

# Qualitative Data Analysis: A Compendium of Techniques and a Framework for Selection for School Psychology Research and Beyond

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Qualitative researchers in school psychology have a multitude of analyses available for data. The purpose of this article is to present several of the most common methods for analyzing qualitative data. Specifically, the authors describe the following 18 qualitative analysis techniques: method of constant comparison analysis, keywords-in-context, word count, classical content analysis, domain analysis, taxonomic analysis, componential analysis, conversation analysis, discourse analysis, secondary analysis, membership categorization analysis, narrative analysis, qualitative comparative analysis, semiotics, manifest content analysis, latent content analysis, text mining, and micro-interlocutor analysis. Moreover, the authors present a new framework for organizing these analysis techniques via the four major sources of qualitative data collected: talk, observations, drawings/photographs/videos, and documents. As such, the authors hope that our compendium of analytical techniques should help qualitative researchers in school psychology and beyond make informed choices for their data analysis tools.

*Keywords:* qualitative analysis, document analysis, analysis of talk, analysis of observations, analysis of visual representations

Analysis of data is one of the most important steps in the research process. Researchers who conduct studies from the quantitative realm in school psychology and beyond have a multitude of statistics available to analyze data. For example, if a researcher was interested in answering whether males and females differ on motivation levels, almost any analysis that represents the General Linear Model could be used, including the independent samples *t*-test, analysis of variance, and linear regression. This choice is taught to researchers via statistics courses and many textbooks.

Perhaps due to most doctoral programs mainly focusing on quantitative research methods, scant qualitative research has been conducted in the school psychology arena. This is evidenced by the dearth of qualitative research

studies in school psychology journals. Indeed, Powell, Mihalas, Onwuegbuzie, Suldo, and Daley (in press) examined 873 articles published in the four major school psychology journals (i.e., *Journal of School Psychology*, *Psychology in the Schools*, *School Psychology Quarterly*, *School Psychology Review*) and found that only six articles published from 2001 through 2005 represented purely qualitative research. Powell et al. further examined the Web site of every National Association of School Psychology (NASP)-approved graduate-level school psychology program ( $n = 57$ ), using the list provided in the November 2006 issue of *Communiqué* (National Association of School Psychologists, 2006, p. 44). These researchers found that of the 57 approved graduate-level school psychology programs, only 1 (1.8%) appeared to require that students enroll in one or more qualitative courses, and 11 (19.3%) only appeared to offer one or more qualitative courses as an elective. These researchers concluded that a likely explanation for the lack of qualitative research articles published in the four flagship school psychology journals reflects the fact that the majority of school psychologists do not re-

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ceive formal training in qualitative research or mixed methods research approaches. Yet, qualitative research, because of its exploratory and constructivist nature, can help school psychology researchers to (a) develop theories and models (Leech & Onwuegbuzie, in press); (b) address process-oriented questions of interest to the field (Leech & Onwuegbuzie, in press); (c) focus on cultural and contextual factors that improve or debilitate the efficacy and social/ecological validity of interventions or programs (Nastasi & Schensul, 2005); (d) identify and document modifications necessary to apply interventions to real-life contexts; (e) identify core intervention components that are associated with desired outcomes; and (f) identify unintended outcomes associated with interventions or programs (Nastasi & Schensul, 2005). Nastasi and Schensul recently published a special issue containing qualitative research. However, clearly more qualitative research studies are needed in school psychology research.

Similar to research utilizing quantitative techniques, qualitative research also has a vast amount of techniques available (Leech & Onwuegbuzie, in press). Yet, most researchers are unaware of the numerous accessible choices of qualitative analyses. This lack of knowledge can affect the accuracy of the results, and thus create research that, “[is] tarred with the brush of “sloppy research”” (Guba, 1981, p. 90). In fact, many researchers use only one type of analysis and assume the results are optimally meaningful. In order to triangulate results, we contend that research utilizing qualitative techniques should involve at least two, if not more, types of data analysis tools—what Leech and Onwuegbuzie refer to as “data analysis triangulation” (p. 2). We believe it is important to increase triangulation not only by using multiple data *collection* tools (Lincoln & Guba, 1985), but also by utilizing multiple data *analysis* tools.

In order for researchers to undertake qualitative data analysis triangulation, researchers need to select systematically from the many tools available for analyzing qualitative data. Unfortunately, textbooks that describe qualitative data analysis techniques tend to focus on one data analysis technique (e.g., discourse analysis; Phillips & Jorgensen, 2002) or, at best, only a few techniques. With this in mind, the purpose of this paper is to provide a compendium of multiple types of analyses available for qualitative data in school psychology research. Figure 1 and Table 1 depict how

we have categorized the analyses into four areas: talk, observations, drawings/photographs/videos, and documents. These areas represent four major sources of data in qualitative research. As such, we hope that our compendium of analytical techniques should help qualitative researchers in school psychology make informed choices for their data analysis tools.

### Descriptions of A Selection of The Available Tools

In this article, we present 18 qualitative data analysis techniques. Whereas some of these procedures represent the earliest formalized qualitative data analysis techniques (e.g., method of constant comparison analysis; Glaser & Strauss, 1967; domain analysis, taxonomic analysis, componential analysis; Spradley, 1979), others represent more recent techniques (e.g., secondary data analysis; Heaton, 2000, 2004; text mining; Powis & Cairns, 2003; microinterlocutor analysis; Onwuegbuzie, Dickinson, Leech, & Zoran, 2007). As noted earlier, the 18 techniques are organized around the four major sources of qualitative data, namely: talk, observations, drawings/photographs/videos, and finally, documents. Some techniques (e.g., constant comparative analysis, word count) can be utilized with multiple sources of data. The first time the analysis is presented, we fully described the technique. In subsequent sections we have brief descriptions of how to utilize the analysis with the specific source of data. It should be noted that the descriptions of each method vary in length because some techniques (e.g., conversation analysis, discourse analysis, qualitative comparative analysis) need more explanation than other techniques (e.g., narrative analysis, semiotics, keywords-in-context, word count). However, this variation does not imply that some procedures are more important than other techniques. (For a step-by-step presentation of method of constant comparison analysis, keywords-in-context, word count, classical content analysis, domain analysis, taxonomic analysis, and componential analysis, please see Leech & Onwuegbuzie, in press.)

