INTERPRETIVE AND CRITICAL RESEARCH
A view through a qualitative lens

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The term, qualitative research, is derived from its reference to “quality” through detailed narratives and observations. Such research typically involves the examination of phenomena in social settings, in which researchers give voice to participants. Qualitative investigations occur in the natural world, focus on context, and employ multiple methods to gain an understanding of the participants under study (Rosman & Rallis, 2012). Researchers who “support a way of looking at research that honors an inductive style, a focus on individual meaning, and the importance of rendering the complexity of a situation,” typically engage in qualitative research (Creswell, 2014, p. 4). The use of words rather than numbers or statistics typically characterizes this form of inquiry, and unlike quantitative researchers who establish external validity in order to generate generalizability, the goal of qualitative researchers is to provide adequate description to enable individual readers to transfer findings from the qualitative study to other settings based on perceived similarities (Lincoln & Guba, 1985).

Qualitative research commonly includes “thick” descriptions, participant quotes, and relevant artifacts. Thick description is not so much about the amount of collected data as it is about the researchers’ explanation of the process, description of the setting and participants, and relationship of the data to the conclusions. Qualitative inquiry incorporates data collected through “field notes, interviews, conversations, photographs, recordings, and memos to the self” (Denzin & Lincoln, 2011, p. 3). Such systematic inquiry provides first-hand records of individuals’ unique perspectives, thereby enhancing readers’ understanding.

Historical perspective

Although anthropologists and sociologists such as Margaret Mead and Willard Waller began conducting qualitative investigations in the 1930s and 1940s, it was not until much later that it became a respectable form of inquiry in physical education (PE). The focus of Mead’s work in relation to education in less developed countries and Waller’s research on the sociology of education, shed important new insights about how children were educated through the use of descriptive data (Bogdan, 2009). During the last two decades of the twentieth century, at which time there was an evolution of PE research grounded in the naturalistic paradigm, qualitative researchers frequently referenced Mead and Waller as accomplished scholars who made credible contributions to the knowledge base through the qualitative paradigm. They were pioneers who...
A. M. Woods & K. Graber

paved a trail for qualitative researchers in the field of PE who sought to understand the human experience through descriptive data. The scholarly merits of their findings were difficult to dispute and qualitative researchers understood that referencing researchers like Mead and Waller would help them to defend the merits of qualitative inquiry to publishers, journal reviewers, and audience members attending conferences.

Interestingly, many studies in PE that are considered the most classic and continue to be heavily referenced were published during the time in which qualitative research was emerging, yet not entirely accepted by all scholars in the field. Thus, their quality had to be outstanding in order to convince skeptics that research questions were relevant, methods were appropriate and rigorous, and the findings made a significant contribution to the field.

Many of the initial published investigations hailed from researchers at the University of Massachusetts. For example, Patricia Griffin, the first scholar to publish qualitative research in Research Quarterly for Exercise and Sport (RQES) (Griffin, 1985b), the leading PE journal at that time, developed a line of inquiry in which she sought to understand the participation patterns of boys and girls through the use of interviews and observations (1983, 1984, 1985a). Judith Placek, whose multi-case study of teacher planning in PE led her to conclude through interviews, observations, and document analysis, that teachers might be less interested in student learning than keeping them “busy, happy, and good” remains one of the most heavily referenced scholars to publish during this period of time (Placek, 1983, 1984). Finally, Kim Graber’s study on studentship (1991) continues to inform teacher educators about behaviors undergraduate students employ to progress through their teacher education program with the greatest ease, most success, and least amount of effort. Her research became the focus of a tutorial in RQES dedicated to understanding and critiquing qualitative inquiry (see Locke, 1989).

**Tutorials and critiques**

All forms of scholarship should be subject to critique and debate to ensure they meet rigorous standards that merit publication and the dissemination of results to the public. The creation of new knowledge should never be taken lightly nor assumed to have merit without being subjected to rigorous peer debate. In large measure, it is due to the early efforts of those who sought to explain the merits of qualitative inquiry and critique its shortcomings, that it is considered to be a viable and important form of inquiry today.

