

Qualities of Qualitative Research: Part I

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Many important medical education research questions cry out for a qualitative research approach: How do teacher characteristics affect learning? Why do learners choose particular specialties? How is professionalism influenced by experiences, mentors, or the curriculum? The medical paradigm, the “hard” science most often taught in medical schools, usually employs quantitative approaches.¹ As a result, clinicians may be less familiar with qualitative research or its applicability to medical education questions. For these *why* types of questions, qualitative or mixed qualitative and quantitative approaches may be more appropriate and helpful.² Thus, we wish to encourage submissions to the *Journal of Graduate Medical Education* that are for qualitative purposes or use qualitative methods.

This editorial is the first in a series of two, and it will provide an introduction to qualitative approaches and compare features of quantitative and qualitative research. The second editorial will review in more detail the approaches for selecting participants, analyzing data, and ensuring rigor and study quality in qualitative research. The aims of the editorials are to enhance readers’ understanding of articles using this approach and to encourage more researchers to explore qualitative approaches.

Theory and Methodology

Good research follows from a reasonable starting point, a theoretical concept or perspective. Quantitative research uses a *positivist* perspective in which evidence is objectively and systematically obtained to prove a causal model or hypothesis; *what works* is the focus.³ Alternatively, qualitative approaches focus on *how* and *why* something works, to build understanding.³ In the positivist model, study objects (eg, learners) are independent of the researchers, and knowledge or facts are determined through direct observations. Also, the context in which the observations occur is controlled or assumed to be stable. In contrast, in a qualitative paradigm researchers might interact with the study objects (learners) to collect observations, which are highly context specific.³

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Qualitative research has often been differentiated from quantitative as hypothesis *generating* rather than hypothesis *testing*.⁴ Qualitative research methods “explore, describe, or generate theory, especially for uncertain and ‘immature’ concepts; sensitive and socially dependent concepts; and complex human intentions and motivations.”⁴ In education, qualitative research strives to understand how learning occurs through close study of small numbers of learners and a focus on the individual. It attempts to explain a phenomenon or relationship. Typically, results from qualitative research have been assumed to apply only to the small groups studied, such that generalizability of the results to other populations is not expected. For this reason, qualitative research is considered to be hypothesis generating, although some experts dispute this limitation.⁵

TABLE 1 presents a comparison of qualitative and quantitative approaches.

When Qualitative Studies Make Sense

Qualitative studies are helpful to understand why and how; quantitative studies focus on cause and effect, how much, and numeric correlations. Qualitative approaches are used when the potential answer to a question requires an explanation, not a straightforward yes/no. Generally, qualitative research is concerned with cases rather than variables, and understanding differences rather than calculating the mean of responses.⁴ In-depth interviews, focus groups, case studies, and open-ended questions are often employed to find these answers. A qualitative study is concerned with the point of view of the individual under study.⁶

For example, the changes in duty hours for residents in 2003 have generated many quantitative research articles, which have counted and correlated the changes in numbers of procedures, patient safety parameters, resident test results, and resident sleep hours. However, to determine why residents still sleep about the same number of hours since 2003, one could start from a qualitative framework in order to understand residents’ decisions regarding sleep. Similarly, to understand how residents perceive the influence of resident work hour restrictions on aspects of professionalism, a qualitative study would start with the learners rather than by measuring and correlating scores on professionalism assessments. Because learning takes place in social environments characterized by complex interactions, the quantitative “cause and effect” model is often too simplistic.⁷

TABLE 1 QUANTITATIVE VERSUS QUALITATIVE RESEARCH		
	Quantitative	Qualitative
Characteristics	Confirm hypotheses	Explore hypotheses
	Highly structured	Semistructured
	Rigidly categorize answers	Flexible to elicit more answers
	Largely inductive reasoning (infers general ideas from observations)	Largely deductive reasoning
	Control contextual variables	Appreciate contextual variables
Objectives	Quantify variation	Describe variation
	Determine cause-effect	Describe and explain relationships
	Describe population variables	Describe individual variables or group norms
Questions	Closed-ended	Open-ended
Data	Counted	Usually text
Study design	Does not change	May evolve during study
	Each participant gets same questions	Participant questions may depend on responses
Advantages	Causation and correlation can be made (when well done)	Better for complex questions, when simple answers are unlikely
		Can be easier to design and fund
	If study population similar to other populations, results generalizable	Nearly always get useful information (if well done)
Disadvantages	Often expensive to conduct	Lack of generalizability—considered specific to setting/ participants
	Large number of participants needed	

Methods

A variety of ways to collect information are available to researchers, such as observation, field notes, reflexive journals, interviews, focus groups, and analysis of documents and materials; TABLE 2 provides examples of these

methods. Interviews and focus groups are usually audio-recorded and transcribed for analysis, whereas observations are recorded in field notes by the observer.

