Mixed methods is a research paradigm that combines specific positivistic elements of quantitative research methods with specific constructivist elements of qualitative research methods. Generally, this approach can be sequential or parallel, with the quantitative and qualitative approaches used alternately or together to investigate the same phenomenon.

Conceptual Overview and Discussion

Case study research lends itself particularly well to mixed methods research, as myriad approaches to research design, analysis, and interpretation are possible. Historically, mixed methods research ended the paradigm wars and the “incompatibility wars” because it combined the quantitative and qualitative research methods. From the 19th century to the 1950s, the purist approach to research utilized one single data source or several data sources within either a quantitative or qualitative research paradigm. This method of research has been labeled monomethod or monostrand due to its limited research approach. From the 1960s to the 1980s, monomethod research designs gave way to multimethod (or multistrand) approaches that ensured any of the four types of triangulation: data, investigator, theory, and methodological. From the 1990s to the present day, mixed model studies have come to the forefront; in these, quantitative or qualitative can be used as the focus of the inquiry, at the data collection stage, and at the data analysis and interpretation stage, or a combination of quantitative and qualitative methods at each of the aforementioned phases of the research study.

Mixed methods research works particularly well for case study research as it allows the researcher to take the rich empirical data yielded from case studies and apply either quantitative or qualitative methods or quantitative and qualitative methods to the data. In this manner, qualitative data can be quantitized or quantitative data can be qualitized to extract meaning from the data sets that might otherwise be hidden. For example, a case study researcher might transform interview data on how the roles of teachers have changed with technology infusion into a display comparing who has and who has not changed with a number of technology infusion inhibitors such as infrastructure, monies, and administrative support. A Fisher’s exact probability test could be applied to see if there is a statistically significant difference between a teacher infusing technology and an inhibiting factor. Conversely, a quantitative researcher might administer a 50-item questionnaire related to the causes of juvenile delinquency from which the researcher can cluster techniques to form groups on which statistical analysis can be performed. These same data can be analyzed qualitatively to form another data set that will describe separate narrative profiles of a juvenile delinquent. The combination of qualitative and quantitative techniques enhances legitimation as the qualitative analyses involve descriptive precision and the quantitative analyses ensure numerical precision.

Application

Two seminal exemplars of mixed methods research are Jennifer Greene, Valerie Caracelli, and Wendy Graham's 1989 conceptual framework for mixed method evaluation designs, and David Fetterman's 2000 evaluation of the Stanford University Teacher Education Program (STEP).

Greene and her Cornell University colleagues examined 57 empirical mixed methods studies to develop a sound conceptual framework upon which myriad subsequent studies have been
based. They surveyed the professional literature for studies conducted between 1980 and 1988 and reduced the initial number to 18 published evaluation studies, 17 evaluation reports, and 22 evaluation papers. Their analysis revealed five different purposes for mixed methods research and seven related design characteristics.

The first purpose was triangulation, which looked to bring together the results from the different methods. For example, a questionnaire that has qualitative and quantitative sections or even two different questionnaires could yield converging data on a related research question. The second purpose was complementarity, where the researcher looked for overlapping as well as different aspects of a phenomenon. For example, a researcher might conduct an interview to arrive at the goals of business-people as well as the intention of those people to meet the goals, but also could include a quantitative questionnaire in which the participants rank order their goals in relation to a time line for meeting them. The next purpose was development, where the researcher used one research method to develop another research instrument. For instance, researchers often administer a quantitative survey and then a qualitative interview or focus group based on the survey responses. The fourth purpose was initiation, whereby the research results could be analyzed through a different method to seek some form of paradox or a new lens through which to view the data. The researcher could analyze the results of a semistructured interview using a qualitative method and then reexamine the same data using a quantitative method such as Rasch analysis to ascertain any contradictions in the previous analysis. The final purpose was expansion, whereby the researcher sought to include multiple components in mixed methods research. Traditionally, these studies would use qualitative methods to investigate program processes and quantitative methods to examine program outcomes. Subsequent analysis revealed the seven mixed methods design characteristics to be (1) methods, (2) phenomena, (3) paradigms, (4) status, (5) implementation: independence, (6) implementation: timing, and (7) study. Greene and her colleagues applied thorough analysis techniques to these purposes and ultimately ranked them from most constrained to least constrained: triangulation, complementarity, development, initiation, and expansion. They concluded that some studies can easily mix quantitative and qualitative paradigms (e.g., initiation purpose) while others might have a difficult time if the purpose were triangulation or complementarity.

Beginning in 1997, Fetterman and his colleagues conducted a 3-year study to evaluate the STEP for the purposes of program improvement and overall program assessment. This intensive 12-month education program offers participants a master's degree and a secondary school teaching credential. In the first year, Fetterman and his fellow researchers performed a formative assessment to ascertain areas of strength and of future development. In the second and third years, the evaluation was summative as they assessed the overall program. Data collection methods included an analysis of institutional documents, faculty interviews, student interviews, observation checklists, surveys, focus groups with present and past students, digital photography of classroom activities, and videoconferencing with the evaluation team. For their data analysis, the researchers concentrated on the following topics: unity of purpose or mission, curriculum, research, alumni contact, professional development schools/university school partnerships, faculty involvement, excellence in teaching, and length of the program. He and his associates met on a weekly basis and conducted numerous database sorts while also ensuring the reports were written and distributed frequently. Their conclusions indicated that there was a disconnect between theory and practice for the students, the STEP lacked a unity of purpose, the students reflected on their practice infrequently, and the teacher education program did not maintain contact with alumni. The authors also listed from two to six recommendations based on their thorough analysis of
the Stanford Education Teacher Education Program.

Fetterman and his associates demonstrated how myriad qualitative and quantitative research methods could be utilized, depending on a study's phase, purpose, conclusions, and recommendations. The complex interrelationships of the research methods, the frequent meetings, and the evolving conceptual framework all made this study robust in its findings and recommendations and a clear example of how mixed methods research can be implemented successfully.

Critical Summary

Case study research often examines the descriptive questions of who, what, where, how many, and how much but can neglect the how and why questions often investigated in quantitative studies. Mixed methods research allows opportunities for the meaningful questions to be posed, measured, analyzed, and interpreted. Because both inductive and deductive reasoning are applied in mixed method research, the results are far more robust, especially in case study research that involves rich empirical data gathered through varied data collection techniques. In short, mixed method research is so powerful because it allows the “gaps” in qualitative research methodologies to be filled or overlapped by quantitative methodologies and techniques and vice versa.

- mixed methods
- research methods
- quantitative methods
- qualitative methods
- triangulation
- qualitative research
- quantitative research methods

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See also

- Case Study as a Methodological Approach
- Paradigm Plurality in Case Study Research
- Qualitative Analysis in Case Study
- Quantitative Analysis in Case Study
- Triangulation

Further Readings