

Qualitative Analysis on Stage: Making the Research Process More Public

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Discussions regarding standards for assessing qualitative research have not sufficiently addressed questions concerning the privatization of this type of analysis. In response to this dilemma, the authors of this article address some of the strategies that they have employed in working with doctoral students and offer suggestions for assessing and publicly disclosing the methodological rigor and analytical defensibility of qualitative research. Specifically, tabular strategies are introduced for use in documenting the relationship between data sources and a study's research questions, the development of themes and categories, and the triangulation of findings. Examples from three dissertations are provided.

The worth of any research endeavor is assessed by a variety of audiences—peers, editorial review boards, publishers, grant reviewers, and dissertation committees. Early in the introduction of naturalistic inquiry in the field of education, critique of qualitative research seemed to come primarily from those quantitatively oriented. Too frequently, qualitative research is evaluated against the positivist criteria of validity and reliability and found to be lacking or “soft.” Positivists allege that the product of qualitative inquiry is “fiction, not science, and that these researchers have no way to verify their truth statements” (Denzin & Lincoln, 2000a, p. 8).

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In defense of this criticism, many educational researchers, in their eagerness to embrace qualitative methods, did not provide adequate and clear justifications for their methods, findings, or conclusions (Howe & Eisenhart, 1990). As was foreshadowed by Guba (1981), “the naturalistic approach is likely to be tarred with the brush of ‘sloppy research’” (p. 90). Indeed, providing access to the decisions that are made in the process of conducting qualitative research is part of responding to the question of whether or not the findings are sufficiently credible and trustworthy (Borman, 1985).

Recently, the source and nature of this critique have changed; “Unprecedented criticism of ethnographic or qualitative methods, substance, style, practice, and relevance has emerged. The criticism emerges not from the traditional enemies, the positivists who fault qualitative research for its failure to meet some or all of the usual positivistic criteria of truth, but from the insiders to the ethnographic movement” (Altheide & Johnson, 1994, p. 485). Discussing reaction to validity critiques in relation to the use of literary styling (i.e., fiction, poetry, and autobiography) and performance as modes of research, Gergen and Gergen (2000) noted “there is also a growing unease among some qualitative researchers with the drift from conventional scientific standards” (p. 1030). On the other side, some qualitative researchers criticize qualitative methods for being too positivistic.

Criticism from both inside and outside sources, as well as the proliferation of qualitative methods in educational research, has led to considerable controversy about standards for the design and conduct of research (Howe & Eisenhart, 1990, p. 2). The fact that justifications are often inadequate or unclear is due in no small mea-

sure to confusion about how to best think about standards for qualitative research design and analysis. While Schwandt (1996) refers to this period as one of “postfoundationalist confusion” (p. 59) and says “farewell to criteriology,” Denzin and Lincoln (2000a) characterize this period in the development of qualitative methods as a “triple crisis of representation, legitimation, and praxis” (p. 17) involving a “serious rethinking of such terms as validity, generalizability, and reliability” (p. 17).

Discussions about standards for qualitative research (see Goetz & LeCompte, 1984; Smith & Glass, 1987; Denzin, 1989; Denzin & Lincoln, 2000b) have failed to emphasize adequately one important dilemma, the privatization of this type of analysis (however, cf. Goetz & LeCompte, 1984, pp. 241–242). Put another way, criticism stems from our inability to deal with the “art of the science” (see Denzin, 1994; Fontana & Frey, 1994). We operate from the basic premise that how researchers account for and disclose their approach to all aspects of the research process are key to evaluating their work substantively and methodologically. Central to this premise are the core elements of classical science—refutability and replicability. Because one of the “difficulties” with qualitative research is the recognition that it is not, in the “classical science” sense, replicable, we recommend analytic openness on the grounds of refutability and freedom from bias.

Our purpose in this article is to address some of the strategies that we have employed in our work with doctoral students and to offer suggestions for assessing the methodological rigor and analytical defensibility of this paradigm. As used in this article, rigor is defined as the attempt to make “data and explanatory schemes as public and replicable as possible” (Denzin,

1978, p. 7). We offer these strategies as suggestions for judging the rigor of products of naturalistic inquiry and as a criterion (or to use Schwandt's, 1996, terminology, "guiding ideals/enabling conditions") to be considered by the qualitative research community. We are motivated in this endeavor by three observations. First, what exactly does it mean when a researcher writes, "themes emerged"? The reader is expected to take the word of the researcher that he or she did a credible job in data analysis—that the themes that emerged actually have some congruence or verisimilitude with the reality of the phenomenon studied.