After data collection, accepted methods are employed to interpret the data. Researchers review the observations

TABLE 2 POTENTIAL DATA SOURCES FOR QUALITATIVE RESEARCH ⁸	
Interview	Elicit individuals' feelings, thoughts, experiences; particularly useful for sensitive topics
	Often taped
	Structured versus semistructured versus unstructured interviews
Focus groups	Interviews with 6–10 people in group, may be highly structured, unstructured, or semistructured
	Often taped
Written narrative	Often reflections in response to a question or prompt; structure varies
Written responses to open-ended questions	Written or computer surveys, generally topics more controlled
	Brief comments may lack depth needed for analysis
Observations	By researcher; particularly useful to understand learner-teacher relationships and “hidden” culture
	Notes written during or immediately after observations
	Nonparticipant versus participant observation: researchers observe without participation or join the group under study to gain insight
Review of documents	Unofficial and official materials: syllabus, curriculum objectives, meeting minutes, vision and mission statements, program descriptions, websites

TABLE 3 ITERATIVE TEAM PROCESS TO INTERPRET DATA⁸

1. Team immersion in the data
2. Develop codes from all sources of data
3. Code the data
4. Revise code list
2. Group codes into themes
3. Consult other research or evidence
4. Test themes
5. Ground explanations (generate hypotheses) in developed themes

and report their impressions in a structured format, with subsequent analysis also standardized. TABLE 3 provides one example of an analysis plan. Strategies to ensure rigor in data collection and trustworthiness of the data and data analysis will be discussed in the second editorial in the series.

In contrast to quantitative methods, subjective responses are critical findings, both in participant responses

and observer reactions. The unique or outlier response has value in contributing to understanding the experience of others, and thus individual responses are not lost in the aggregation of findings or in the development of research group consensus.^{2,4} Qualitative methods acknowledge the “myth of objectivity” between researcher and subjects of study.⁷ In fact, the researcher is unlikely to be a purely detached observer.

Ethical Issues

As qualitative researchers usually attempt to study subjects and interactions in their “natural settings,” ethical issues frequently arise. Because of the sensitive nature of some discussions as well as the relationship between researchers and participants, informed consent is often required. The very reason for doing qualitative research—to discover why and how, particularly for thorny topics—can lead to potential exposure of sensitive opinions, feelings, and personal information. Thus, consideration of how to protect participants from harm is essential from the very onset of the study.

TABLE 4 SAMPLE QUALITY APPRAISAL CHECKLIST FOR QUALITATIVE STUDIES^{11,a}

	Fully Present	Partially Present	Not Present
Introduction			
Problem clearly described in relation to current knowledge			
Research question and objectives a) clearly stated and b) relevant to qualitative approach (e.g., understanding not causation)			
Methods			
Describes clearly context of study and researchers' roles			
Methods appropriate to the research question (e.g., grounded theory, ethnography, phenomenology)			
Participants chosen appropriately for the research question			
Data collection process clear and appropriate for the question			
Data analysis process clear and appropriate to the question			
Results			
Presented clearly			
Quotations enhance understanding of findings			
Discussion			
Interpreted in credible and innovative ways			
Limitations clear			
Conclusion			
Presents a synthesis of the study and proposes next steps			

^a Adapted from Coté L, Turgeon J. Appraising qualitative research articles in medicine and medical education. *Med Teach*. 2005;27:71–75.

TABLE 5 COMMONLY USED TERMS IN QUALITATIVE RESEARCH⁸

Purposeful sampling	Choosing a sample of participants (not random sampling, as in quantitative research) Sample of typical cases Sample of extreme (outlier) cases Participants with particular characteristics Participants with representative characteristics
Triangulation	Using multiple sources of data or different observers to enhance understanding
Saturation	Point at which no further new observations or insights are made
Themes	Coherent subjects that emerge from the data
Peer debriefing	Discussing emerging themes with research team during data collection and analysis to ensure that the sample is adequate (ie, the team agrees that the themes repeat and saturation has been reached)
Codes	Words that act as labels for important concepts identified in transcripts of speech or written materials
Trustworthiness: Credibility Dependability Confirmability Transferability	Corresponds to validity or credibility of the data; various methods used to establish: Triangulation Detail of data Observing for long periods or multiple times Skilled and transparent interview technique Detailed description of sample, setting and results More than one researcher and peer debriefing Rigorous sampling, data collection, and data analysis Careful record of procedures Checking with participants that insights make sense with their experiences

Quality Assessment

Qualitative researchers need to show that their findings are credible. As with quantitative approaches, a strong research project starts with a basic review of existing knowledge: a solid literature search. However, in contrast to quantitative approaches, most qualitative paradigms do not look to find a single “truth,” but rather multiple views of a context-specific “reality.” The concepts of validity and reliability originally evolved from the quantitative tradition, and therefore their accepted definitions are considered inadequate for qualitative research. Instead, concepts of precision, credibility, and transferability are key aspects of evaluating a qualitative study.⁹

Although some experts find that reliability has little relevance to qualitative studies, others propose the term “dependability” as the analogous metric for this type of research. Dependability is gained through consistency of data, which is evaluated through transparent research steps and research findings.^{9,10} Trustworthiness and rigor are terms used to establish credible findings. One technique often used to enhance trustworthiness and rigor is triangulation, in which multiple data sources (eg, observation, interviews, and recordings), multiple analytic methods, or multiple researchers are used to study the question.⁹ The overall goal is to minimize and understand potential bias while ensuring the researcher’s “truthfulness” of interpretation.⁹

A potentially helpful appraisal checklist for qualitative studies, developed by Coté and Turgeon,¹¹ is found in TABLE 4. This appraisal checklist has not been examined systematically. TABLE 5 includes a list of terms commonly used in qualitative research. Approaches to ensure rigor

and trustworthiness in qualitative research will be addressed in greater detail in Part 2.

Summary

Both quantitative and qualitative approaches have strengths and weaknesses; medical education research will benefit from each type of inquiry. The best approach will depend on the kind of question asked, and the best methods will be those most appropriate to the question.⁴ To learn more about this topic, the references below are a useful start, as is talking to colleagues engaged in qualitative research at your institution or in your specialty.

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