EXPLORING AND IDENTIFYING THE CONSTRUCTS OF A QUALITY CERTIFIED ATHLETIC TRAINER (ATC)

Scot Anthony Raab

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EXPLORING AND IDENTIFYING THE CONSTRUCTS OF A QUALITY CERTIFIED ATHLETIC TRAINER (ATC)

by

Scot Anthony Raab

A Dissertation
Submitted to the Graduate Studies Office of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Approved:

December 2007
EXPLORING AND IDENTIFYING THE CONSTRUCTS OF A QUALITY CERTIFIED ATHLETIC TRAINER (ATC)

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Abstract of a Dissertation Submitted to the Graduate Studies Office of The University of Southern Mississippi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

December 2007
The sequential exploratory design used in this research identified constructs defining quality certified athletic trainers (ATC). The first portion was a qualitative study utilizing a Delphi technique to establish a grounded theory. Thirteen ATC's with at least 5 years experience (M: n = 8; F: n = 5) participated in the initial development of the Quality Affirmation Theory (QAT). The QAT depicts 5 sub-constructs that are essential in the establishment of three higher order constructs that are requisite to being a quality ATC. Development of the QAT established adjective descriptors of quality ATCs used in the second portion of the study. The QAT descriptors were quantitative assessed using the Quality Athletic Trainer Questionnaire (QATQ). The QATQ is comprised of the Quality Athletic Trainer Scale (QATS) and the Quality Athletic Trainer Dilemmas (QATD). The QATS is a semantic differential contrasting adjectives. The QATD presented typical day scenarios in athletic training. The QATQ attempted to support the organization of the 5 sub-constructs depicted in the QAT and if age, sex, years of experience, and education level of ATCs could predict participant agreement with the adjectives. Participants (N=301) were stratified across the NATA. Item level factor analysis revealed an indeterminate structure of the scores. Sub-construct factor analysis and internal consistency demonstrated a cohesive measure of the construct quality. The independent variables did not predict summative scores of the QATQ indicating that
participants expressed attitudes favoring the positive adjective descriptors of quality regardless of age, sex, years of experience, or educational level. This study is a starting point on development of a global understanding of a quality ATC. The study identified important aspects of quality. Further assessment of how these constructs will impact an athletic trainers ability to balance their professional lives with personal lives while providing quality care to patients is warranted.
ACKNOWLEDGEMENTS

The writer would like to thank all the individual academicians that at some point during my formal educational career have positively influenced me. Reflectively looking back, even some negative events have resulted in positive outcomes. I would especially like to thank my graduate committee members who have fostered an environment were I was challenged and allowed to grow as a future academician.

While no short paragraph or text will fully express the heartfelt admiration I have for my committee, each member has made a significant contribution that stands out in my mind and is deserving of special notation. To my chair, Dr. Gould, for his eyebrow raising socratic question and answer sessions that often left me returning to a textbook in search of an answer. To Dr. Piland for leading the way in making me question every thing and afraid to ever use the term valid. To Dr. Speed for her attention to detail in my writing style and grammar, an area where I still struggle. To Dr. Wolfe for forcing me to fully explain in storey book fashion the answer to the question, so what.

Perhaps however, the person to whom I own the largest debt of gratitude is my wife. With out her unwavering support none of this would have been accomplished. I owe her a thank you and an apology that I will not be able to repay. While I completed this process, she supported my endeavors while providing for my family. She performed house repairs and maintenance, took care of the dogs, and chauffeured our daughter Jillian to an endless array of events. She completed this while pregnant with our second daughter Amelia. I now vow to spend some 'quality' time with the three ladies in my life.
# TABLE OF CONTENTS