- Second, although triangulation, member checks, and other qualitative strategies are mentioned frequently in design or methods sections of research articles, rarely is there evidence of exactly how these were achieved. They are invoked as if magical incantations and the reader must simply believe and trust the researcher—a leap of faith that is sometimes hard to accomplish.
- Third, rarely are we privy to an interview protocol that may be used to collect data. A notable exception to this is Weis and Fine's (2000) description of method in *Speed Bumps: A Student-Friendly Guide to Qualitative Research*. In this text, they described in detail the painstaking steps taken to assure the validity of their findings in *The Unknown City* (Fine & Weis, 1998).

However, an example of our concern can be found in a recent article (Gonzalez, 2002). The author refers to interviews (spanning a 2-year period), observations (in the dorm, classrooms, study session areas, workplace, computer center, and student union), and documents (participants' journals) as sources of data. Although verbatim quotes are incorporated into the article, no data from documents are presented. Only three references are made to observational data collected while visiting the participants' dorm rooms. Additionally, the author did not provide the reader with the interview questions or any hint of those questions. The analysis presented actually leads the reader to wonder what the interview protocols looked like over the 2-year time frame of collecting data. This is just one example of many similarly written articles that fail to provide enough description and details to allow validity judgments to be made by the reader. These observations have led us to conclude that in all the dis-

cussions of validity in qualitative research there is one major element that is not sufficiently addressed—the public disclosure of processes.

Some qualitative researchers would argue that our current condition is much more complex than presented here. There is not a lack of standards but a lack of consensus about them and a lack of commitment to uphold them. In some instances editors, publishers, and reviewers may not want or be able to include all the description it takes to meet the criteria of public disclosure in print. The focus in journal articles tends to be on findings, interpretations, and implications for practice. Others would argue that information regarding the research processes is not included because the researcher cannot clearly articulate how he or she arrived at the interpretation presented. Creswell (1998) also points out that some of the more rigorous forms of validity, "such as peer audits and external audits, may involve not only time but also costs to the researcher" (p. 203). In short, there is a lack of will and/or means, not a lack of criterion.

The particular stages of the research process that are the focus of this article are under the umbrella of research design and analysis. We focus specifically on the relationship between research questions and data sources, the processes of theme development, and triangulation (the example we provide deals with triangulation of data sources, but the same technique applies to other types of triangulation). Examples from dissertations (Brown, 1999; Mickey, 2000; Roney, 2000) are presented with permission from the authors for the purpose of illustrating the utility of this approach. Dissertations were purposively chosen to illustrate our point because they typically allow for more documentation of research processes and are not subject to the page and space limitations that researchers encounter with scholarly journals. Additionally, we were not able to find articles that provided the information we were looking for relative to the public disclosure of methods.

In our attempt to do this, we follow the lead of Conas (1992) who wrote, "Since we are committed to opening the private lives of participants to the public, it is ironic that our methods of data collection and analysis often remain private and unavailable for public inspection" (p. 254).

Other scholars have said this in different ways. Guba (1981) wrote, "while practitioners of naturalistic approaches have been reasonably introspective about what they do, they have not made systematic efforts to codify the safeguards that they intuitively build into their inquiries" (p. 76). Agreeing with this sentiment, Oakley (1981), in discussing the interviewing process, commented, "behind every closed front door there is a world of secrets" (p. 41).

Indeed, a key part of qualitative research is how we account for ourselves, how we reveal that world of secrets. Good naturalistic inquiry shows the hand and opens the mind of the investigator to his or her reader; "The effort may not always be successful, but there should be clear 'tracks' indicating the attempt has been made" (Altheide & Johnson, 1994, p. 493).

Validity in Qualitative Research: A Review of the Debate

The literature is replete with discussions of standards for assessing the quality and rigor of qualitative research. Early proposals addressing concerns for validity in ethnographic or qualitative research focused on foundational metaphysics. These proposals were grounded in the issues and concerns that conventional inquiry typically addressed. Early proposals for validity criteria focused on four issues—internal validity, external validity, reliability, and objectivity—that are traditionally addressed in quantitative studies. Realizing, however, that those concerns simply could not be addressed well in naturalistic research, different researchers and theoreticians recast the four criteria to meet varying needs that were thought to exist (Lincoln, 2001).

Among the first scholars to address this issue were Guba and Lincoln (1981; 1982; Lincoln & Guba, 1985). Retreating from the language of experimental inquiry, Lincoln and Guba restated the rigor criteria as trustworthiness criteria (see Table 1). Reflecting back, Lincoln (2001) noted, "At the time we devised the trustworthiness criteria (Guba & Lincoln, 1982), we realized they were rooted in the concerns of positivist inquiry, but were not certain how to proceed with breaking free of those mandates" (p. 34). These trustworthiness criteria are "well employed in dissertation research...helping students to understand that fieldwork is a prolonged process, with many steps which can be utilized to ensure

Table 1
Quantitative and Qualitative Criteria
for Assessing Research Quality and Rigor

Quantitative term	Qualitative term	Strategy employed
Internal validity	Credibility	<ul style="list-style-type: none"> • Prolonged engagement in field • Use of peer debriefing • Triangulation • Member checks • Time sampling
External validity	Transferability	<ul style="list-style-type: none"> • Provide thick description • Purposive sampling
Reliability	Dependability	<ul style="list-style-type: none"> • Create an audit trail • Code-recode strategy • Triangulation • Peer examination
Objectivity	Confirmability	<ul style="list-style-type: none"> • Triangulation • Practice reflexivity

that unexplored bias does not creep into the work, and that sufficient credibility and plausibility checks are carried out to ensure that the case matches the constructions of individuals and groups in the context" (Lincoln, 2001, pp. 34–35).