One of the earliest qualitative researchers, Neil Earls, who confronted resistance when proposing a heuristic study for his dissertation, later wrote a monograph for the Journal of Teaching in Physical Education (JTPE) (Earls, 1986). He understood the need to educate others and pacify the critics if qualitative inquiry was to gain acceptance in the academic community. His goal in writing the monograph was that “future works from a naturalistic perspective can be presented without rehashing many of the points in this monograph and without reference to or justification from the particular perspective of positivism” (p. 8). Subsequently, a tutorial by Locke in RQES sought to alleviate critics’ concerns by addressing the “question of quality in qualitative research” (Locke, 1989, p. 10). Locke understood that in order to convince others of its merit, they needed to be provided with examples of high-quality research articles, a clear understanding of the philosophical perspectives that ground qualitative inquiry, and information about appropriate methodology. He also had the insight to know that advancing qualitative inquiry would not be accomplished by bashing the perspectives of those who preferred a more positivist form of inquiry: “In the process of addressing ourselves to those issues, no one becomes better informed when questions are deflected by pointing out that the other side has similar problems” (p. 15).
Interpretive and critical research

Although no actual blood was shed, debates were often heated and prolonged. For example, after Schempp (1987) criticized the limitations of natural science inquiry (positivist research) and asserted that qualitative inquiry might fill the void, Siedentop responded by stating he was “disappointed that what followed was an exorcism of a caricature rather than a contribution to the ongoing dialogue” (Siedentop, 1987, p. 373). Schempp’s (1988) subsequent reply to Siedentop, in which he stated, “There is little to be gained from reducing intellectual discourse to name calling or from cataloguing competing perspectives as misconceptions. Ad hominem attacks are more likely to alienate than illuminate, thus making their contribution to scholarship suspect” (Schempp, 1988, p. 79), demonstrates the passion held by individual researchers toward a particular paradigm.

Critiques by scholars who primarily sought to maintain standards of high quality required qualitative investigators to answer difficult questions and dig deeply into the qualitative literature to learn more about different philosophical perspectives and methods of inquiry. Siedentop’s primary concern, for example, was that the qualitative investigator is the instrument through which data are collected and therefore neutrality, which is critical in many research traditions, would be unachievable (Siedentop, 1989). As additional qualitative studies were published and debates provided a forum for considering and reconsidering different perspectives, qualitative inquiry became more welcome in journals as an appropriate mechanism for acquiring important data. For novice researchers interested in pursuing qualitative inquiry and understanding its different form, a recent tutorial by Azzarito (2011) provides an excellent guide.

Today, scholars are more concerned about selecting the method (qualitative or quantitative) that best answers a research question than they are about debating if one paradigm is better than another. The acceptance of both the positivist and naturalistic paradigms in the literature has resulted in many exceptional research studies, some of which incorporate both paradigms within an individual study. For example, of those articles published between the years 1998 and 2008, 47.4% were quantitative, 32.5% were qualitative, and 20.1% were mixed method (Hemphill, Richards, Templin, & Blankenship, 2012).

Descriptive to theoretical

Early qualitative studies were primarily descriptive in nature. Researchers were more concerned about providing thick descriptions and explaining their methodology to convince readers that their studies had rigor than they were about advancing existing theory. Within a few years, however, a few qualitative investigators progressed beyond publishing purely descriptive studies to utilizing a grounded theory approach whereby they sought to develop theory that was grounded in the data of a particular study (Creswell, 2013, p. 83). Developed by Glaser and Strauss in 1967, many researchers, however, found the approach difficult and even the authors eventually disagreed with its meaning and procedures, with Glaser criticizing Strauss’ approach as “too prescribed and structured” (Creswell, 2013, p. 84). Thus, qualitative researchers in PE rarely adhered to exact procedures as described by Glaser and Strauss (1967); however, many incorporated elements of the approach by using techniques such as constant comparison (e.g., Fernandez-Balboa, 1991).

As qualitative researchers became more experienced and methods matured, journal reviewers and leading scholars in PE called for qualitative researchers to advance existing theory by grounding investigations in theoretical perspectives developed in fields like education and the social sciences. In response, between the years 1998 and 2008, 38 different theories and frameworks were referenced in qualitative articles that appeared in JTPE, which totaled 69.1% of all qualitative articles published during that time (Hemphill et al.,
Today, it is not uncommon to read research articles where investigators ground their investigation in theory while simultaneously employing elements of a grounded theory or inductive approach.

**Forms of qualitative inquiry**

The extent of the qualitative researcher's involvement in a research setting ranges from non-participant to full participant. The researcher who employs a non-participant approach observes events from the sidelines as they unfold, without involvement in the natural setting. In contrast, the researcher who assumes a participant approach becomes deeply and personally involved in the contexts being studied often becoming one of the participants. In both cases, research questions are typically developed prior to entering the field, and as results begin to emerge, questions and methodology are often revised, facilitating richly textured data.