#### *Techniques to Analyze Talk*

##### *Conversation Analysis*

Conversation analysis was developed in the 1960s by Harvey Sacks, Emmanuel Schegloff,

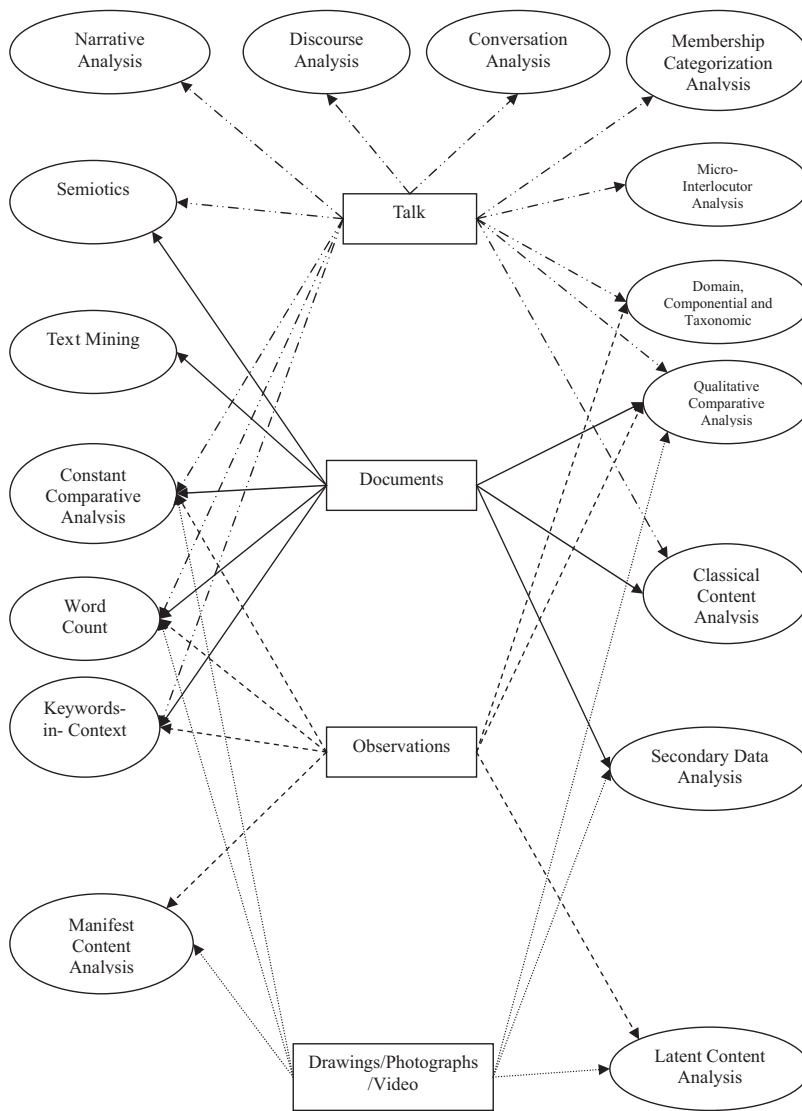


Figure 1. Organization of types of analysis by type of data obtained.

and Gail Jefferson (Sacks, Schegloff, & Jefferson, 1974; Schegloff, 1968, 1972). The goal of this method of analysis is to describe people's methods for producing orderly social interaction. Conversation analysis emerged out of Garfinkel's (1967) ethnomethodology program and its analysis of *folk* methods. Conversation analysis has at its root three fundamental assumptions. First, talk portrays stable and structured patterns that are directly linkable to the actors. These patterns are independent of the

psychological or other characteristics of the individuals involved in the conversation (Heritage, 1984). As such, the structural organization of talk is treated the same way (i.e., as a social fact), as is the structural organization of any social institution. Also, it is considered inappropriate to attribute the structural organization to the psychological or other characteristics of the individuals involved in the dialogue. Second, the action of a speaker is context specific inasmuch as its contribution to a continuous se-

Table 1  
*Relationship Between Type of Qualitative Data  
 Analysis Technique and Source of Qualitative Data*

Source of data	Type of qualitative technique
Talk	Conversation analysis
	Discourse analysis
	Narrative analysis
	Semiotics
	Qualitative comparative analysis
	Constant comparison analysis
	Keywords-in-context
	Word count
	Membership categorization analysis
	Domain analysis
	Taxonomic analysis
	Componential analysis
	Classical content analysis
	Micro-interlocutor analysis
	Observations
Constant comparison analysis	
Keywords-in-context	
Word count	
Domain analysis	
Componential analysis	
Taxonomic analysis	
Manifest content analysis	
Latent content analysis	
Drawings/ photographs/video	Qualitative comparative analysis
	Constant comparison analysis
	Word count
	Manifest content analysis
	Latent content analysis
Documents	Secondary data analysis
	Semiotics
	Qualitative comparative analysis
	Constant comparison analysis
	Keywords-in-context
	Word count
	Secondary data analysis
Classical content analysis	
	Text mining

quence of actions cannot adequately be understood without considering the context in which the sequence occurs. However, "the context of a next action is repeatedly renewed with every current action" (Heritage, 1984, p. 242). Third,

it is essential that theory construction does not take place prematurely, and research methods should not involve the exclusive use of general, thin descriptions.

Conversation analysts strive to avoid a priori speculations about the dispositions and motives of those engaged in the conversation, while, at the same time, they promote the detailed examination of the actual actions of the actors. That is, conversation analysts generally focus on what participants do in conversation (i.e., their motives), rather than subjective explanation. Therefore, the behavior of speakers is treated as the central resource from which the analysis might develop (Heritage, 1984). According to Heritage, conversation analysts should demonstrate any regularities that they describe can be linked back to the actors as "normatively oriented-to grounds for inference and action" (p. 244). Furthermore, conversation analysts also seek to identify deviant cases, wherein these regularities do not occur.

Conversation analysis is concerned with several aspects of talk, the most common of which are (a) turn-taking and repair, (b) adjacent pairs, (c) preliminaries, (d) formulations, and (e) accounts. Turn-taking and repair involve how a speaker makes a turn relate to a previous turn (e.g., "uh-huh", "OK"), what the turn interactionally accomplishes (e.g., a question, an acknowledgment), and how the turn relates to a succeeding turn (e.g., by a question, directive, request). The moment in a conversation when a transition from one speaker to another is possible is called a *transition relevance place* (TRP; Sacks et al., 1974). TRPs avoid chaos and make turn-taking context free. When turn-taking violations occur, "repair mechanisms" are implemented. For example, when more than one person is speaking at the same time, a participant might stop speaking before a typically possible completion point of a turn. Thus, turn-taking motivates actors to listen, to understand the utterances, and to display understanding. Adjacency pairs are sequentially paired actions that feature the generation of a reciprocal response. The two actions normatively occur adjacent to each other and are generated by different participants. Preliminaries are used to examine the situation before performing some action. They provide a means for the participant to pose a question indirectly in order to decide whether the question should be posed directly. Formu-

lations represent a summary of what another speaker has stated. Finally, accounts are the means by which people explain actions. They include excuses, apologies, requests, and disclaimers (Silverman, 2001).