Other constructions of validity for qualitative inquiry do not resemble the more traditional positivist typology offered by Guba and Lincoln (1982)—they are alternatives to the more conventional, traditional approach offered by positivism (see Lincoln, 2001, for a more complete discussion of these validities). Five general standards for validity were discussed by Eisenhart and Howe (1992) in the first major handbook of qualitative research, *The Handbook of Qualitative Research in Education*, edited by LeCompte, Millroy, and Preissle (1992). Warning that any general standards for evaluating educational research would have to be very abstract, Eisenhart and Howe (1992) proposed the following five criteria: (a) ensuring a fit between research questions, data collection procedures, and analytic techniques; (b) ensuring the effective application of specific data collection and analytic techniques; (c) being alert to and cognizant of prior knowledge; (d) being cognizant of both internal and external value constraints; and (e) assessing a study's comprehensiveness.

Validity issues in qualitative research will not go away: "Validity is virtually synonymous with trouble these days. It is trouble for the simple reason that, although origi-

nally conceived as a requirement for rigor in the pursuit of conventional inquiry, it has been carried over into phenomenological, naturalistic, participative, poststructural, postmodern, and other case study forms of inquiry" (Lincoln, 2001, p. 25). Creswell (1998) offered, "it is impossible to reach consensus" on the "evolving perspective on qualitative validity" (pp. 216–217). With an eye toward practicality, Creswell contended, "rather than a standards protocol for qualitative validity, I am moving toward a better understanding of multiple perspectives" (p. 217). Qualitative inquiry as a whole is best defined by a description of the various traditions that make up what most would define as qualitative research (Wright, in press). Because qualitative inquiry is really a compilation of data collection techniques all used within a variety of traditions, it is entirely possible to think about validity in qualitative research from a variety of different perspectives (Creswell, 1998).

Creswell and Miller (2000) identified eight verification (a term they prefer to validity) procedures often referred to in the literature and make the point that different procedures may be more appropriate for different traditions within qualitative research. These eight procedures include (a) prolonged engagement and persistent observation, (b) triangulation, (c) peer review or debriefing, (d) negative case analysis, (e) clarifying researcher bias, (f) member checks, (g) thick description, and (h)

external audits (see pp. 126–127). For case study and ethnographic research, triangulation and member checking may work well, but graphic research, biography, phenomenology, and grounded theory require other procedures for validity. Creswell (1998) recommends that qualitative researchers engage in at least two of the eight verification procedures in any given study.

Interestingly enough, all of these "varieties of validities" (Lincoln, 2001) have failed to sufficiently call attention to the issue of publicly disclosing decisions made during the research process—demonstrating the methods and processes "by which raw data were collected and the processes by which they were compressed and rearranged so as to be credible" (Lincoln, 2001, p. 25). "Validity deals with the notion that what you say you have observed is, in fact, what really happened. In the final analysis, validity is always about truth" (Shank, 2002, p. 92); in search of this truth, we offer a way of publicly disclosing methods and research processes as a new criterion for consideration by the qualitative research community. It is our belief that public disclosure will afford us the ability to deal with the "science of the art" of qualitative research.

The Documentational Tables

As noted earlier, the problem is that qualitative researchers do not always provide their readers with detailed explanations of how research questions are related to data sources, how themes or categories are developed, and how triangulation is accomplished. Although researchers claim to utilize triangulation and member checks and discuss the development of the themes presented, what is actually done is often anyone's guess. Most studies do not reveal these inner workings, and good writing can cover up awkwardly collected and poorly documented fieldwork.

Three dissertation studies (Brown, 1999; Mickey, 2000; Roney 2000) are used to illustrate the utility of the tables presented herein. Conducted in middle schools, the first focused on teaming and advisory programs in middle schools, the second looked at characteristics of effective middle school teachers, and the third study investigated the principal as change agent and instructional leader.

Two disclaimers should be kept in mind when considering application of the approach described here. First, no claim is made that this approach assures validity or trustworthiness. Second, the primary value of this approach rests on its potential to encourage researchers to make analytical events open to public inspection.