ABSTRACT .......................................................................................................................................... ii  
ACKNOWLEDGEMENTS ............................................................................................................. iv  
CHAPTER I: INTRODUCTION ...................................................................................................... 1  
  Justification ....................................................................................................................................... 3  
  Statement of the Problem ............................................................................................................... 4  
  Qualitative Research Purpose ......................................................................................................... 5  
  Quantitative Research Questions ................................................................................................. 5  
  Quantitative Null Hypotheses ....................................................................................................... 5  
  Assumptions ...................................................................................................................................... 6  
  Delimitations .................................................................................................................................... 6  
  Limitations ........................................................................................................................................ 7  
  Definition of Terms ........................................................................................................................... 7  
CHAPTER II: RELEVANT LITERATURE REVIEW ..................................................................... 9  
  Introduction to the Literature ........................................................................................................... 9  
  Challenges of Academic Preparation ............................................................................................. 9  
    Introduction .................................................................................................................................. 9  
    Standards and Testing ................................................................................................................. 10  
      Nationwide Educational Standards .................................................................................. 10  
      Test ........................................................................................................................................... 10  
      Standardized test .............................................................................................................. 10  
      Ability test .......................................................................................................................... 11  
  Intellectual Character and Types of Knowledge ...................................................................... 12
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>71</td>
</tr>
<tr>
<td>Methods</td>
<td>75</td>
</tr>
<tr>
<td>Participants</td>
<td>76</td>
</tr>
<tr>
<td>Data Collection</td>
<td>78</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>79</td>
</tr>
<tr>
<td>Results</td>
<td>81</td>
</tr>
<tr>
<td>Five Lower Level Constructs</td>
<td>81</td>
</tr>
<tr>
<td>Care</td>
<td>82</td>
</tr>
<tr>
<td>Integrity</td>
<td>83</td>
</tr>
<tr>
<td>Knowledge</td>
<td>85</td>
</tr>
<tr>
<td>Communication</td>
<td>87</td>
</tr>
<tr>
<td>Commitment</td>
<td>89</td>
</tr>
<tr>
<td>Three Higher Order Constructs</td>
<td>90</td>
</tr>
<tr>
<td>Family Rapport</td>
<td>91</td>
</tr>
<tr>
<td>Patient Rapport</td>
<td>93</td>
</tr>
<tr>
<td>Professional Rapport</td>
<td>95</td>
</tr>
<tr>
<td>Discussion</td>
<td>97</td>
</tr>
<tr>
<td>Conclusion</td>
<td>99</td>
</tr>
<tr>
<td>Quantitative Article</td>
<td>101</td>
</tr>
<tr>
<td>Introduction</td>
<td>101</td>
</tr>
<tr>
<td>Methods</td>
<td>103</td>
</tr>
<tr>
<td>Sampling and Participants</td>
<td>103</td>
</tr>
<tr>
<td>Instrumentation</td>
<td>105</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2.1</td>
<td>Identified Contributors to Success</td>
<td>43</td>
</tr>
<tr>
<td>Table 3.1</td>
<td>Proportionate Stratified Sample of NATA Districts</td>
<td>59</td>
</tr>
<tr>
<td>Table 3.2</td>
<td>Descriptive Statistics for Pilot Data</td>
<td>64</td>
</tr>
<tr>
<td>Table 3.3</td>
<td>Recoded Reliability Statistics for Pilot Data</td>
<td>66</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Participant Stratification</td>
<td>78</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>Proportionate Stratified Sample of NATA Districts</td>
<td>104</td>
</tr>
<tr>
<td>Table 4.3</td>
<td>Descriptive Statistics for Pilot Data</td>
<td>108</td>
</tr>
<tr>
<td>Table 4.4</td>
<td>Recoded Reliability Statistics for Pilot Data</td>
<td>110</td>
</tr>
<tr>
<td>Table 4.5</td>
<td>Participants Descriptive Statistics</td>
<td>113</td>
</tr>
<tr>
<td>Table 4.6</td>
<td>Exploratory Factor Analysis Loading of Summative Scores</td>
<td>114</td>
</tr>
<tr>
<td>Table 4.7</td>
<td>Recoded Reliability Statistics for Data</td>
<td>115</td>
</tr>
<tr>
<td>Table 4.8</td>
<td>Regression Coefficients</td>
<td>116</td>
</tr>
</tbody>
</table>
CHAPTER I: INTRODUCTION

