

# Qualitative Inquiry in Athletic Training: Principles, Possibilities, and Promises

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**Objective:** To discuss the principles of qualitative research and provide insights into how such methods can benefit the profession of athletic training.

**Background:** The growth of a profession is influenced by the type of research performed by its members. Although qualitative research methods can serve to answer many clinical and professional questions that help athletic trainers navigate their socioprofessional contexts, an informal review of the *Journal of Athletic Training* reveals a paucity of such methods.

**Description:** We provide an overview of the characteristics of qualitative research and common data collection and analysis techniques. Practical examples related to athletic training are also offered.

**Applications:** Athletic trainers interact with other profession-

als, patients, athletes, and administrators and function in a larger society. Consequently, they are likely to face critical influences and phenomena that affect the meaning they give to their experiences. Qualitative research facilitates a depth of understanding related to our contexts that traditional research may not provide. Furthermore, qualitative research complements traditional ways of thinking about research itself and promotes a greater understanding related to specific phenomena. As the profession of athletic training continues to grow, qualitative research methods will assume a more prominent role. Thus, it will be necessary for consumers of athletic training research to understand the functional aspects of the qualitative paradigm.

**Key Words:** qualitative paradigm, naturalistic inquiry, interpretive research

In a recent publication, Knight and Ingersoll<sup>1</sup> suggested that the growth of the athletic training profession depends in part on the scholarly activity performed by its members. Research, as one form of scholarly activity, plays an essential role in revealing cause and effect, making associations among concepts, making comparisons, gaining insights, guiding decision making, and developing a sound knowledge base. As Weissinger et al<sup>2</sup> stated, one potential influencing factor involved with the development of a body of knowledge in a profession is an expansion of the methods used to collect and analyze data.

An informal appraisal of the past athletic training research in the *Journal of Athletic Training* reveals that quantitative research methods are currently a widely used form of inquiry. This is certainly not surprising given the scientific nature of the profession and the research questions that have been asked and answered within this paradigm. Although quantitative research has surely contributed to the advancement of knowledge and subsequent health care delivery in athletic training, we must recognize that both researchers and clinicians ask many questions that warrant the use of alternative methods. The purpose of our article, therefore, is to offer a first step in facilitating an understanding of qualitative inquiry within the field of athletic training. This article is divided into 3 main sections. In the first section, we will explain the primary characteristics of qualitative research. The second section focuses on common data collection and data analysis procedures. Finally, in the third section, we will discuss the future directions of qualitative research in athletic training. Throughout this ar-

article we will provide practical examples and possibilities, including how qualitative research can inform athletic trainers.

## PRIMARY CHARACTERISTICS OF QUALITATIVE RESEARCH

The quantitative research paradigm takes a positivistic stance. That is, this paradigm assumes that a single objective reality exists,<sup>3</sup> which is ascertainable by our senses and logical extensions of our senses<sup>4</sup> (eg, microscopes, electrocardiograms, electromyograms). We can, therefore, measure and observe components of this single reality and test hypotheses about how one component affects another. The qualitative research paradigm, on the other hand, is based on the postmodern philosophical idea that multiple realities exist. Consequently, rather than our world being one objective and measurable entity, it is a subjective phenomenon that needs to be interpreted.<sup>3</sup> The qualitative paradigm recognizes that the meaning people give to situations and phenomena is crucial for understanding a particular context.<sup>5</sup> However, qualitative and quantitative methods are more than just different ways of researching the same items. Rather, they answer different types of questions, have different strengths, and use different techniques.<sup>6</sup>

Qualitative researchers are especially concerned with how people develop meaning out of their lived experiences.<sup>7</sup> Moreover, qualitative research is based on the idea that meaning is socially constructed. That is, meaning is created based on personal interactions with others and our environment and the

perceptions we give to our lived experiences. Therefore, qualitative researchers rely on a combination of textual data from interviews, conversations, and field notes rather than attempting to reduce meaning to numbers for comparative purposes.