An example of when conversation analysis could be used in school psychology research is with discussions of individual education programs (IEPs). Usually, IEPs are discussed by the teacher, the school psychologist, the parent, and any other staff who have direct contact with the child. These conversations might yield interesting information when analyzed via conversation analysis. As another example, a school psychology researcher could analyze conversations held between a student with a speech impediment and his or her peers to assess the extent to which the former student's impairment is affecting his or her quality of relationships with classmates. Thus, conversational analysis considers the context with which the data are collected, which is important to consider when discussing student progress.

*Discourse analysis.* A form of discourse analysis that is also known as discursive psychology was developed by a group of social psychologists in Britain led by Potter and Wetherall, who contended that in order to understand social interaction and cognition, it was necessary to examine how people communicated in everyday situations (Potter & Wetherall, 1987). In general, *discourse analysis* involves selecting representative or unique segments of language use, such as several lines of an interview transcript, and then examining them in detail. Discourse analysis emphasizes the way that versions of entities such as the society, community, and events, emerge in discourse (Phillips & Jorgensen, 2002). This form of qualitative analysis operates on three fundamental assumptions: antirealism (i.e., accounts cannot be treated as true or false descriptions of reality), constructionism (i.e., how participants/constructions are accomplished and undermined), and reflexivity (Cowan & McLeod, 2004).

Discourse analysis depends on the analyst's sensitivity to language use, from which an "analytic tool kit" can be developed that includes facets such as rhetorical organization, variability, accountability, positioning, and *discourses* (Cowan & McLeod, 2004). *Selected talk or text can be examined to see how it is organized*

*rhetorically* in order to make claims that are as persuasive as possible, while protecting the speaker from refutation and contradiction (Billig, 1996). Discourse analysts treat language as being situated in action. When people use language they perform different social actions such as questioning or blaming. Language then varies as a function of the action performed. Thus, *variability* can be used as a tool to show how individuals use different discursive constructions to perform different social actions. Words can be examined to see how people use *accountability* for their versions of experiences, events, people, locations, and the like. For example, when criticizing a racial or ethnic group, a person might use the phrase "Some of my best friends are Black," in order to avert charges of prejudice. Positioning refers to the way speakers place each other with respect to social narratives and roles. For instance, the way a student talks may position the person as a novice, whereas the way a teacher talks may position the individual as an expert.

Finally, the concept of *discourses* refers to well-established ways of describing and understanding things. For instance, as noted by Cowan and McLeod (2004), in therapy the client's language might indicate a medical-biological *discourse* ("it's my nerves"), whereas the therapist may be utilizing psychoanalytic *discourse* ("does what you are experiencing presently remind you of any similar experiences during your childhood?"). These examples suggest incidents wherein conflicting discursive positioning prevails. Additional analyses of these incidents might examine the participants' use of conversational strategies, such as repetition and redefining what the other speaker has said. Studies that use discourse analysis techniques can provoke a critical rereading of processes that have been taken for granted that occur in social interactions (Cowan & McLeod, 2004).

There are five major traditions of discourse analysis: (a) *Linguistics* (i.e., examining the way sentences or utterances cohere into discourse, e.g., studying the way words such as "however" and "but" operate, along with different kinds of references that occur between sentences); (b) *Cognitive psychology* (i.e., focusing on the way mental scripts and schemas are used to make sense of narrative); (c) *Classroom interaction* (i.e., linguistics; attempting to provide

a systematic model to describe typical interaction patterns in teaching based around initiation-response-feedback structures); (d) *Post-structuralism and literary theory: Continental discourse analysis* (i.e., associated with Michael Foucault, it is less concerned with discourse in terms of specific interaction as with how a discourse, or a set of statements, comes to constitute objects and subjects); and (e) *Metatheoretical emphasis on antirealism and constructionism* (i.e., emphasizing the way versions of the world, of society, events and inner psychological words, are produced in discourse) (cf. Potter, 2004). Most relevant to school psychology researchers are linguistics, cognitive psychology, and classroom interaction.

Gee (2005) conceptualized the following seven building tasks that could be examined when conducting a discourse analysis: (a) *significance*, which addresses the question "How is this piece of language being used to make certain things are significant or not and in what ways?" (e.g., intonation, choice of words); (b) *activities*, which addresses the question "What activity or activities is this piece of language being used to enact [going on]?" (e.g., contrasting behaviors); (c) *identities*, which addresses the question "What identity or identities is this piece of language being used to enact (operative)?" (e.g., contextualizing identity); (d) *relationships*, which addresses the question "What sort of relationship or relationships is this piece of language seeking to enact with others?" (e.g., establishing one's level of importance in a group); (e) *politics*, which addresses the question "What perspective on social goods is this piece of language communicating?" (e.g., establishing protocol); (f) *connections*, which address the questions "How does this piece of language connect or disconnect things" and "How does it make one thing relevant or irrelevant to another?" (e.g., connection and relevance of one's attendance vs. another's lack of attendance); and (g) *sign systems and knowledge*, which addresses the question "How does this piece of language privilege or disprivilege specific sign systems or different ways of knowing and believing or claims to knowledge and belief?" (e.g., novice school psychologists' knowledge vs. experienced school psychologists' knowledge).

Discourse analysis could be used in school psychology research in numerous situations;

any situation that includes discussion between two people would be appropriate for use with discourse analysis. For example, when a school psychologist is talking with parents regarding their child, a section of the talk could be analyzed for the use of language, how it is organized rhetorically, and the discourses that take place. Alternatively, this talk could be analyzed with respect to Gee's (2005) seven building tasks.

