Determine Where and How to Mix the Quantitative and Qualitative Strands

Finally, researchers need to decide the approach for mixing the two approaches within their mixed methods designs. **Mixing** is the explicit interrelating of the study's quantitative and qualitative strands and has been referred to as combining and integrating—that is, it is the process by which the researcher implements the independent or interactive relationship of a mixed methods study. Two concepts are useful for understanding when and how mixing occurs: the point of interface and mixing strategies. The **point of interface**, also known as the stage of integration, is a point within the process of research where the quantitative and qualitative strands are mixed (Morse & Niehaus, 2009). We conceptualize mixing occurring at four possible points during a study's research process: interpretation, data analysis, data collection, and design. Researchers employ mixing strategies that directly relate to these points of interface. These mixing strategies are (1) merging the two data sets, (2) connecting from the analysis of one set of data to the collection of a second set of data, (3) embedding of one form of data within a larger design or procedure, and (4) using a framework (theoretical or program) to bind together the data sets.

- **Mixing during interpretation** occurs when the quantitative and qualitative strands are mixed during the final step of the research process after the researcher has collected and analyzed both sets of data. It involves the researcher drawing conclusions or inferences that reflect what was learned from the combination of results from the two strands of the study, such as by comparing or synthesizing the results in a discussion. All mixed methods designs should reflect on what was learned by the combination of methods in the final interpretation. For mixed methods designs that keep the two strands independent, this is the only point in the research process where mixing occurs.

- **Mixing during data analysis** occurs when the quantitative and qualitative strands are mixed during the stage of the research process when the researcher is analyzing the two sets of data. First, the researcher quantitatively analyzes the data from the quantitative strand and qualitatively analyzes the data from the qualitative strand. Then, using an interactive strategy of **merging**, the researcher explicitly brings the two sets of results together through a combined analysis. For example, the researcher further analyzes the quantitative and qualitative results by relating them to each other in a matrix that facilitates comparisons and interpretations. Another merging approach involves transforming one result type into the other type of data and merging through additional analyses of the transformed data.

- **Mixing during data collection** occurs when the quantitative and qualitative strands are mixed during the stage of the research process when the researcher collects a second set of data. The researcher mixes by using a strategy of **connecting** where the results of one strand build to the collection of the other type of data. For example, the researcher may obtain quantitative results that lead to the subsequent collection of qualitative data in a second strand. A researcher can also obtain qualitative results that build to the subsequent collection of quantitative data. The mixing occurs in the way that the two strands are connected. This connection occurs by using the results of the first strand to shape the collection of data in the second strand by specifying research questions, selecting participants, and developing data collection protocols or instruments.

- **Mixing at the level of design** occurs when the quantitative and qualitative strands are mixed during the larger design stage of the research process. Mixing at the design level can involve mixing within a traditional quantitative or qualitative research design, an emancipatory theory, a substantive social science theory, or an overall program objective (Greene, 2007). Building from these ideas, we find researchers using three strategies for mixing at the design level: embedded mixing, theoretical framework-based mixing, and program objective framework-based mixing. When using an embedded mixing strategy, the researcher embeds quantitative and qualitative methods within a design associated with one of these two methods. For example, the researcher may embed a supplemental qualitative strand within a larger quantitative (e.g., experimental) design or embed a quantitative strand within a larger qualitative (e.g., narrative) design. The embedded nature occurs at the design level, in that the embedded method is conducted specifically to fit the context of the larger quantitative or qualitative design framework. When **mixing within a theoretical framework**, the researcher mixes quantitative and qualitative strands within a transformative framework (e.g., feminism) or a substantive framework (e.g., a social science theory) that guides the overall design. In this case, the two methods are mixed within a theoretical perspective. When **mixing within a program-objective framework**, the researcher mixes quantitative and qualitative strands within an overall program objective that guides the joining of multiple projects or studies in a multiphase project.

A persuasive and strong mixed methods design addresses the decisions of level of integration, priority, timing, and mixing. The many design typologies that were presented in Table 3.1, along with the wide array of decision options available to researchers presented in this section, illustrate the complexity and variety inherent in the conduct of mixed methods research. While there are potentially a limitless number of unique combinations, from our work with researchers across disciplines and based on reading hundreds of mixed methods studies, we have found that there is a relatively small set of combinations that are used most frequently in practice. Therefore, we next present a typology of major mixed methods designs that conveys the basic designs used as well as tries to encapsulate the richness available to mixed methods researchers.

Creswell, (2011). pp. 66-68.

Theoretical Framework Assignment

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EDTC8061374 Research Methods in ET Leader Spring 2024

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February 25, 2024

How does the theoretical framework of An Investigation of a Faculty Online Teaching and Learning Initiative affect the entire research project? Given that this is a Mixed-method study. It was organized to improve the insight of one-on-one interviews and surveys, along with the adaptation of a given innovation that explained the actions specified amid – ideas, practices, or objects. Adapting and succeeding in incorporating qualitative and quantitative approaches, drawing from the grounded diffusion of innovation (DOI) theory; in which, the quantitative consequence of the survey determined the starting point, and subsequently the qualitative details depicted distinctions between participants. The entire research project was composed of these surveyable constructs.

The theoretical framework on Young Children, Digital Media, and Smart Toys affected the research plan. The mention of recent research on the use of autonomous toys (i.e. smart toys), that incorporated AI to mimic human interactions, which is needed to exemplify the quality of a phenomenon. Using a qualitative investigative approach that studied participants from uniformed cultures, which in turn gave an in-depth understanding of the cultivation of smart toys. The domestication theory was applicable to incorporate seeing that participants were adopting smart toys into their lives. Good parenting skills were explored, due to the possibility of nefarious actions. For example, hacking or hidden cameras could be imposed on toys. Because of this, parental intervention in digital technologies was instituted, which brought about restrictions on digital protocols. The effect of children's psychological behavior was studied comprehensively within a detailed analysis of categories and subcategories. There were theoretical research questions that imposed hypotheses that developed themes used for the general outcomes of the study.

References

Creswell, J. (2011). Designing and Conducting: Mix Method Research. Sage Publications. USA. 2nd Edtion.

Sargent, J. (2024). Theoretical Framework.EDTC8061374 Research Methods in ET Leader Spring 2024. NJCU.