Qualitative research can also be known as naturalistic inquiry, interpretive research, phenomenologic research, ethnography, and even descriptive research. Although qualitative inquiry can be performed in a variety of ways, common tenets are shared in this paradigm. Patton<sup>8</sup> discussed these common tenets as themes of qualitative inquiry. At a fundamental level, Patton<sup>8</sup> stated, qualitative inquiry is based on naturalistic inquiry, a holistic perspective, a focus on processes, inductive analysis, qualitative data, personal insights, case orientation, empathetic neutrality, and flexibility of design.

Qualitative researchers prefer natural or real-world settings. They do not attempt to control variables, manipulate procedures, create research or comparison groups, or isolate a particular phenomenon. Rather, qualitative researchers immerse themselves in a naturally occurring setting to observe and understand it. Thus, qualitative research tends to take a holistic perspective to inquiry. As such, the entire phenomenon under investigation is understood as a complete system rather than isolated events.

Qualitative research is most appropriate for answering questions relative to processes, site-specific phenomena, contexts, programs, or situations in which little is already known. As an example, “by what processes and in what ways have athletic trainers improved health care delivery in a rural school district?” is a question that is best answered using qualitative methods. “What is the economic impact of athletic trainers working in a rural school district?” is best answered using quantitative methods because economic factors are best measured with numbers.<sup>9</sup> An additional example is “in what way does approved clinical instructor status improve the educational delivery to student athletic trainers during their clinical education?” Such a question warrants qualitative methods because the approved clinical instructor programs will be new in the near future and little is known about the influence such programs will have on student learning.

Additionally, qualitative research is flexible and dynamic in that a researcher can choose which data to collect and how during the research process. In fact, qualitative research has metaphorically been compared with jazz music<sup>10</sup> because of the improvisation and flexibility needed to appropriately adapt the methods as findings unfold. Therefore, once researchers initiate a qualitative study and collect data, they need to be prepared to change their procedures and tactics as the process evolves and new insights are gained.

Qualitative research is inductive as opposed to deductive. The researcher begins with specific data and moves toward building general patterns.<sup>8</sup> That is, whereas an experimental design requires that a hypothesis be stated before the study in an attempt to either prove or disprove it, a qualitative study allows various dimensions to unfold or emerge, thus permitting hypotheses to become a product of the research. Moreover, qualitative inquiry is interpretive in that a researcher gathers a large amount of data with the intent of theorizing about the problem or phenomenon under investigation. Qualitative methods are a fundamental research strategy for many of the social sciences, including sociology and anthropology. Although qualitative research is derived from various epistemologic, philosophical, and methodologic traditions,<sup>8</sup> at its foundation are phenomenology and symbolic interactionism.<sup>3</sup>

## Comparison of Qualitative and Quantitative Research Attributes

Qualitative Research Attributes	Quantitative Research Attributes
Inductive reasoning: drawing reasonable conclusions from one or several pieces of evidence; essentially moving from specific observations to general explanations or patterns <sup>8</sup>	Deductive reasoning: a conclusion is reached by following specific premises that are true; essentially moving from general explanations to creating facts
Generates a hypothesis <sup>3</sup>	Attempts to prove or disprove a hypothesis
Attempts to demonstrate trustworthiness <sup>4</sup>	Attempts to establish validity and reliability
Attempts to gain insight and understanding related to specific phenomena, cases, or situations	Attempts to determine cause and effect and predict outcomes <sup>11</sup>
Purposeful and small sample of participants relative to phenomenon to be investigated <sup>6</sup>	Random and large sample of subjects to ensure generalizability

Phenomenology focuses on an individual’s experience, how people create their view of the world around them, and how they interact with their environment.<sup>11</sup> Researchers using a phenomenologic approach seek both a rich description of a context and a depth of understanding and meaning related to specific phenomena but from the participants’ perspectives.<sup>12</sup> In athletic training, for example, such an approach could be used to address a phenomenon related to rehabilitation non-compliance, practitioner burnout, or nontraditional student experiences in an athletic training education program. As a more specific example, practitioner burnout could be investigated qualitatively to identify stress-coping strategies. Thus, practitioners could share their perspectives and describe how they attempted to cope with stress in a specific context. Such a qualitative investigation may uncover contextual issues that facilitated the burnout process.