### *Narrative analysis*

Narrative analysis involves considering the potential of stories to give meaning to individual's lives, and treats data as stories, enabling researchers to take account of the research participants' own evaluations (DeVault, 1994; Riessman, 1993). Data that are in narrative form usually are sequential in nature, although some narratives do not follow this rule (Riessman, 1993). Commonly, with narrative analysis, data are reduced to a summary. This summary can be undertaken by (a) summarizing the main plot of the narrative, (b) utilizing a coding procedure similar to constant comparative analysis, or (c) conducting an event structure analysis (Fielding & Lee, 1998).

Narrative analysis can be used by school psychology researchers. For example, if a school psychology researcher was interested in interviewing children about their experiences of school, asking them to tell a story about their day may highlight the important aspects. This story could then be analyzed with narrative analysis.

### *Semiotics*

Semiotics is the science of signs, in which talk and text are treated as systems of signs under the assumption that no meaning can be attached to a single term. This form of analysis shows how signs are interrelated for the purpose of creating and excluding specific meanings (Silverman, 1993). Propp (1968) and Greimas (1966) utilized semiotics to create semiotic narrative analysis, where schemes from text are analyzed. Qualitative researchers view the use of semiotics, or symbols, in language as a view into the culture of the speaker.

School psychology researchers use semiotics to understand the language used in data col-

lected from talk. For example, a school psychology researcher may be interested in understanding talk from students who participate in a gang. By analyzing the talk for symbols, the researcher may understand better the use of the language and what the underlying symbols may represent.

### *Qualitative Comparative Analysis*

Qualitative comparative analysis, which was developed by Charles Ragin (1987), represents a systematic analysis of similarities and differences across cases. Most commonly, it is used in macrosocial studies to examine the conditions under which a state of affairs is realized. As such, qualitative comparative analysis typically is used as a theory-building approach, allowing the analyst to make connections among previously built categories, as well as to test and to develop the categories further (Miles & Weitzman, 1994). In causal, macrolevel applications, qualitative comparative analysis typically is used for reanalyzing secondary data collected by other researchers (e.g., Ragin, 1989, 1994). Qualitative comparative analysis can be used to conduct a “microsociological, noncausal, hermeneutically oriented analysis of interview data. . .” in which “several analyses, at various levels, follow each other, helping us to look at the cases from different angles and accordingly arrive at new ideas about their interrelations” (Rantala & Hellström, 2001, p. 88).

Whether representing a causal or noncausal approach, qualitative comparative analysis begins with the construction of a truth table. A truth table lists all unique configurations of the study participants and situational variables appearing in the data, along with the corresponding type(s) of incidents, events, or the like observed for each configuration (Miethe & Drass, 1999). The truth table provides information about which configurations are unique to a category of the classification variable and which configurations are found in multiple categories. Comparing the numbers of configurations in these groups provides an estimate of the extent to which types of events, experiences, or the like are similar or unique. The analyst then “compares the configurations within a group, looking for commonalities that allow configurations to be combined into simpler, yet more

abstract, representations” (Miethe & Drass, 1999, p. 8). This is accomplished by identifying and eliminating unnecessary variables from configurations. Variables are deemed unnecessary if its presence or absence within a configuration has no impact on the outcome that is associated with the configuration. Therefore, qualitative comparative analysis yields case-based rather than variable-based findings (Ragin, 1989, 1994). The qualitative comparative analyst repeats these comparisons until further reductions are no longer possible. Redundancies among the remaining reduced configurations are eliminated, which yield the final solution, namely, a statement of the unique features of each category of the typology.

Qualitative comparative analysis is a case-oriented approach that considers each case holistically as a configuration of attributes. Specifically, qualitative comparative analysts assume that the effect of a variable may be different from one case to the next, depending upon the values of the other attributes of the case. By undertaking systematic and logical case comparisons, qualitative comparative analysts use the rules of Boolean algebra to identify commonalities among these configurations, thereby reducing the complexity of the typology. The goal of qualitative comparative analysis is to arrive at a typology “that allows for heterogeneity within groups and that defines categories in terms of configurations of attributes” (Miethe & Drass, 1999, p. 10).

When analyzing talk from school psychology research studies, qualitative comparative analysis can be conducted. For example, a truth table could be created by a school psychology researcher to understand the variable of “choice.” The researcher might be interested in understanding how children diagnosed with attention-deficit hyperactivity disorder (ADHD) make appropriate choices throughout the school day. Looking at choice with the aid of a truth table would assist the researcher in examining the variable of choice and filtering out variables that do not impact the children.

### *Constant Comparison Analysis*

Barney Glaser and Anselm Strauss, the fathers of grounded theory (i.e., study using rigorous set of procedures in an attempt produce

substantive theory of social phenomena; Glaser & Strauss, 1967), created the method of constant comparison analysis (Glaser, 1978, 1992; Glaser & Strauss, 1967; Strauss, 1987). Some authors use the term “coding” when referring to constant comparative analysis (Miles & Huberman, 1994; Ryan & Bernard, 2000). The goal of constant comparison analysis is to generate a theory, or set of themes. Some researchers believe constant comparison analysis only can be used with grounded theory designs (Creswell, 2007; Merriam, 1998). Yet, we contend that constant comparison analysis can and is commonly used with any narrative or textual data (Leech & Onwuegbuzie, in press).

There are five main characteristics of constant comparison analysis: (a) to build theory, not test it; (b) to give researchers analytic tools for analyzing data; (c) to assist researchers in understanding multiple meanings from the data; (d) to give researchers a systematic process as well as a creative process for analyzing data; and (e) to help researchers identify, create, and see the relationships among parts of the data when constructing a theme (Strauss & Corbin, 1998). There are three main stages of constant comparative analysis. The first stage is open coding, which is “like working on a puzzle” (Strauss & Corbin, p. 223). During this stage, the analyst is participating in coding the data, wherein the analyst chunks the data into smaller segments, and then attaches a descriptor, or “code,” for each segment. The next stage, axial coding, is when the researchers groups the codes into similar categories. The final stage is called selective coding, which is the “process of integrating and refining the theory” (Strauss & Corbin, p. 143). Through this process, the researcher can “create theory out of data” (Strauss & Corbin, p. 56).

The method of constant comparison analysis can be used with virtually all sources of data from school psychology research. In fact, we contend that the method of constant comparison analysis can be utilized with talk, observations, drawings/photographs/video, and documents. For example, using it for talk that occurs among parent(s), teacher(s), and student, after the talk has been transcribed, the words can be chunked and coded, and then the codes can be organized to create themes.