Those endeavoring to seek awareness through qualitative inquiry assume a variety of philosophical approaches. Denzin and Lincoln (2011) offer nine, Marshall and Rossman (2010) discuss nine, and Saldana (2011) describes thirteen different approaches in which qualitative inquiry can be conducted. Clearly such diversity offers opportunities for researchers to select an approach that best fits their philosophic orientation toward qualitative inquiry. Utilizing a particular or a combination of approaches, such as scaffolding, is essential in establishing the study's credibility. The most frequently used approaches across the literature in PE include case study, ethnography, critical theory, narrative, life history, and phenomenology.

**Case study**

In using a case study approach the researcher examines a specific entity or event for increased understanding. Data are typically gathered through observations, interviews, documents, and audio/video. There are three reasons for opting to conduct case study research: (1) access to enriched disclosure of places others might never go; (2) opportunity to view an event or situation through the lens of the researcher; and (3) reduced defensiveness and resistance among readers (Gomm, Hammersley, & Foster, 2000). Such microscopic views intensify experience and heighten awareness. The researcher's choice to utilize an instrumental, collective, or intrinsic case study approach is governed by purpose. According to Gomm and colleagues (2000), if the study is instrumental, the focus is on a specific issue with one case to illustrate; if collective, multiple cases offer varied perspectives on the same specific issue; and if intrinsic, intent may be simply to evaluate the case itself, whether it is an activity, an individual, or a circumstance.

Scholars in PE who engage in case study research are heavily influenced by the work of Robert Stake (1995), who defined critical aspects of such an approach in his seminal text, *The Art of Case Study Research*. One of the first published case studies in PE pedagogy, authored by Templin (1989), focused on the influence of workplace conditions over time on a secondary school physical educator. More recently, case studies have appeared in journal publications including work by Lux and McCullick (2011), Thorburn (2011), and Woods and Lynn (2014). Each of these cases explores the professional lives of veteran teachers who have persisted in the profession and factors that have invigorated and frustrated them during their careers.

By narrowing examination to a specific circumstance, more thoroughly illuminating context and interaction, a case study provides in-depth observation and understanding. Conclusions drawn in such studies offer insights to applications appropriate in similar contexts.
Interpretive and critical research

**Ethnography**

The complex culture of a group is the core of study in ethnography, a type of research that evolved from the field of anthropology (Wall, 2015). In an ethnographic study researchers immerse themselves long term in the culture and lives of the group of interest, utilizing a variety of data collection methods to explore the rich texture of that culture. They report the behaviors, beliefs, and language of the group. Features of ethnographic research include a focus on one or a small number of cases; data collection obtained through interviews, artifacts, and other sources; and depiction of the ideas and beliefs of the group defined through observable actions. Difficulties inherent in this type of research are acceptance of the individual researcher as a trusted other, the extensive time required, and the storytelling nature of the report.

An example of ethnography in the PE literature is a study conducted by Azzarito (2012) in which she used visual participatory ethnographic research methods to examine “what moving in their worlds” meant to inter-city student-researchers. Her participants used digital cameras to construct visual diaries to express their “thoughts, feelings and ideas [that] ‘speak for themselves’ about their knowledge of their own bodies, sharing their embodiments” (p. 295).

A more recent form of ethnographic research that has appeared in the PE literature is autoethnography, whereby a researcher strives to explain and analyze personal experience. Patton (2002) describes autoethnography as using one’s own experiences “to garner insights into the larger culture.” He maintains that the distinguishing difference between autoethnography and ethnography is “self-awareness about and reporting of one’s own experiences and introspections as a primary data source” (p. 86). Marshall and Rossman (2010) identify this approach as both a method and a product. Invitation for self-disclosure through blogs, reality shows, and YouTube contribute to the increasing utilization of this method. Using a self-study approach, Casey and Fletcher (2012) used teacher socialization as a lens through which they studied their own personal transitions from high school teachers to PE teacher education (PETE) faculty members. They improved their understandings of self and practice by serving as both participants and the instruments through which data were collected.