Symbolic interactionism is a reaction to psychology’s focus on intrinsic factors (eg, motivation or stress) and sociology’s emphasis on extrinsic factors (eg, social class and structure) causing a specific behavior.<sup>13</sup> According to Blumer,<sup>13</sup> the symbolic interactionist framework suggested that (1) human beings act toward objects based on the meaning that the items have for them, (2) meaning is a product of social interaction in our society, and (3) the attribution of meaning to objects through symbols is a continuous interpretive process. An example of using a symbolic interactionist’s framework in athletic training is examining the professional socialization process of various contexts (eg, intercollegiate athletics, high school, or professional ranks). Additionally, such questions as how medical decisions are made in a clinical context or how athletic trainers in various subcultures develop professionally over time are potential research topics that could be addressed from the symbolic interactionist perspective. At its foundation, however, qualitative inquiry is interpretive, relies on inductive analysis, and is concerned with the meaning created by participants. The Table identifies the key differences between qualitative and quantitative research.

## QUALITATIVE DATA COLLECTION AND ANALYSIS

As with any research project involving human participants, a qualitative researcher must receive approval from an institutional review board. The review board ensures that the data collection and data analysis procedures protect the partici-

pants' anonymity. This is accomplished by giving any participants, institutions, or programs a pseudonym before any portion of the report is published. Qualitative researchers collect data in many ways, including interviews, observations, document analysis, artifacts (eg, photographs, videotapes, and tools), and surveys. Interviews and observations, however, are 2 of the most commonly used methods of gathering data in qualitative research. The following section will explain the observation and interview process and then describe how the textual data are analyzed.

## OBSERVATION

Qualitative researchers often immerse themselves in a particular context and observe participants. Observation involves recording interactions among subjects, various events, a participant's behavior, and even a description of the context by taking field notes.<sup>11,14</sup> Such observations allow the qualitative researcher not only to recognize the essence of a context but also to identify particular behavior patterns and meanings.

Observation can be participatory or nonparticipatory. With participant observation, a qualitative researcher becomes involved in the actual activity being studied. For example, an athletic training researcher interested in understanding the contextual influences and dynamics of patient interaction within the professional ranks might volunteer with a professional team during practices. During this time, the researcher could not only provide health care services (ie, participate in the setting) but also observe the natural setting to further understand the dynamics involved. Nonparticipatory involvement means that the researcher does not participate in the activity while obtaining data. Rather, he or she watches a phenomenon in its natural setting.

## INTERVIEWS

Interviews are conducted when a researcher needs to understand factors that cannot be observed.<sup>8</sup> For example, for a study conducted to gain insight into and understanding of why particular athletes play through pain, interviews would be necessary because the athlete's thoughts, feelings, and perceptions cannot be observed.

Interviews are also conducted when information about past events needs to be obtained. For example, a researcher investigating the professional socialization of intercollegiate athletic trainers may attempt to learn about the initial experiences and challenges they faced when first entering their work environment. Obviously, these experiences and challenges are not observable, so participants would need to be asked to reflect on these past events.

An interview can take many forms, including an unstructured, semistructured, or structured format.<sup>3,12</sup> Generally, however, a semistructured format is most commonly used<sup>12</sup> and directed by an interview guide. That is, based on the research question, an interview guide is designed to formulate a list of questions related to specific phenomena. A less structured interview guide is often preferred because it assumes that interviewees will explain, characterize, and define their contexts in unique ways.<sup>3</sup> Regardless of the type of interview conducted, the conversation is recorded (with the participant's permission) and transcribed. The data are then considered textual and the written words can be analyzed.

## DATA ANALYSIS

Qualitative data analysis is interpretive in nature. Harris<sup>15</sup> reviewed the literature regarding interpretive research and identified 3 levels of interpretation that are necessary for drawing appropriate conclusions. First, the project must be grounded in the collective understandings of the culture created among the participants. Second, the project must include the researcher's insights. Third, the project must be well linked to other research. Harris<sup>15</sup> added that combining interpretations at each of these 3 levels into an integrated whole is paramount in qualitative research. The researcher interviews and observes participants (or specific behaviors if watching videotapes of social interactions) and then examines the data for meaning. We must make clear, however, that with qualitative research, the data analysis is a continuous and ongoing activity that occurs simultaneously with data collection. From the moment the first interview is conducted or the first observation is made, the researcher obtains a deeper understanding of the phenomenon being studied and may, accordingly, make modifications and adjustments to the data collection techniques.