### *Keywords-in-Context (KWIC)*

KWIC is a type of analysis used in many fields. The goal of KWIC is to reveal how words are used in context with other words. Fielding and Lee (1998) refer to KWIC as an analysis of the culture of the use of the word. The assumption underlying KWIC is that people use words differently and, thus, by examining how words are used in context of their speech, the meaning of the word will be understood. KWIC can be undertaken manually, although there are multiple computer programs (e.g., NVIVO, version 7.0; QSR International Pty Ltd., 2006) that can assist with this analysis.

School psychology researchers can utilize KWIC with data from talk to assess the use of a keyword. For example, a school psychology researcher may be interested in interviewing students who have IEPs and their use of the keyword “stupid.” By finding the keyword throughout the data and looking at the words that surround the keyword, the researcher can understand better how these participants utilize the word “stupid.”

### *Word Count*

Everyone has their own way of using words. Pennebaker, Mehl, and Niederhoffer (2003) call this “linguistic fingerprints” (p. 568). The theory behind word count is that in order to understand the meaning people ascribe to a specific word, one can look at the frequency of use of a target word. The basic assumption underlying the word count procedure is that the more frequently a word is used, the more important the word is for the person (Carley, 1993). According to Miles and Huberman (1994), at least three reasons exist for counting words: (a) to identify patterns more easily, (b) to verify a hypothesis, and (c) to maintain analytic integrity. Proponents of word count procedures contend that it is more precise—and thus more meaningful—for qualitative researchers to specify the exact count rather than using terms such as “many,” “most,” “frequently,” “several,” “always,” and “never,” which are essentially quantitative (cf. Sechrest & Sidani, 1995).

However, it should be noted that word count can lead to misleading interpretations being made. In particular, word count can lead to a word being decontextualized such that it is not



meaningful. Further, a word that is used more frequently than another word does not necessarily imply that it is more important for the speaker. Thus, we suggest that, where possible, word count be combined with member-checking (Merriam, 1998), wherein participants are asked whether the interpretations (i.e., interpretive validity; Maxwell, 1992) or theories (i.e., theoretical validity; Maxwell) stemming from the word count adequately capture their voices.

In school psychology research studies that include analyzing data from talk, word count can be utilized. For example, when working with students in a focus group, word count could be conducted to assess which participants contributed more than others. This information can assist the school psychology researcher in understanding who supplied more of the data.

### *Membership Categorization Analysis*

The sociologist Harvey Sacks is credited with developing membership categorization analysis. Sacks wanted to avoid study participants being treated as cultural objects, in which they are represented in ways that a particular culture deems important (Silverman, 2001). Rather, Sacks (1992) viewed culture as a means for making inferences. According to Sacks, given that many categories can be used to describe the same person or behavior, the goal is to ascertain how individuals choose among the existing set of categories for understanding a specific event. Moreover, Sack's goal is to realize the role that interpretations play in making descriptions and the consequences of selecting a particular category.

As noted by Sacks (1992), any individual can be labeled in numerous correct ways (i.e., using many categories). Thus, he advocated the use of membership categorization analysis, more specifically termed as *membership categorization device*. This device comprises categories (e.g., baby, sister, brother, mother, father = family) that are viewed as being group together, as well as some rules and corollaries regarding how to apply these categories. These rules include (a) the *economy rule*, in which a single category may be adequate to describe a person; and (b) the *consistency rule*, in which, if an individual is identified from a collection, then the next individual may be identified from the same collection. Sacks also identified *category-bound ac-*

*tivities*, in which activities may be deemed as being tied to certain categories; and *standardized relational pairs*, wherein pairs of categories are linked together in standardized, typical ways. Thus, with membership categorization analysis, the analyst asks how individuals use everyday terms and categories in their social interactions.

An example of a research area in school psychology where membership categorization analysis would be helpful to use would be when working with a child. Children can have multiple labels (i.e., child, good-student, gang member, etc.). When data have been collected as talk, wherein a child has been discussed, these data can be analyzed with membership categorization analysis to help the researcher understand how the child is categorized and thus, more than likely, how the child has been treated.

### *Domain, Taxonomic, and Componential Analyses*

Ethnographic analysis was developed by Spradley (1979). There are four types of ethnographic analysis: (a) domain analysis, (b), taxonomic analysis, (c) componential analysis, and (d) theme analysis. According to Spradley, "these strategies have a single purpose: to uncover the system of cultural meanings that people use" (p. 94).

Ethnographic analyses most commonly are undertaken in an ethnographic study—although ethnographic analyses can be used in any qualitative study. The foundation of ethnographic analyses is the belief that informants have cultural knowledge. By systematically examining an informant's words and environment, one can see the relationships among the parts. It is the examination of these parts that helps the researcher to understand the overall culture of the informant.

According to Spradley (1979), ethnographic analysis most commonly can be utilized in the following research steps: (a) selecting a problem, which is focused on inquiring into the cultural meanings people use to organize their lives; (b) collecting cultural data; (c) analyzing the cultural data, beginning when first data are collected; (d) formulating hypotheses; and (e) writing the ethnography. The most important aspect of this process is the focus on going back to the informants to ask questions. These ques-

tions are used to help enhance the analyses. The analyses are best undertaken in order, starting with domain analysis, then taxonomic analysis, followed by componential analysis, and then, finally, theme analysis.

Domain analysis is the first type of analysis to be completed. This form of analysis starts with looking at symbols. Every culture has symbols or elements that represent other items. Symbols have three aspects: (a) the symbol itself, (b) one or more referents (to what the symbol refers), and (c) a relationship between the symbol and the referent. To understand the symbol, the researcher needs to analyze the relationship, by looking at semantics, of the symbol to the referents. Spradley (1979) created a list of the most commonly used semantic relationships. The result of a domain analysis is a better understanding of the domain.

Once domains have been identified, taxonomic analysis can be used by using one domain and then creating a taxonomy. A taxonomy is defined by Spradley (1979, 1997) as a "classification system" that inventories the domains into a flowchart or diagram to help the researcher understand the relationships among the domains.

Next, componential analysis can be used. Componential analysis is a "systematic search for attributes (components of meaning) associated with cultural symbols" (Spradley, 1979, p. 174). By using matrices and/or tables, this analysis is used to discover the differences among the subcomponents of domains, with the goal being to "map as accurately as possible the psychological reality of our informant's cultural knowledge" (p. 176). Finally, theme analysis is conducted by developing themes that "go beyond such an inventory [of domains] to discover the conceptual themes that members of a society use to connect these domains" (Spradley, 1979, p. 185). Interesting to note, domain analysis, taxonomic analysis, componential analysis, and theme analysis can be used in combination as a form of data analysis triangulation. That is, the findings stemming from two or more of these analysis stages can be compared to ascertain the extent to which findings from one analysis stage confirms those arising from another stage.