Data Collection: Designing Interview Questions That Address Research Questions

Research design deals with answering who, what, when, where, how, and why questions. Yin (1994) discussed design as "the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of the study" (p. 18). Keeping in mind that research questions provide the scaffolding for the investigation and the cornerstone for the analysis of the data, researchers should form interview questions on the basis of what truly needs to be known. In-depth interviewing as a method of gathering information is a way to correlate *etic* issues (see Stake, 1995) with *emic* issues (see Hamel, 1993). The following matrix, Table 2, presents the reader with an example of three major research questions and two subquestions

that served as the foundation on which the subsequent interview questions (see Appendix) were designed.

To the right of each research question are codes (i.e., P2, T5, S4) referring to specific interview questions. P2, for example, indicates the second question from the interview protocol developed for the school principals. Constantly revisiting the central questions that the researcher hopes to answer is helpful in establishing a base of reference for the exploratory interview questions.

This multisite qualitative case study (Roney, 2000) was devoted to defining *effective* as it relates to characteristics of middle level teachers. Semistructured interviews were the primary data-gathering source used to help construct the participants' perspectives regarding the research questions (i.e., What are the characteristics that middle level teachers need to possess in order to be effective in teaching young adolescents?). Because of this, it was imperative that the interview questions be carefully cross-referenced to the study's research questions. The researcher (Roney) could not afford to conduct interviews and prepare transcriptions only to discover that the right questions were not asked. This

type of matrix could just as easily show the relationship of other data sources (documents, observations, surveys) to the study's research questions. From our experience with dissertation advising, though, the utilization of this matrix has helped to ensure that the right questions are asked, at least questions that will address the study's main question(s).

Data Management: Conducting Data Analysis Through Code Mapping

The purpose of analysis is to bring meaning, structure, and order to data. Interpretation requires acute awareness of the data, concentration, and openness to subtle undercurrents of social life (Marshall & Rossman, 1999). Confronted with a mountain of impressions, documents, transcribed interviews, and field notes, the qualitative researcher faces the difficult task of making sense of what has been learned. Denzin (2000) called this task the "practices and politics of interpretation" (p. 897). Van Maanen (1988) also noted that the researcher must translate what has been learned into a body of textual work that communicates these understandings to the reader. He referred to this process as telling the "tales of the field." The purpose of this process is to present the reader with the stories identified throughout the analytical process, the salient themes, recurring language, and patterns of belief linking people and settings together. Table 3 outlines six themes from the data analysis of a study (Brown, 1999) investigating how advisory programs either help or hinder the creation of a sense of care and community in middle schools.

The process of data analysis is eclectic; there is no "right way" (Tesch, 1990). Creswell (2002) also noted, "Unquestionably, there is not one single way to analyze qualitative data—it is an eclectic process in which you try to make sense of the information. Thus, the approaches to data analysis espoused by qualitative writers will vary considerably" (p. 258). According to Patton (1990), the data generated by qualitative methods are "voluminous," and this process of sitting down and making sense out of pages of interviews and whole files of field notes can be "overwhelming" (p. 297). The purpose of Table 3 is to present the reader with the larger, consolidated picture that emerged from the "process of bringing order, structure, and

Table 2
Research Questions in Relation to Interview Questions

Research question	Interview question
1) What are the characteristics identified by principals, teachers, and students that middle level teachers need to possess in order to be effective in teaching young adolescents?	P2, P3, P4, P6 T2, T5, T6, T7, T8, T9, T10 S1, S4, S5, S6, S7, S8, S10, S11
a) Are there common identifications between and among the three groups of participants (middle school principals, teachers, and students) with regard to characteristics middle level teachers need to possess in order to be effective in teaching young adolescents?	P2, P3, P4, P6 T2, T5, T6, T7, T8, T9, T10 S1, S4, S5, S6, S7, S8, S10, S11
b) Are there different identifications between and among the three groups of participants (middle school principals, teachers, and students) with regard to characteristics middle level teachers need to possess in order to be effective in teaching young adolescents?	P2, P3, P4, P6 T2, T5, T6, T7, T8, T9, T10 S1, S4, S5, S6, S7, S8, S10, S11
2) How do teacher preparation programs help or hinder the development of middle level teachers and their feelings of effectiveness?	P2, P4, P5, P6, P7 T2, T3, T4, T5, T6 S4, S5, S7, S8, S9
3) How do on-the-job experiences help or hinder the development of middle level teachers and their feelings of effectiveness?	P1, P3, P4, P6, P7, P8, P9, P10 T1, T2, T5, T6, T7, T8, T9, T10 S2, S3, S4, S5, S7, S8, S10

Table 3
Code Mapping: Three Iterations of Analysis (to be read from the bottom up)