**Critical theory**

Critical theory is a research orientation in which investigators study power imbalances and justice, and seek to enable individuals to overcome constraints related to ethnicity, class, gender, and other social contexts (Creswell, 2013). The aim of this approach is not simply to describe the situation from a particular vantage point; instead the goal is to challenge the situation (Cohen & Crabtree, 2006). Critical theorists encourage participants to explore their current experiences through dialogues and reflections so that eventually change can occur. Related to the critical theory approach are the orientations of critical race theory, queer theory, and disability theory (Creswell, 2013).

As an example, when traditional ethnography centers on a political perspective characteristic of a specific group, it may be identified as critical ethnography. This type of ethnography is based on critical theory. Within PE research, critical ethnography evolved from attempts to drastically alter deeply rooted educational practices. Critical ethnography identifies significant constraints on a specific group in a defined context. Madison (2012) clarifies that through critical ethnography the researcher is bound to address unfair or unjust processes in an effort to improve such conditions.

Katie Fitzpatrick (2011) published a year-long critical ethnography of the lives of a class of 16 students in a multi-ethnic New Zealand high school. She spent more than 150 hours in their PE, health, and sports camp classes to better understand the place of PE in their lives. Fitzpatrick
reported that, “On the one hand, PE is implicated with narrow body norms while on the other hand it provides a space for relationship building, play and critical resistance.” Furthermore, she noted that PE was a key site for learning and was “politically fraught, given its close association with racialized and gendered body discourses” (p. 174).

**Life history**

In a life history approach, the researcher explores a person’s life, usually focusing on the cultural norms that influenced the individual (Hays & Singh, 2012). The researcher works closely with the participant as s/he tells the stories of her/his life. Face-to-face interviews are the most common type of data collection, although Schempp, Sparks, and Templin (1993, p. 450) indicate that any document or artifact that “may in some way describe a person’s vision of the world is appropriate for analysis.” They published a noteworthy study in the *American Educational Research Journal* in which they utilized life history methodology to reconstruct the micropolitics of teacher induction from the perspectives of three beginning teachers. They found that the teachers’ thoughts and actions were swayed and sustained by three streams of consciousness: biography, role demands, and the school culture.

**Narrative**

Hays and Singh (2012) identify three assumptions that undergird narrative research. First, through stories, individuals connect events over time in a culturally meaningful manner. Second, their identities are shaped by these stories. Third, their narratives change depending upon audience and context. In narrative research, detailed accounts by an individual or group of individuals offer others opportunities to understand groups, communities, and contexts through the lived experiences of the participants.

As an example of narrative research in PETE, Stride (2014) interviewed South Asian Muslim girls regarding their views of school-based physical activities and the way participation influenced their involvement in physical activities away from school. Through analysis of their narratives, Stride discovered that the girls did not fit the passive and fragile stereotype ascribed to them, they enjoyed the social opportunities afforded in PE, and they were also physically active outside of school. Narratives afforded a lens into the girls’ perceptions regarding physical activities, dispelling previously conceived notions. By utilizing a narrative approach researchers uncover specificities not necessarily recognizable by other means.

**Phenomenology**

Testimonies of an experience related to a phenomenon are examined in a phenomenological study. More specifically, a phenomenological approach weaves the researchers’ lived experiences with the topic, which Moustakas (1994) calls the epoche, with those of the participants. In so doing both the researcher’s and the participants’ understandings grow and mature as they build shared meanings. After catastrophes occur, for example, the media often interview all survivors to showcase varied perspectives about the traumatic incident. In a phenomenological study, however, the researcher examines these testimonies to find the common thread that interlaces their stories to build a composite, whereby conclusions about the experience can be drawn. Phenomenology clearly seeks commonalities about a shared experience. Whereas narrative centers on the lived experience of an individual, phenomenology examines meaning derived from a shared experience (Creswell, 2014).
Interpretive and critical research

In a phenomenological study of the parental involvement in PE for students with developmental disabilities, An and Hodge (2013) utilized interviews, artifacts (photographs and written documents), and researchers’ journals to examine the meaning of parental involvement. The results demonstrated the need for establishing partnerships in PE between parents and physical educators.

Planning a study

A number of considerations must be explored as the qualitative researcher conceptualizes various aspects of a study. Attention to these elements often separates qualitative genres from other research forms.

Selection of participants

After determining the research question, participants should be selected who will best contribute insights toward better understanding the question. Purposeful selection ensures that “particular settings, persons, or activities are selected deliberately to provide information that is particularly relevant” (Maxwell, 2013, p. 97). Determining the number of locations and participants to include is dependent upon the chosen design. Creswell (2014, p. 189) maintains that narrative research typically includes 1 or 2 individuals; phenomenology 3–10, grounded theory 20–30; ethnography one culture-sharing group with numerous artifacts, interviews, and observations; and case studies 4 or 5 cases.