Because domain, taxonomic, and componential analyses create structural questions, these analyses are best to use with talk-based data when the school psychology researcher can re-

turn to talk with the participants again—that is, participants can be interviewed on more than one occasion. For example, a school psychology researcher might have data from an interview with a child. The child might have used terms unfamiliar to the researcher. In this situation, domain, taxonomic, and componential analyses would be helpful to use, to assist the researcher in understanding the terms the child utilized from the child's perspective.

### *Classical Content Analysis*

Classical content analysis, also known simply as "content analysis," has traditionally been used in sociology, journalism, political science, and social psychology (Tesch, 1990). Berelson (1952) defined classical content analysis as "objective, systematic, and quantitative description of the manifest content of communication" (p. 489). Barcus' (1959) article is considered the first published study to use classical content analysis.

Content analysts focus on how frequently codes are used to determine which concepts are most cited throughout the data. Similar to constant comparison analysis, with classical content analysis the researcher chunks and codes the data. However, instead of grouping the codes together, the researcher counts the frequency of use for each code. The codes usually are deductively produced, yet they can be inductively produced as well. The data (i.e., the frequency counts from the usage of each code) can be further analyzed with multiple techniques; describing the data (sometimes using descriptive statistics), utilizing inferential quantitative procedures (Kelle, 1996), or a combination of the two (Onwuegbuzie & Teddlie, 2003).

School psychology researchers can utilize content analysis with talk data in numerous situations. For example, school psychology researchers may be interested in understanding the impact of bullying training. By interviewing students, coding the data, then conducting content analysis, the school psychology researcher can find what codes were utilized most by the students, thereby assessing what aspects of the bullying training had the most impact.

### *Microinterlocutor Analysis*

Most analysts of focus groups use the group as the unit of analysis, which, unfortunately, usually prevents the researcher from gleaning information about other focus group members who may not have contributed to the category or theme (Onwuegbuzie et al., 2007). For example, focus group members whose voices might not be represented in the development of a theme may be those who are relatively silent, perhaps due to having low levels of self-confidence, being relatively less articulate; or having a proclivity to acquiesce to the majority viewpoint. Thus, “conformity of opinion within focus group data is therefore an emergent property of the group context, rather than an aggregation of the views of individual participants” (Sim, 1998, p. 348).

To address this limitation of using group as the unit of analysis, Onwuegbuzie et al. (2007) conceptualized what they termed a microinterlocutor analysis (which was further expanded by Onwuegbuzie, Leech, & Collins, in press). According to their conceptualization, focus group information is collected and analyzed regarding which participant responds to each question, the order that the participants respond, the characteristics of the response (e.g., nonsequitur, rambling, focused), the nonverbal communication used, and the like. For example, when describing and interpreting emergent themes, in addition to providing the most compelling statements made by focus group participants, where possible, school psychology researchers could provide information about how many members appeared to contribute to the feeling of consensus underlying each theme. In addition, researchers could determine how many appeared to represent a dissenting view (if any) and how many participants did not appear to express any view at all, as well as how many focus group members provided substantive statements or examples that support the consensus view and how many members provided substantive statements or examples that suggest a dissenting view. School psychology researchers could also compare subgroups (e.g., male school psychologists vs. female school psychologists) with respect to interactions patterns, including which subgroup member tended to speak first in response to a question. As noted by Onwuegbuzie et al., obtaining information

about dissenters would help school psychology researchers determine the degree to which the data that contributed to the theme reached saturation (i.e., no new or relevant information seem to emerge pertaining to a category, and the category development is well established and validated; Lincoln & Guba, 1985). Thus, such information would help school psychology researchers “to determine the range, depth, and complexity of emergent themes” (Onwuegbuzie et al., 2007, p. 11).

### *Techniques to Analyze Observations*

#### *Qualitative Comparative Analysis*

Qualitative comparative analysis has been described previously. Qualitative comparative analysis can be used to analyze observations in school psychology research. For example, a school psychology researcher could use qualitative comparative analysis to examine conflict among children. Here, qualitative comparative analysis would enable the researcher to identify similarities and differences in the general aspects of conflict among children and identify similarities and differences in the combinations of victims, perpetrators, and situational variables that provide the contexts within which conflicts occur.

#### *Constant Comparative Analysis*

Constant comparative analysis was described earlier. In addition to using constant comparative analysis with talk-based data, this analysis can be utilized with observations. Once the observations have been written down, the words can then be chunked and coded, and then the codes can be organized into themes.

#### *KWIC*

KWIC analysis is helpful to utilize with observational data. For example, after documenting observations, the researcher may look through the data to see whether there are keywords that were utilized and can analyze how these keywords were employed. For example, in studying team-work among children, if a school psychology researcher observed elementary schoolchildren playing together, the researcher may be interested in analyzing how

frequently the keywords “mine,” “yours,” and “ours” were utilized and in what contexts.

*Word count.* When analyzing observations, word count can be extremely helpful. For example, a school psychology researcher might be interested in better understanding a child who has Tourette’s syndrome. The researcher could utilize word count to assess the number of times this child uses an inappropriate word in class. Evaluating the number of inappropriate words used over time might help the school psychologist in assessing whether the behavior was improving.

### *Domain, Taxonomic, and Componential Analyses*

Domain, taxonomic, and componential analyses are described above, and can also be used with observational data. For example, when observational data have been collected, the data can then be analyzed to look for domains (e.g., symbols) in the data, in order to investigate the observations further so that they can be understood better. These domains then can be utilized to create a taxonomy or could be subjected to a componential analysis.

### *Manifest Content Analysis*

According to Berelson (1952), manifest content analysis is an analytical technique for describing observed (i.e., manifest) aspects of communication via objective, systematic, and empirical means. However, a manifest content analysis may be more simply described as an analysis of manifest content, wherein manifest content represents content that resides on the surface of behavior and, thus, is easily observable. For example, a school psychology researcher might identify the different ways that a teacher responds to a sixth-grade student with an emotional disorder every time the student misbehaves within a specific time period, and then count the number of times each response (i.e., strategy) was used by the teacher. The researcher also could identify the different ways that the student reacts to each strategy. Such an analysis could help determine the nature of the strategies used by the teacher, the nature of the student’s reactions, and use these two sets of data to examine the causal link between teacher strategy and the student reaction.

