

AM Last Page: Understanding Qualitative and Quantitative Research Paradigms in Academic Medicine

Laura Castillo-Page, PhD, senior director, Diversity Policy and Programs, Sue Bodilly, PhD, senior director, Research and Data Programs, and Sarah A. Bunton, PhD, research director, Organization and Management Studies, Association of American Medical Colleges

Qualitative research is becoming more prominent in academic medicine and health care fields, and an increasing number of publications using qualitative methods are featured in prominent journals¹⁻³; thus, recognizing the different available approaches can benefit researchers of all types. While a debate may wage between proponents of qualitative versus quantitative research, both sets of methods—and often a blend of the two—offer important insights into the problems the academic medicine community faces.⁴⁻⁶

Qualitative paradigm		Quantitative paradigm
How and why events or behaviors occur in complex settings where context is important to understanding: <i>Examples: How do a diverse student body and faculty affect teaching and learning? How does a resident make the transition to attending physician? What characterizes the phenomenon of a mentor-mentee relationship?</i>	Nature of the research question	How many, how often, what level, and what direction of relationships between defined variables in settings that can be decontextualized: <i>Examples: What is the relationship between student grades and graduation rates? What type and amount of monetary incentive or financial reward affects a medical student's specialty choice?</i>
Inductive by researchers (e.g., normative or transcribed text analyzed thematically for patterns)	Nature of data and analysis	Deductive by statistics (e.g., data and patterns analyzed through statistical means)
<ul style="list-style-type: none"> Case study: An in-depth study of a particular case, which can be descriptive, explanatory, or exploratory Ethnography: Research intended to provide descriptions of systems, processes, or phenomena within their specific context; stems from anthropology Grounded theory: A theory developed based on the examination of data (rather than applying a predetermined theory) Historiography: Research directed at the study of a past event, issue, or problem that uses information from the past Phenomenology: The study of individuals' perspectives on particular phenomena Action research: A reflective and team-based approach led by those involved in solving a particular problem Mixed methods: A combination of quantitative and qualitative approaches including triangulation design, embedded design, explanatory design, and exploratory design 	Types of designs	<ul style="list-style-type: none"> Experimental: The researcher manipulates all variables including the assignment to treatment and control groups in order to discern causality Quasi-experimental: Research using an experimental variable with groups not formed through random assignment or selection Surveys: Measurement procedures that involve asking questions of respondents Mixed methods: A combination of quantitative and qualitative approaches including triangulation design, embedded design, explanatory design, and exploratory design
Normative data from interviews, documents, focus groups, and/or observations	Data sources	Ordinal or cardinal data from surveys, financial reporting, census reports, test scores, demographics, and/or observations
<ul style="list-style-type: none"> Thematic analysis Content analysis Analysis of frequency 	Analytic techniques	<ul style="list-style-type: none"> Descriptive statistics Regression Regression discontinuity Hierarchical linear modeling
<ul style="list-style-type: none"> Internal validity (e.g., through triangulation, member checking, coding check) External validity (e.g., through representativeness check) Reliability (e.g., through chain of evidence and interrater reliability check) 	Assessment of rigor	<ul style="list-style-type: none"> Internal validity (e.g., through study design and procedures) External validity (e.g., through criterion measurement) Reliability (e.g., through test-retest, internal consistency)
<ul style="list-style-type: none"> Provides valid and dense information about real situations and contexts, including interactions of variables in context Allows an in-depth and comprehensive understanding of motives and social or behavioral processes Provides an understanding and description of people's personal experiences of phenomena 	Strengths	<ul style="list-style-type: none"> Delineates relationships among variables Provides generalizable research findings when the data are based on sufficiently sized random samples Provides generalizable results when research has been replicated in different populations/subpopulations Is useful for large populations
<ul style="list-style-type: none"> May produce findings that are not easily generalizable to other settings May be of limited scope due to the in-depth data-gathering approaches used May take more time to collect and analyze data May be more difficult to test theories with large participant pools 	Weaknesses	<ul style="list-style-type: none"> Narrow variables might not be valid Knowledge produced might be too general for direct application to specific contexts or individuals Phenomena may be missed if analysis focuses on hypothesis testing rather than hypothesis generation

References

1. Newton MF, Keirns CC, Cunningham R, Hayward RA, Stanley R. Uninsured adults presenting to US emergency departments: Assumptions vs data. *JAMA*. 2008; 300:1914-1924.
2. Britten N. Qualitative research and the take-up of evidence-based practice. *J Res Nurs*. 2010;15:537-544.
3. Buiting HM, Ruruo ML, Wijsbek H, van Zuvlen L, den Hartogh G. Understanding provision of chemotherapy to patients with end stage cancer: Qualitative interview study. *BMJ*. 2011;342:d1933.
4. Creswell JW. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 2nd ed. Thousand Oaks, Calif after Sage; 2003.
5. Gall MD, Gall JP, Borg WR. *Educational Research: An Introduction*. 8th ed. Boston, Mass: Allyn & Bacon; 2007.
6. Glesne C. *Becoming Qualitative Researchers: An Introduction*. 3rd ed. Boston, Mass: Allyn & Bacon; 2006.

Downloaded from https://journals.aamc.org/academicmedicine by Bibliomed/Heav/ZFEumr1CNNA+KLEZQsliHokM0h0yWCKYAWWVQ3pIjCHD3wSPT87R9KPh0hBRR0CYX0BkwoQ5DWMX8BmE5ur3z4Q7ZA= on 01/30/2019