Data collection

In qualitative research the most common methods of data collection include: interviews, observations, and document analysis (Locke, Silverman, & Spirduso, 2010). Each method is detailed below.

Interviewing

Through interviews, a researcher is exposed to the participant’s point of view in his or her own words and is granted insights to the meaning of their experiences. The type of interview, its content, and method are based on the research tradition of the investigation with interview approaches ranging from informal to semi-structured to structured. Individual interviews are the most common data collection method in qualitative research. Other methods include interviews of dyads, triads, and focus groups that consist of five to ten participants. Most interviews are audio recorded and conducted in a face-to-face setting, via telephone or video conversations or online via email communication.

Observations

Observation as a means of data collection in qualitative research includes not only formally recording events, actions, conversations, and artifacts at the site, but also informally joining in on-site activities. Such data collection can stand as its own method or complement others (Hays & Singh, 2012). Much of observational data collection occurs in natural or everyday settings, such as in classrooms or on playgrounds, in which the researcher attempts to conduct the observation without disrupting the lived experiences occurring in the venue. There is an observation
continuum, however, which spans from the researcher as a complete observer to complete participant (Creswell, 2013).

**Document analysis**

Alongside interviews and observations, existing documents or writings provide vital sources of qualitative data. The examination of documents is “potentially quite rich in portraying the values and beliefs of participants in a setting” (Marshall & Rossman, 2010, p. 164). Data in the form of documents can be public or private in nature. For example, researchers could analyze a newspaper report of an innovative curriculum in a PE program, which would be a public document. Likewise, the examination of lesson plans represent private documents. Journals, blogs, and email correspondences are also becoming common document data sources.

**Quality control**

There are as many different forms of qualitative inquiry as there are perspectives about how it should be conducted. At one end of the continuum are those who believe strongly that qualitative inquiry should have rigor and employ standards that promote quality control in a manner similar to quantitative inquiry. They argue that “authors who use positivist terminology facilitate the acceptance of qualitative research in a quantitative world” (Creswell, 2013, p. 146). At the other end are those who argue strongly against equating qualitative inquiry to quantitative inquiry and believe that quality can be established by understanding rather than convincing (Creswell, 2013; Wollcott, 1990). Although authors in PE use a variety of techniques to demonstrate quality, the majority employ procedures that facilitate credibility, dependability, and confirmability. When these exist, readers of qualitative inquiry tend to perceive that trustworthiness also exists. While some of the more commonly applied strategies are highlighted below, it is not an exclusive list, nor should it be interpreted that studies lacking one or more techniques are unworthy of publication. It must be emphasized, however, that peer reviewers in PE are more likely to perceive quality in those studies that employ multiple methods and utilize several quality controls than in those that do not.

**Credibility**

In qualitative inquiry, it is important to demonstrate that the findings of a study adequately represent participants’ perspectives and the context in which the study occurred. Similar to establishing validity in quantitative inquiry (Lincoln & Guba, 1985), qualitative investigators seek to ensure that data are credible. One of the more frequently used ways in which investigators demonstrate credibility is through *triangulation* (Hemphill et al., 2012). Triangulation may involve using different methodological approaches when conducting a study. For example, “this can mean using several kinds of methods or data, including both quantitative and qualitative approaches” (Patton, 2002, p. 247). Triangulation may also involve the use of multiple investigators or multiple theories. It is a technique that enables investigators to make comparisons and test for consistency.

Another technique associated with ensuring the results are credible is *prolonged engagement*. This “is the investment of sufficient time to achieve certain purposes: learning the ‘culture,’ testing for misinformation introduced by distortions either of the self or the respondents, and building trust” (Lincoln & Guba, 1985, p. 301). By immersing oneself in a setting for an extended period of time, the researcher becomes more familiar with the environment...
and less likely to mischaracterize what is transpiring. In addition, as participants become increasingly familiar with the investigator, they are more likely to trust the researcher and provide information they may not have shared at an earlier point in time during the study. Whereas it is not unusual for sociologists and anthropologists to immerse themselves in a setting for years, few, if any, researchers in PE have that luxury given job responsibilities at their university. In most cases, researchers who conduct observations can only visit a site for several hours during the day and for no more than a few weeks at a time. Rovegno, however, is one example of a researcher who has achieved prolonged engagement by studying at the same school and with same teacher over a three-year period (Rovegno, 1998; Rovegno & Bandhauer, 1997).