Qualitative researchers have a preference for grounded theory, that is, developing theory based on the data obtained in a study.<sup>16</sup> According to Strauss and Corbin,<sup>17</sup> textual data are initially analyzed by creating concepts and categories. The researcher reads a sentence or paragraph and then gives this incident a name or label that represents it. These conceptual statements are then reviewed and grouped into categories according to their similarities. This is similar to Lincoln and Guba's<sup>18</sup> process of identifying units of data, such as sentences, paragraphs, or comments, that can provide information about a particular concept in and of itself. These "units of data" are then categorized according to their similarities with other units. The following is a useful sequence based on the literature<sup>3,4,6,12</sup> that helps a reader to understand how qualitative data are analyzed. Qualitative data analysis involves (1) identifying meaningful concepts (meaning condensation), (2) grouping similar concepts together (meaning categorization), (3) labeling groups of concepts (defining the categories), (4) developing theory, (5) negatively testing the theory, and (6) comparing the theory with the relevant literature.

Initially, the transcripts and observation notes are read and a participant's meaningful statements are identified, rephrased, and abridged. For example, if a student athletic trainer hypothetically suggested in an interview that he or she "spends a great deal of time each day having student-athletes tell them about their frustrations," this could be labeled as "listening." Therefore, meaning is condensed, and larger portions of text are reduced and made more succinct.<sup>12</sup> Essentially, the concepts identified are then considered to be units of data.

Once various concepts are identified and condensed, they are compared with one another. At this time, the like concepts are grouped together into categories. The various categories, or groups of concepts, are then given labels that describe the categories. For example, using the hypothetical situation above, if a researcher had several different concepts from interviews with student athletic trainers, such as "listening," "giving advice," and "empathizing," these could be categorized as "student athletic trainers' social support schemes." The researcher then examines the categories and interprets their relationship, subsequently creating a tentative theory. As Thomas and Nelson<sup>19</sup> stated, the researcher attempts to

“merge” categories into a holistic portrayal of the phenomenon under investigation.

The generated theory, however, must then be negatively analyzed. This means that the generated theory is tested for its plausibility. For example, after conducting 3 interviews and observing student athletic trainers for 4 weeks, a researcher identified and documented a particular sequence of social support schemes displayed by the participants. It would be necessary for this researcher to investigate the experiences of other student athletic trainers in the same or similar contexts to determine whether the theory or explanatory concepts are applicable. Moreover, a negative case analysis involves being skeptical about findings and searching for alternative explanations that link the various categories. Once the theory is developed, it is then compared with the related literature.

Although the data analysis can be done by hand using concepts printed on note cards, many computerized data analysis programs are currently available to qualitative researchers. Examples include the NUD\*IST (Non-numerical, Unstructured Data require ways of Indexing, Searching and Theorizing) program, produced by QSR International (Melbourne, Australia), and The Ethnograph, produced by Qualis Research Associates (Amherst, MA). These programs offer qualitative researchers a structured database to organize concepts and categories and quickly find units of data in the transcripts.

Qualitative research is based on human interest and actively seeks to fully understand human behavior by becoming close to those being studied to expose factors that may not be identified with instruments or surveys.<sup>8</sup> Moreover, qualitative research tends to humanize data, problems, and issues,<sup>20</sup> presupposing that a phenomenon cannot be understood without empathy and introspection.<sup>8</sup> The researcher, however, is the primary data collection and data analysis instrument and is capable of extreme sensitivity and flexibility with regard to thoughtfully examining and organizing the data. Quantitative research, alternatively, attempts to be objective through blind experiments and collecting data with instruments that do not rely on human sensitivity.<sup>8</sup> A qualitative researcher's intimate involvement with participants and data often prompts the questions of researcher bias and how the reader of a qualitative research study can trust the interpretation of data.