### *Latent Content Analysis*

In the context of observations, latent content analysis involves the uncovering of underlying meaning of behaviors or actions. Moreover, latent content analysis is an interpretive analysis of behavior that “involves the imputation of meaning, ‘the reading in’ of content, the inference that the behavior has function(s) either by intent or effect” (Bales, 1951, p. 6). Latent content analysts typically are interested in important (although hidden) aspects of individual and social cognition underlying behaviors rather than assessing the behaviors that are easily observable.

Potter and Levine-Donnerstein (1999) have identified two types of latent content: *latent pattern* variables and *latent projective* variables. Latent pattern variables involve using a combination of information that indicates the existence of a target variable. Or example, in deciding whether or not a student with an emotional disorder is exhibiting a rebellious disposition, a school psychology researcher might utilize as many clues as is available (e.g., hairstyle, clothes, presence or absence of body piercings/tatoos, style of walk, use or nonuse of inappropriate words) that indicate the possible existence of the target variable (i.e., rebellious disposition). However, this existence can only be determined when an appropriate pattern of elements prevails. Coding schemes for latent pattern variables are similar to, but more sophisticated than, coding schemes used in manifest latent analysis. Thus, for latent pattern variables, the meaning of the observation (i.e., target variable) exists on the surface of the content. In contrast, in latent projective variables, the locus of the variable shifts to the researchers’ intersubjective interpretations (i.e., social and cognitive schemata) of the meaning of the content. Here, school psychology researchers can use latent projective variables to examine cognitive processes of students, such as the critical thinking of students with attention deficit hyperactivity disorder.

### *Techniques to Analyze Drawings/Photographs/Videos*

#### *Qualitative comparative analysis.*

Qualitative comparative analysis has been described in the section on analyzing talk-based data. When analyzing drawings, photographs,

and/or videos, utilizing qualitative comparative analysis and constructing a truth table can help the researcher identify connections among previously built categories, and to test and to develop the categories further. Looking for connections among pictures of classrooms might assist a school psychology researcher in understanding what aspects of classrooms benefit students with attention disorders.

### *Constant comparative analysis*

As with qualitative comparative analysis, constant comparative analysis has been described in detail in the section on analyzing talk-based data. With drawings, photographs, and/or videos, constant comparative analysis can be conducted to assess similarities and differences among the pictures. The similarities/differences are identified by selecting sections of the pictures to analyze, giving them codes, then grouping the codes together to create themes. As themes emerge, new drawings, photographs, and/or video clips are compared to these themes to determine where this new visual information fits in the overall thematic development.

### *Word Count*

When school psychology researchers are analyzing data from videos, word count can be an invaluable tool. For example, a school psychology researcher may have video of children interacting. By conducting a word count analysis, the researcher can assess who was more talkative and contributed more to the interaction. Researchers also could use word count analysis to determine how much importance the children in the video attach to certain words.

### *Manifest Content Analysis*

Just as manifest content analysis can be used to analyze observations, so too can it be used to analyze drawings/photographs/video. This is because with such media, content resides on the surface of behavior of interest and, thus, is readily observable. For instance, a school psychology researcher can analyze classroom interactions that have been captured in a video.

### *Latent Content Analysis*

Latent content analysis is used to analyze drawings/photograph/video by undertaking a subjective evaluation of the overall content of the visual representation. For example, a school psychology researcher can examine the use of humor (i.e., latent projective variable) among school psychologists in activities that have been captured on video.

### *Secondary Data Analysis*

Qualitative secondary data analysis is a new and emerging methodology. This form of analysis involves the analysis of preexisting data that have been obtained from research and other contexts. More specifically, it involves the analysis of non-naturalistic or artifactual data that were derived from previous studies, including the following: field notes, data transcribed from interviews, data transcribed from focus groups, questionnaire responses to open-ended questions, observational records, diaries, and life stores (Heaton, 2004). This is in contrast to the analysis of naturalistic data (e.g., diaries, letters, autobiographies, official documents, life histories, social interaction), which would motivate more traditional qualitative data analysis techniques such as the analyses presented earlier in this article. Like quantitative secondary data analysis, qualitative secondary data analysis can be used for fulfill one or more of the following goals: (a) to address new or additional research questions; (b) to verify, refute, or refine findings of primary studies via reanalysis of preexisting data; and (c) to synthesize research (e.g., meta-ethnography; Noblit & Hare, 1988; qualitative metasummaries, Sandelowski & Barroso, 2003). Qualitative secondary data analysis involves three main modes: (a) formal data sharing (i.e., using data sets that officially have been made available for data sharing); (b) informal data sharing (i.e., obtaining data directly from primary researchers and organizations by request, or indirectly via disciplinary networks); and (c) reuse of researcher's own data (i.e., auto-data; Heaton, 2000).

Heaton (2004) identified five types of qualitative secondary data analyses. These are (a) supra analysis (i.e., transcends the focus of the primary study from which the data were formed, addressing new theoretical, method-

ological, conceptual, or empirical questions); (b) supplementary analysis (i.e., a more in-depth investigation of an emergent issue or aspect of data that was not considered or fully addressed in the primary study); (c) reanalysis (i.e., reanalysis of data to verify findings from primary study); (d) amplified analysis (i.e., combination of data from two or more primary studies for comparative purposes or to enlarge a sample); and (e) assorted analysis (i.e., combination of secondary analysis of qualitative data with primary research and/or analysis of naturalistic qualitative data).

Whenever school psychology researchers have access to qualitative data collected by another researcher, or data they collected from a previous study that they would like to reanalyze, they are in a position to conduct a secondary data analysis. This type of data analysis can reveal new themes from the data and additional results.

### *Techniques to Analyze Documents*

#### *Semiotics*

Semiotics, as discussed above in the section on data from talk, can be used to analyze documents. For example, if a school psychology researcher was interested in analyzing teacher comments about a student, utilizing semiotics would assist the researcher in uncovering possible symbols utilized in the text.