The most commonly employed technique for facilitating credibility in PE research is through member checking; employed by 44% of all researchers who published in JTPE during a ten-year period of time (Hemphill et al., 2012). This requires investigators to return to participants to check the accuracy of transcripts and confirm emerging themes. In smaller studies, all participants will likely participate in member checks whereas in larger studies, only a representative proportion might engage in the process.

Another popular technique that qualitative researchers in PE use to facilitate credibility is peer debriefing (Hemphill et al., 2012). Here a colleague familiar with qualitative inquiry is selected to assist the investigator. The role of this individual is to thoroughly review the data and “keep the inquirer ‘honest,’ exposing him or her to searching questions by an experienced protagonist doing his or her best to play the devil’s advocate” (Lincoln & Guba, 1985, p. 308). Their role, however, is not to demand or discourage but to encourage greater reflection.

Lincoln and Guba (1985) suggest that another valuable technique associated with credibility is through negative case analysis. They state that negative case analysis is “a ‘process of revising hypotheses with hindsight.’ The object of the game is continuously to refine a hypothesis until it accounts for all known cases without exception” (p. 309, original emphasis). When using this technique, qualitative investigators examine emerging themes and account for and explain instances where discrepancies may exist. Although time consuming, this approach promotes credibility and allows for new findings, some of which will provide for greater sophistication of results, to emerge. For example, in Graber’s (1991) study of studentship, she found that students were more likely to cheat in one observed class than in another. Had she only observed students enrolled in one class, she might have assumed that cheating was a typical behavior commonly employed by undergraduate students. Since her study employed triangulation across settings, however, she had the advantage of observing the same students in two different settings. Although cheating became one of the themes in her results, she had to explain why some students cheated in one class and not the other. A negative case search enabled her to determine that cheating is heavily influenced by contextual factors and not a behavior students employ without consideration of the learning environment.

**Dependability**

Although dependability is similar to establishing reliability in quantitative inquiry, Lincoln and Guba (1985) emphasize that naturalists understand that the world changes. Therefore, instead of seeking to ensure that results are predictable and consistent, qualitative researchers seek to account for instability. Lincoln and Guba suggest that overlap of methods, one form of triangulation, can assist in establishing dependability. Another method they suggest is an inquiry audit. This involves inviting an experienced qualitative investigator to carefully examine all aspects of data collection and analysis.
Confirmability

In qualitative inquiry, it is important that findings are “determined by the subjects (respondents) and conditions of inquiry and not by the biases, motivations, or perspectives” of the qualitative researcher (Lincoln & Guba, 1985, p. 290). One technique frequently employed by investigators in PE involves establishing an audit trail. Qualitative investigators may seek the assistance of an “auditor” whose role it is to examine both the record keeping process and the product (data, emerging themes, recommendations) (Lincoln & Guba, 1985). In order to accomplish this, it is important that the investigator maintain impeccable records. By using separate logs, for example, to record observations, describe methodological procedures, and document emerging theories, it will be easier for the investigator to analyze results and for the auditor to confirm that emerging themes and theories are supported in the data.

It is essential that readers perceive study results as trustworthy. By incorporating quality controls during an investigation, the researcher increases the likelihood that peer reviewers and other scholars will believe the results are credible and dependable. Thus, Patton (2002) emphasizes that the investigator must “carefully reflect on, deal with, and report potential sources of bias and error” (p. 51). In order to promote trustworthiness, it is common practice for qualitative investigators to consider personal bias prior to an investigation and disclose bias in written manuscripts. An excellent example of disclosure can be found in a published manuscript that addresses communities of practice in PE (see Parker, Patton, Madden, & Sinclair, 2010).