CODE MAPPING FOR ADVISORY PROGRAMS (Research Questions 1, 2 and 3)			
RQ#1: A Sense of Community And Care?	RQ#2: Structural/Procedural Components and the Sense of Community?	RQ#3: The Effect of Advisory Programs on Teachers and Students?	
(THIRD ITERATION: APPLICATION TO DATA SET)			
Creating Community in a State of Bureaucracy: The Paradox of Producing and The Process of Praxis			
(SECOND ITERATION: PATTERN VARIABLES)			
1A. Caring is Women's Work	2A. Battle Lines: Administrative Support vs. Teacher Resistance	3A. From Attention Provider to Detention Giver	
1B. Fear of the Affective Domain: For Some Yes and For Some No	2B. Student Mingling or Teacher Meddling?	3B. No Matter What Happens, Something Good Seems to Result!	
(FIRST ITERATION: INITIAL CODES/SURFACE CONTENT ANALYSIS)			
1A. Gender Issues/Equity?	2A. Organizational Structure	3A. Discipline Problems	
1A. Nurturing Ability?	2A. Accountability?/Training?	3A. Demanding/Disruptive	
1A. Male Advisors?	2A. Support Vs. Dissatisfaction	3A. Positive and Proactive	
1A. Only Women Can Care?	2A. Scheduling/Resources?	3A. Focused and Patient	
1B. Affective vs. Cognitive	2B. Student Interest/Sharing?	3B. Connections/Interactions	
1B. Waste of Instructional Time	2B. Trust/Respect	3B. Feel Better/Get Help	
1B. Uncomfortable/Touchy-Feely	2B. Unreceptive/Bewildered	3B. Know Personally/Easier	
1B. Interpersonal/Family-like	2B. Supportive Relationships	3B. Communication/Difference	
DATA	DATA	DATA	DATA

interpretation to the mass of collected data" (Marshall & Rossman, 1999, p. 150). As the reams of data were brought into manageable chunks (see Table 3, First Iteration) and meaning and insights were brought to the words and acts of the participants involved, several themes (see Table 3, Second Iteration) were generated. Tesch (1990) called this process "de-contextualization" and "re-contextualization."

The Third Iteration (see Table 3) brings the analysis to a level of hypothesis or theory development. Table 3 attempts to examine interpersonal support structures through the lens of advisory programs. Underlying patterns that form theoretical constructs about how relationships can be fostered and developed in middle school advisories and how these programs can promote a caring, community atmosphere were investigated. The research questions that were answered included the follow-

ing: (1) How do advisory programs help or hinder the creation of a sense of community and care for students and teachers? (2) How do the structural/procedural components of an advisory program hinder or enhance the creation of a sense of community? (3) What do teachers and students say is the most significant effect of advisory programs on school? Through the voices of the interviewees Table 3 highlights the preconceived notions, fears, and findings of actual advisories; the levels of support and resistance associated with such programs; and the pros and cons involved when establishing interpersonal advisor-advisee relationships.

Merriam (1998) and Creswell (1994) recommended simultaneous data collection and analysis for generating categories and building theories. As data were being coded (first iteration), the responses were compared within categories and between

categories (second iteration). This technique, described in detail in the work of Glaser and Strauss (1967), is referred to as *constant comparative analysis*. Constant comparative analysis occurs as the data are compared and categories and their properties emerge or are integrated together. Utilized in this study, this process led to the generation of the theoretical properties of the categories and was intended to generate the findings of the study.

Constant comparative analysis aided in identifying patterns, coding data, and categorizing findings. Miles and Huberman (1994) suggested that initial coding be conducted to find conditions among the participants, as a method of pointing to regularities in the setting (first iteration). As Bogdan and Biklin (1982) explained, "certain words, phrases, patterns of behavior, subject's ways of thinking, and events repeat and stand out" (p. 166). In this

study, the words and phrases generated from the formulated patterns served as the coding categories. This process of identifying and "tagging" data for later retrieval and more intensive analysis is called "code mapping" (Seidel, Kjoiseth, & Seymour, 1988). Patton (1990) stated that the first part of content analysis is to examine what is there and label it. The designation of these categories provided the investigator with a manageable way of describing the empirical complexities of summarizing hundreds of pages of interview transcriptions (Constas, 1992).

The qualitative researcher was accountable for indexing the code map in Table 3 and also recording the steps involved in Glaser and Strauss's (1967) constant comparative method. By making all aspects of the analysis process open to public inspection, the researcher hoped that the chain of evidence created and the "audit trail" constructed (see Lincoln & Guba, 1985) would strengthen the dependability and reliability of this research. Given that the goal of qualitative research is "to reconstruct the specific categories that participants used to conceptualize their own world view" (Goetz & LeCompte, 1984, p. 6), the researcher is responsible for documenting the procedures used to generate categories. Through the use of constant comparative analysis to identify the ethic of care and the creation of a sense of community, the researcher achieved the goal of generating plausible categories, properties, and characteristics of advisory programs. The goal was not to develop "grounded theory" (see Woods, 1985), but to present a viable interpretation of the findings collected.