#### *Qualitative Comparative Analysis*

Qualitative comparative analysis has been discussed in detail in the section on talk-based data. In addition, qualitative comparative analysis can be conducted with documents. Constructing a truth table to help understand how categories are utilized throughout a document can assist a school psychology researcher in better understanding the document. For example, a school psychology researcher can use truth tables to analyze a set of IEPs to determine what combination of support services and accommodations are effective for elementary schoolchildren with developmental delay. This truth table would list all unique configurations of the cases, support services, and accommodations appearing in the IEPs, along with the corresponding educational outcomes observed

for each configuration. The truth table provides information about which configurations are unique to a category of the classification variable and which are found in multiple categories. By comparing the numbers of configurations in these groups, the school psychology researcher can evaluate the extent to which the types of educational outcomes are unique or similar. The researcher then would compare the configurations within a group, identifying commonalities that facilitate combining configurations into simpler representations by eliminating unnecessary variables (e.g., support services and accommodations whose presence or absence has no educational impact) from configurations. When no further variables can be eliminated, the school psychology researcher ends up with a final representation: a depiction of the unique aspects of each category of the typology (e.g., profiles of the support services and accommodations in which educational improvement is observed).

#### *Constant Comparative Analysis*

Researchers can utilize constant comparison analysis when it comes to analyzing drawings, photographs, and videos, as well as for talk-based data. It can also be utilized with documents. For example, a school psychology researcher may be interested in analyzing IEPs over the years for a child who has been diagnosed with conduct disorder. Utilizing constant comparative analysis, by chunking and coding the words, then organizing the codes into themes, would assist the researcher in understanding the progression of how the staff had attempted to help the child.

#### *KWIC*

KWIC can be used for observations, as discussed above, and also for documents. For example, a school psychology researcher may be viewing IEPs to understand better how the staff has been assisting a student. By undertaking a KWIC analysis, the researcher can identify a keyword of interest, then find how the keyword has been utilized throughout the document.

Table 2  
*Most Common Qualitative Analyses*

Type of analysis	Short description of analysis
Constant comparison analysis	Systematically reducing data to codes, then developing themes from the codes.
Classical content analysis	Counting the number of codes.
Word count	Counting the total number of words used or the number of times a particular word is used.
Keywords-in-context	Identifying keywords and utilizing the surrounding words to understand the underlying meaning of the keyword.
Domain analysis	Utilizing the relationships between symbols and referents to identify domains.
Taxonomic analysis	Creating a system of classification that inventories the domains into a flowchart or diagram to help the researcher understand the relationships among the domains.
Componential analysis	Using matrices and/or tables to discover the differences among the subcomponents of domains.
Conversation analysis	Utilizing the behavior of speakers to describe people's methods for producing orderly social interaction.
Discourse analysis	Selecting representative or unique segments of language use, such as several lines of an interview transcript, and then examining the selected lines in detail for rhetorical organization, variability, accountability, and positioning.
Secondary data analysis	Analyzing non-naturalistic data or artifacts that were derived from previous studies.
Membership categorization analysis	Utilizing the role that interpretations play in making descriptions and the consequences of selecting a particular category (e.g., baby, sister, brother, mother, father = family).
Semiotics	Using talk and text as systems of signs under the assumption that no meaning can be attached to a single term.
Manifest content analysis	Describing observed (i.e., manifest) aspects of communication via objective, systematic, and empirical means (Berelson, 1952).
Latent content analysis	Uncovering underlying meaning of text.
Qualitative comparative analysis	Systematically analyzing similarities and differences across cases, typically being used as a theory-building approach, allowing the analyst to make connections among previously built categories, as well as to test and to develop the categories further.
Narrative analysis	Considering the potential of stories to give meaning to individual's lives, and treating data as stories, enabling researchers to take account of research participants' own evaluations.
Text mining	Analyzing naturally occurring text in order to discover and capture semantic information.
Micro-interlocutor analysis	Analyzing information stemming from one or more focus groups about which participant(s) responds to each question, the order that each participant responds, the characteristics of the response, the nonverbal communication used, and the like.

### *Word Count*

An example of using word count to analyze documents in school psychology research is analyzing the goals, objectives, and mission statements of several schools or school districts within a state in order to obtain how frequently the words "school psychology" and "school psychologists" are used as a way of determining how much value the administrators place on school psychologists.

### *Secondary Data Analysis*

As discussed above, secondary data analysis can be used with drawings, photographs, and videos. It can also be conducted with documents. Analyzing documents utilizing secondary data analysis can address new or additional research questions, to verify, refute, or refine findings of primary studies via reanalysis of preexisting data; or synthesize multiple research studies.

### Classical Content Analysis

School psychology researchers may use content analysis when interested in the number of times a code has been utilized. For example, when comparing student files, the number of times the code “discipline” has been used may assist the researcher in understanding the nature of discipline occurrences in the school.

### Text Mining

Text mining includes analyzing naturally occurring text in order to discover and capture semantic information (see, e.g., Del Rio, Kostoff, Garcia, Ramirez, & Humenik, 2002; Liddy, 2000; Powis & Cairns, 2003; Srinivasan, 2004). Most times, text mining is used when a researcher has multiple documents. Due to the overwhelming amount of data, computer programs (e.g., NVIVO, SPSS) have text mining functions to assist the researcher. This automated process helps the researcher to identify themes by analyzing the words in the text. Text mining is a systematic process that focuses on the specific words in the documents.

School psychology researchers may utilize text mining when faced with analyzing multiple documents. For example, if a school psychology researcher was interested in analyzing themes across IEPs written over the past five years, text mining would help the researcher to identify themes throughout the documents.

### Concluding Thoughts

There are a multitude of analyses available for qualitative researchers in school psychology. Qualitative researchers need to extend themselves past the recurrent use of the same type of analysis. Table 2 presents a list of all of the analyses discussed throughout this paper along with short descriptions. Using a typology, these 18 qualitative data analysis techniques were organized around four major sources of data: talk, observations, drawings/photographs/videos, and documents. We hope with this compendium of possible analyses will help school psychology qualitative researchers to move beyond conducting unfocused analyses (e.g., merely coding the data) and utilize analyses that

help to deepen their understanding of the phenomenon of interest.

Furthermore, we hope with this compendium that school psychology researchers can begin utilizing more than one type of analysis in order to triangulate the results (Leech & Onwuegbuzie, in press). We believe utilizing multiple types of analyses in a given study can help the researcher see the data from multiple viewpoints. Additionally, the use of multiple types of analyses can help to alleviate potential researcher bias in the data analysis process.

The purpose of this article was to provide a compendium of analyses available for qualitative data. By using multiple types of data analyses and, thus, triangulating the results of a qualitative study (i.e., data analysis triangulation; Leech & Onwuegbuzie, in press), we believe the results will be more trustworthy and, as a result, more meaningful.

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