Data analysis

Unlike quantitative inquiry, in which data analysis does not begin until all data have been collected, qualitative inquiry begins immediately as data are collected and continues until all data have been analyzed and accounted for after data collection ceases (Patton, 2015). This enables research procedures to be revised and new questions to be asked as results begin to unfold. It is an inordinately time consuming and challenging process that can be made easier by having maintained orderly records. Even then, however, sorting through hundreds of documents and making comparisons between and among interview transcripts, observation and method logs, and documents collected in the field, requires an intensive time commitment. Careful analysis is revealed in manuscripts that provide sophisticated insights whereas cursory analysis reveals itself in letters of rejection from a journal editor to an investigator. It has been argued that a good qualitative investigator is able to make the familiar strange and the strange familiar (Delamont & Atkinson, 1995; Erikson, 1986). This occurs when a phenomenon which is considered easily explainable and understood becomes complex and unfamiliar. A good qualitative investigator is able to provoke contemplation and consideration of vantage points that may not have been previously considered by readers. Achieving this goal, however, requires time, continuous consideration of the data, and adequate discussion with others about emerging findings.

There is no singular procedure or technique for analyzing qualitative data. Multiple forms of analysis exist and entire books have been written on the subject. Some researchers prefer to manually analyze data while others use qualitative data analysis software such as NVivo, ATLAS.ti, or QDA Miner to assist with the process. Ultimately, it is the responsibility of the investigator to select those procedures that best meet the philosophic orientation of the study, the purpose of the investigation, and the methods that were used to collect data. In PE, open and axial coding are commonly employed techniques. Open coding is the “process of breaking down, examining, comparing, conceptualizing, and categorizing data” (Strauss & Corbin, 1990, p. 61) whereas axial coding is the process of developing codes in relation to each other. Typically, this latter approach
Interpretive and critical research employs both inductive and deductive reasoning and analysis. These techniques were employed in a recent study examining bullying in middle school PE (O’Connor & Graber, 2014).

Inductive analysis occurs when an investigator analyzes data without regard to a particular theory (Patton, 2002). Consistent with grounded theory, it is a deliberative attempt to develop new theory based on the data collected. Patton states, “Inductive analysis begins with specific observations and builds toward general patterns. Categories or dimensions of analysis emerge from open-ended observations as the inquirer comes to understand patterns that exist in the phenomenon being investigated” (2002, pp. 55–56). In contrast, deductive analysis occurs when investigators analyze data in relation to hypotheses generated prior to data collection or in relation to pre-existing theories (Patton, 2002). Both approaches have merit and investigators in PE increasingly employ both during data analysis. For example, Woods and Lynn (2001) initially employed an inductive approach when analyzing how PE teachers matured with experience. Upon locating an existing theoretical framework that accounted for their findings, they conducted a deductive analysis.

Qualitative analysis provides an in-depth perspective from which to view natural experience and context associated with phenomena. Highly trained qualitative researchers work persistently over time to draw an accurate picture of the setting, participants, and events (Patton, 2015). In each instance, these in-depth analyses enhance our understanding and provide important insights into the world. In education and physical education researchers are using multiple data sources and methods to illuminate the teaching-learning process within a rich and highly complex world of schools.

**Summary of key findings**

- The depth and breadth of published qualitative investigations have enabled our understanding of PE to grow substantially.
- Qualitative researchers today are asking increasingly sophisticated questions and employing mixed methods because of an earlier generation of scholars who blazed a trail.
- Studies can range from an investigation of a single individual using a case study approach to ethnography where the complex culture of a group is examined.
- Investigators rely on a variety of techniques and theories for framing their studies, collecting and analyzing data, and ensuring that findings are trustworthy.
- Studies that have employed qualitative techniques have made a tremendous contribution to the profession.
- The debate about methodology has quieted, and the research question being asked is now the primary factor in determining which methodology is most appropriate.
- Researchers work to design credible and trustworthy studies from the time the study is conceptualized until data analysis is complete.
- Multiple software packages exist to assist researchers in the complex and time consuming tasks associated with data organization and analysis. These programs can reduce the time required while assisting researchers to position data creatively to discern intriguing relationships in highly complex settings.

**Reflective questions for discussion**

1. To what extent must qualitative investigators continue to defend the significance of their research and its applicability to other settings?
2. If qualitative inquiry is an acceptable and valued form of inquiry, why is it so difficult to successfully compete for external funding for projects?
3. Consider an idea that you have for a research study and identify several different data sources that might provide insight to answer your research questions.

4. What new methods and techniques might emerge for gathering qualitative data?

5. How might emerging technologies influence the manner in which qualitative studies are conducted and interpreted?

6. When designing a qualitative research study, suggest several different strategies you can use to increase the credibility of your research.

References


Erikson, F. (1986). Qualitative methods in research on teaching. In M. C. Wittrock (Ed.), Handbook of research on teaching (pp. 119–158). New York: Macmillan.


Interpretive and critical research