Findings and Data Triangulation: Methods of Verification

A common criticism directed at qualitative research is that it fails to adhere to canons of reliability and validity (LeCompte & Goetz, 1982). Internal validity is concerned with how trustworthy the conclusions are that are drawn from the data and the match of these conclusions with reality, while external validity refers to how well conclusions can be generalized to a larger population. Ratcliffe (1983) stated, "data do not speak for themselves; there is always an interpreter, or translator" (p. 149).

The aim of the research offered in Table 4 was to investigate the principal as change agent and instructional leader. Shown are the complexities of variables and interac-

tions that are so embedded in the data derived from the setting that it cannot help but be valid (Marshall & Rossman, 1999). Multiple sources of evidence, an established chain of evidence, pattern-matching, replication logic in multiple-case studies, use of proper case study protocol, a developed case study data base, and member checks all add to the validity and reliability of this study. Table 4 shows how multiple sources of data collection as well as multiple voices—the voices of teachers, teacher leaders, and administrators—were used to triangulate the data for this study. Sources of data collection consisted of individual face-to-face interviews with key informants, observations, and discussions that resulted from informal visits to classrooms, a questionnaire that was administered to a select group of teachers, and examination of a wide assortment of documents.

Table 4 shows the major findings of this study listed under five categories and the four sources of data collection. Each data source provides corroborative evidence to verify information obtained by other methods. Each finding listed in Table 4 is corroborated by at least one other source of data in several cases, three or more sources of data. In this particular study the use of multiple sources of data collection as a form of triangulation prevented reliance exclusively on a single data collection method and thus neutralized any bias inherent in a particular data source.

In this study, triangulation of the interviews with questionnaires, observations, and document analysis, as well as triangulation of the interviews with one another (teachers to teacher leaders to administrators) rendered a holistic understanding of the situation and generally converging conclusions. As Fielding and Fielding (1986) stated, "Triangulation puts the researcher in a frame of mind to regard his or her own material critically, to test it, to identify its weaknesses, to identify where to test further doing something different" (p. 24). Creswell (2002) added,

Triangulation is the process of corroborating evidence from different individuals, types of data, or methods of data collection. . . . This ensures that the study will be accurate because the information is not drawn from a single source, individual, or process of data collection. In this way, it encourages the researcher to develop a report that is both accurate and credible. (p. 280)

Concluding Discussion

After decades of academic and paradigmatic politics, qualitative research finds itself in an astonishing position. This is unanticipated by all, especially by those closest to it, who were for so many decades accustomed to its devalued, unappreciated, marginal status (Altheide & Johnson, 1994). We noted at the beginning of this article that the heightened use of qualitative methods has spurred interest in developing formal standards for assessing the validity of qualitative research. Such standards are important because of the legitimacy they afford the research approach. But we contend that these standards have missed the mark by not focusing sufficient attention on the public disclosure of methods as a criterion.

The primary point we argued for is the accountability of the researcher in documenting the actions associated with establishing internal validity (triangulation), theme development, and the relationship between research questions and data sources. Generally speaking, this article is concerned with issues related to the integrity of qualitative research. The purpose of these tables is to enhance the opportunity for criticism and public inspection of qualitative studies—to encourage analytical openness. Using a concept from classical science, refutability, we call for qualitative research to be written with enough clarity and detail so that someone else is able to judge the quality of the study and accept or refute the findings.

In calling for the public documentation of category development, Constas (1992) wrote,

If qualitative research is to gain the acceptance of a broad audience, and not only those inclined to accept qualitative inquiry as valid, individuals engaged in qualitative empirical research must begin to make all phases of their investigations open to public inspection. Extensive methodological and analytical information must be provided if a community of researchers is to perform the desired critique and assessment of a given research project. The absence of the opportunity for public inspection will likely result in suspicion, naïve acceptance, or outright dismissal among a community of readers, none of which is desirable or necessarily warranted. (p. 266)