Although quantitative research would be concerned with aspects of validity and reliability of data collection and analysis, these terms are not typically used in qualitative research. Rather, qualitative researchers are concerned with the “trustworthiness” or “authenticity” of the study. Trustworthiness of a qualitative study can be established in many ways, including triangulation,<sup>4,6,11</sup> peer reviews, and member checks.<sup>3</sup>

Triangulation refers to a researcher's cross-checking information from multiple perspectives. This can entail using different investigators, different methods (ie, observations and interviews), or even different data sources.<sup>8</sup> Using the previous example, if a researcher was gathering data related to student athletic trainer's social support schemes, it would be wise to interview not only student athletic trainers but also student athletes, supervising staff, and clinical educators. Thus, there are multiple sources from which to collect data and subsequently triangulate the findings to ensure that the findings are accurate and make sense in a given context.

Peer review requires that a highly skilled external researcher examine the transcripts, concepts, and categories generated from the study. The examination is performed to ensure that the study was performed in a logical manner and that the in-

sights and discoveries uncovered in the investigation are credible. A member check refers to the qualitative researcher's sharing the initial results of the study with a few participants and asking them to examine the findings relative to their own experiences to ensure that the findings are plausible from the participants' perspectives.

Although quantitative studies concern themselves with sample size, this is not the case with qualitative research. Because a goal of quantitative studies is to attempt to generalize, large sample sizes are desirable. Qualitative research seeks to gain insight and understanding about particular phenomena, cases, processes, or programs. As such, qualitative research may be conducted with one participant or multiple participants, depending on the context or phenomenon under investigation.

## FUTURE DIRECTIONS AND POSSIBILITIES IN ATHLETIC TRAINING

Many professions have affirmed the value and impact that qualitative inquiry can have on professional practice. In fact, many journals have committed to publishing qualitative research projects. Examples relative to athletic training include *Qualitative Health Research*, *Social Science and Medicine*, *The Gerontologist*, *Family Medicine*, *Culture, Medicine and Psychiatry*, *Advanced Nursing Science*,<sup>21</sup> *Research Quarterly for Exercise and Sport*, *Sociology of Sport Journal*, *International Review of Sport Sociology*, and the *British Medical Journal*. Although athletic training is largely a scientific field of study, we must recognize the potential promise qualitative research offers to help us further understand our professional roles in a social context.

The delivery of patient care is itself a social act that results in many interactions, which create shared meanings.<sup>15</sup> Athletic trainers associate with other professionals, patients, athletes, and administrators and, therefore, function in a larger society. Moreover, we cannot divorce ourselves from our context and the influences that affect us as health care providers. Consequently, we are likely to face critical influences and phenomena that affect the meaning we create. Qualitative research can facilitate a better understanding of phenomena and allow athletic trainers to better navigate their socioprofessional environments.

Arguments about whether quantitative or qualitative research has more merit have raged for many years<sup>19</sup> and have produced many debates and propositions. An either-or relationship, however, should not exist between qualitative and quantitative methods because, as we have discussed in this article, they answer different types of questions that facilitate an understanding of our professional roles and responsibilities. In many instances, a study can use both quantitative and qualitative methods in a mixed-methods approach. As an example, Hughes et al<sup>22</sup> used a mixed-methods approach to study the appeal of designer drinks among young people. These authors conducted group interviews (focus groups) to explore attitudes related to drinking and then used the qualitative results to inform the development of the questionnaire for the quantitative portion of the study. Furthermore, when a quantitative study uncovers a nuance or unexpected finding related to the human condition, a qualitative analysis could be integrated to gain a better understanding of the situation. The idea of combining methods, however, is not without debate. The multimethod approach is often contended because of the broad theoretical differences.<sup>23</sup>

When both the quantitative and qualitative paradigms are understood, valued, and sometimes integrated, the breadth and depth of knowledge in athletic training can expand and positively influence the lives of patients, clinicians, educators, and student athletic trainers. We have written this article to provide an initial step toward a better understanding of the basic principles of qualitative research for the readership of the *Journal of Athletic Training*. For a more comprehensive understanding of the qualitative research paradigm, we direct those interested to investigate the references and suggested readings listed below.

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