scores and dividing by 9
Creating QUAN Categories for a Second MM Research Study

- The categories in the SI study were a little more difficult to develop
- Students who rated SI Leaders below the average of 3.45 (n = 7)
- Students who rated SI Leaders average or above to 1 standard deviation above the mean (SD = .35, 3.45 – 3.64, n = 8)
- Students who scored 1 SD above the mean (3.65 – 4.00, n = 8)
Limitations

- Proportion of open-ended responses to quantitative responses
- The amount of time required to do any MM Research Study (How do you choose?)
- Activity
Stakeholder Comment

“Based on survey results from the annual Student Satisfaction Survey, I have made several decisions regarding tutor training, center-related curriculum, and staffing. While the majority of students were satisfied with their center experience and thought the tutors were friendly and helpful (3.62 rating out of 4.0), students gave a lower rating to some other aspects of tutoring and center-related activities (see Table 19D in Spring 2008 Survey results). As a result, I asked my tutors this year to complete a self-assessment in order to cause them to think more about their tutoring and how they can improve their tutoring approach.”
Stakeholder Comment

• Even when presenting data in a variety of way (i.e. charts, graphs, and other visuals), quantitative research seems difficult to absorb for many campus stakeholders. For those lacking a broader statistical context for understanding the information, even significant results can lose their impact. By combining quantitative data with narrative responses from open-ended questions, the 2008 Student Satisfaction Survey provided a more accessible tool to communicate program efficacy to the various constituent groups that support and rely on the Chaffey College Success Centers. When showcasing results in this manner to department faculty and administrators, individuals had a much clearer understanding of the information and had less difficulty relating that information directly to student success.
References