Table 4
Matrix of Findings and Sources for Data Triangulation

Major finding	Source of data			
	I	O	Q	D
Category 1: Instructional Leadership				
1. The principal's strong instructional leadership had a significant influence on the success of pedagogical restructuring.	X	X	X	X
2. The principal provided the necessary resources to support change.	X	X	X	
3. Extensive professional development was a key factor for successful pedagogical restructuring. The development of teacher leadership facilitated pedagogical restructuring.	X	X	X	X
Category 2: Accountability				
4. The principal held teachers more accountable for student learning than any other group.	X	X		
5. Teachers resented having the greatest share of accountability for student learning.	X	X		
6. Teachers held the principal accountable to maintain a disciplined school climate and were critical of the principal's refusal to be responsible for how students behaved.	X	X		
7. Prior to restructuring, teachers were held accountable for good classroom management—not student learning.	X	X		
Category 3: Collegiality				
8. Teacher leaders involved veteran teachers in the decisions that affected them and reduced their resistance to change.	X	X		
9. Team building and development of leadership in teachers promoted cooperative relationships among teachers.	X	X		
Category 4: The Milieu: The School Environment				
10. Teachers and the principal were polarized because of two very different philosophies: Good teaching prevents discipline problems versus teachers need discipline to accomplish good teaching.	X	X		
11. The lack of a disciplined school environment was the major barrier in the restructuring process.	X	X		X
12. A more student-centered environment was a direct outcome of pedagogical restructuring.	X	X		X
Category 5: Change: An Evolutionary Process				
13. New teachers embraced change; veteran teachers resisted change.	X	X	X	
14. The principal was the catalyst for change because change was mandated and teachers could not opt out of the process.		X	X	

Note. I = Interview, O = Observation, Q = Questionnaire, D = Document

Peshkin (2000), discussing interpretation in qualitative research, wrote, "To be forthcoming and honest about how we work as researchers is to develop a reflective awareness that, I believe, contributes to enhancing the quality of our interpretive acts" (p. 9).

We share the danger of reducing the practice of qualitative research (inclusive of artistic, interpretive, and intuitive processes) to technical issues to be resolved by cookbook methods. Indeed, to talk about tabular strategies, such as those in this article, invites charges of oversimplification and

overgeneralization. This is not our intention. We admit that in calling for the public disclosure of methods that we are dealing with careful data cataloging, cross-referencing, and tabulation. We acknowledge that technical skill does not ensure conceptual acuity and the "goodness data

of the practice" (Schwandt, 1997, p. 23) and product of social inquiry. In the spirit of Gergen and Gergen (2000), we ask that the strategies presented here become part of the continuing debate on the quality of constructivist inquiry.

However qualitative researchers address validity in their research, we argue that the processes employed in the research must be made more public. Other avenues of public disclosure could be made avail-

able. With the introduction of electronic journals, websites could be created to allow authors to supply details relative to the research process. Lareau (1989), who included an appendix in her book, *Home Advantage*, provides another example. In that appendix she discussed problems she encountered in her fieldwork related to access, her role as the researcher, interviewing, and analyzing data. The qualitative ethic calls for researchers to substantiate their in-

terpretations and findings with a public accounting of themselves and the processes of their research. The bottom line remains that most consumers of qualitative research will not trust what they read unless it meets some set of evaluative criteria. As noted by Smith and Deemer (2000), "In the absence of established criteria for sorting the good from the less so, there is no choice but to simply throw up our hands and leave the field of judgment behind" (p. 888).

Appendix

Interview Questions from Roney (2000)

INTERVIEW QUESTIONS: PRINCIPALS

Name: _____	School: _____	Date: _____
Ethnicity: _____	Gender: _____	Age: _____
Years in Middle Level Education: _____	Years in Administration: _____	
Degree: _____	Concentration: _____	Certification: _____

1. Tell me what it is like to be a middle school principal today? When you selected administration as a career goal, did you intend to become a middle grades principal?
2. In your opinion what makes an effective teacher? How does a teacher get to be effective? How does one's background contribute to one's effectiveness?
3. How would you describe an effective middle school teacher? Are there characteristics that middle school teachers need to possess or to develop in order to be effective middle school teachers? Is there a priority order to this list?
4. What qualities or characteristics are lacking in the teachers that apply for teaching positions? What qualities or characteristics would you like to see in the teachers that you interview?
5. In your opinion do teacher preparation programs (in their methodology courses, content areas, and practica/student teaching) help or hinder the development of an effective middle school teacher?
 - a. Does the academic/content course work adequately prepare teachers for the classes and the subject area/s that they teach here?
 - b. Do these programs adequately prepare teachers to deal with students in the affective domain?
6. With reference to the "earmarks" of developmentally responsive middle schools, what should teacher preparation programs be focusing on?
 - a. What are the important ideas, principles, or understandings that an effective middle level teacher needs to know about?
 - b. What do they need to know about interdisciplinary-thematic organization of curriculum?
 - c. What do they need to know about teaming?
 - d. What do they need to know about flexible block scheduling?
 - e. What do they need to know about exploratory programs?
 - f. What do they need to know about advisory programs?
 - g. What do they need to know about transition programs?
7. What is your opinion of a specialized middle level teacher preparation program? . . . certification? . . . licensure? Since Pennsylvania does not have a middle school certification, which do you prefer for your middle school, a teacher with secondary certification or one with elementary certification? Why?
8. Do on-the-job experiences help or hinder a teacher in becoming an effective middle level teacher? How? Of the many on-the-job experiences they have in the course of a school year, which do you consider to be the most helpful? Please comment.
9. In order to help teachers become effective, what should professional development programs be focusing on? In what types of professional staff development programs have your teachers participated? Have any been specifically geared toward middle level education? What were they like?
10. What do you have here with regard to teacher supervision? . . . evaluation? . . . teacher mentoring? How do they work here? Do they help or hinder the improvement of a teacher's effectiveness? Please comment.
11. What are the signs that a teacher is effective?

INTERVIEW QUESTIONS: TEACHERS

Name: _____	School: _____	Date: _____
Ethnicity: _____	Gender: _____	Age: _____
Years Teaching: _____	Years in Middle Level Education: _____	
Grade/s and Subjects teaching: _____		
Degree: _____	Concentration: _____	Certification: _____

1. Tell me what it is like to be a middle school teacher today? When you selected teaching as a career goal, did you intend to become a middle grades teacher?
2. What makes a teacher effective? How would you describe an effective middle school teacher? How does a teacher get to be effective? How does one's background contribute to one's effectiveness?
3. Thinking back to the teacher preparation program at your college/university (in its methodology courses, content areas, and practica student teaching), did your program help or hinder your development as a middle school teacher?
 - a. Did the academic/content course work adequately prepare you for your classes and the subject area/s that you teach here?
 - b. Did your program adequately prepare you for the adolescent/affective domain of the middle school student?
 - c. Did your program prepare you to lead your students into higher order thinking?
4. Of all the course work you did at the college/university level, which have been the most helpful courses to you? Describe for me why? Was a specialized middle level teacher preparation program available to you at that time?
5. What is distinctive about middle level teaching? With reference to the "earmarks" of developmentally responsive middle schools, what should teacher preparation programs be focusing on?
 - a. What are the important ideas, principles, or understandings that effective middle level teachers need to know?
 - b. What do they need to know about interdisciplinary-thematic organization of curriculum?
 - c. What do they need to know about teaming?
 - d. What do they need to know about flexible block scheduling?
 - e. What do they need to know about advisory programs?
 - f. What do they need to know about exploratory programs?
 - g. What do they need to know about transition programs?
6. Are there important characteristics that middle school teachers need to possess or to develop in order to be effective? Is there a priority order to this list? Are there characteristics specifically effective in working with middle school students in their young adolescent phase of development?
7. Do your on-the-job experiences help or hinder you in becoming an effective middle level teacher? How? Of the many on-the-job experiences you have had, which do you consider to be the most helpful? Please describe one.
8. Since you have begun teaching, in what types of professional staff development programs have you participated? Have any been specifically geared toward the middle level teacher?
 - a. Have you attended any programs for the cognitive dimension of teaching young adolescents? What were they like?
 - b. Have you attended any programs for the affective dimension of middle level education? What were they like?
 - c. Have you attended any programs for high order thinking skills?
 - d. In your opinion, what should professional development programs be focusing on?
9. What does this school do with regard to teacher supervision . . . evaluation . . . teacher mentoring? How does it work here? Does it help or hinder you in becoming more effective as a teacher? Please comment.
10. Do you consider yourself (what makes you) an effective middle school teacher today?
 - a. What are the signs that you have been effective?
 - b. What are the rewards of teaching at the middle level?

INTERVIEW QUESTIONS: STUDENTS

Name: _____ School: _____ Date: _____
 Ethnicity: _____ Gender: _____ Grade: _____

1. Tell me about your middle school. What activities do you have here: . . . sports? . . . clubs? . . . anything else? Are any of your teachers the coaches or club moderators?
2. Tell me what it is like to be a middle school student today. What is it like here?
3. Tell me about your classmates. How would you describe them? How would they describe you?
4. What classes do you take here? What is one of your favorite classes? Why? What is one of your least favorite classes? Why? Do any of your classes or teachers help you explore what you want to learn? How?
5. How many teachers do you have in one day? Do you have a team of teachers? What adjectives would you use to describe your teachers? Do they have any similar characteristics? How would your teacher/s describe you?
6. Are middle school teachers different from elementary school teachers? How?
7. Are any of your teachers more effective (or, "better") than the others? How do you know? What makes that teacher effective/better/good? Can you give me some examples? What makes a teacher "not so good"? Can you give me some examples?
8. Do you have an advisor? . . . an advisory group? Would you go to a teacher if you had a problem? Why would you go to a teacher? Why wouldn't you go to a teacher?
9. Do the teachers here help you get used to/adjusted to middle school? How? Are they helping you prepare for high school? How?
10. What advice would you give a person who wanted to be a Middle School teacher?
11. What advice would you give a Middle School teacher who wanted to improve as a teacher? Can you describe for me the perfect middle school teacher?

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