A certification process alone cannot ensure that entry-level professionals will become quality healthcare providers. A lack of consensus exists within the athletic training community and literature pertaining to the exact characterization of a quality Certified Athletic Trainer (ATC). An ATC must complete a rigorous program of study at an institution of higher learning, which has met standards set by the Commission on Accreditation of Athletic Training Education (CAATE). In addition to successful completion of an accredited program, an ATC has passed an exam administered by the Board of Certification (BOC). The BOC provides the certification program for entry-level ATCs and ensures athletic trainers agree to abide by the BOC Standards, but it will not guarantee job performance or competence (BOC Standards of Professional Practice, 2006). Likewise, CAATE was developed to maintain minimum standards for entry-level Athletic Training Education Programs (ATEPs) (Standards for the Accreditation of Entry-Level Athletic Training Education Programs, 2006). While CAATE encourages ATEPs to exceed the minimum standards, there are no evaluations or assurances that this is accomplished. The National Athletic Trainers' Associations (NATA) Athletic Training Educational Competencies 4th edition identifies competencies and clinical proficiencies required for effective performance of entry-level Athletic Trainers (Athletic Training Educational Competencies, 2006). An entry-level ATC is a recently certified individual and there is no literature examining when an ATC moves beyond an entry-level classification. These authorities use the terms effective, competent, and entry-level. Likewise, these authorities want to ensure development of an effective ATC. A gap in an
intended effect and actual outcomes deemed important might exist. These regulating authorities fail to provide a description of a quality ATC.

Quality is the essential character of something, an inherent or distinguishable characteristic, a personal trait, and a degree or grade of excellence (Berube, 1982). Thus, a quality ATC would have distinguishable characteristics and personal traits along with a degree of excellence. The current education and certification process for entry-level athletic trainers targets effective and minimal competence, but fails to ensure or target quality.

The current certification process relies on didactic tests of competence. Academic achievement and high-test scores do not predict personality dispositions expected of professionals (Goodlad, 2002). Research involving medical school students supported that clinical competence and professional success relied not only on intellectual abilities, but on personal qualities not traditionally assessed by didactic methods (Mohammadreza Hojat, Callaham, & Gonnella, 2004). The existing tools of academic assessment do not function well in attempting to determine medically based students' abilities to move from an educational setting to a clinical one (May, Morgan, Lemke, Karst, & Stone, 1995). Research assessing physical therapy students' transition to a clinical setting found that some important personality traits are present upon entrance to a program and vary little during their educational experience, supporting that didactic knowledge may not change personalities (Jette & Portney, 2003). Medical school selection of medical students has also questioned selection based only on academic performance as a means to predict clinical performance. They began to use psychological inventories for selection to promote a successful transition from educational to clinical settings in addition to
academic performance (Hobfoll, Anson, & Antonovsky, 1982). These personal ability-based assessments evolved from educators' recognition of their importance in medicine, physical therapy, pharmacy, optometry, and veterinary medicine (May, Morgan, Lemke, Karst, & Stone, 1995). There is, however, a paucity of research in athletic training related to personality and clinical success.

Justification

The rating of professionals or individuals based on expected outcomes or performance has been a long-standing practice. College athletes are ranked and recruited based on their potential; coaches make these judgments based on a set of qualities or skills. Employers conducting interviews have established a requisite set of qualities they are looking for in potential employees. The professions of nursing and physical therapy have assessed non-didactic skills that contribute to clinical success by measuring medical outcomes (Benner, 2001; Wolfe-Burke, 2005). They have established a set of characteristics that are sought after. Patients looking for medical personal that can provide care to them want the individual that positively stands out above others. They are searching for a set of descriptors they deem important. When patients experience satisfaction with a medical visit, or find a medical professional exhibiting the descriptors they deem important, they are more likely to return or refer a friend (Ware & Hays, 1988). The profession of athletic training has not established a set of non-didactic characteristics important to the profession through means beyond anecdotal conversation.

The BOC conducts Role Delineation Studies (RDS) to establish minimal competencies required for practice as an ATC (Athletic Training Educational Competencies, 2006). The Educational Council uses the RDS results to establish
competencies for clinical practice as an ATC. The Competencies provide a minimal set of requisite skills. The same RDS minimal competencies are a template for the BOC certification exam, which tests a candidate's proficiency on a minimal amount of knowledge and skills. There are not assessments prior to becoming an ATC based on non-didactic skills.

The NATA Position Vacancy Notice (PVN) lists available positions as entry-level positions. These positions provide additional real life experiences beyond those gained in formal educational settings. They often pay less and have fewer responsibilities. These positions allow employees to gain experience and meet the standard for positions that require practicing athletic training for an extended period of time. Beyond the anecdotal beliefs that experience makes an athletic trainer better, there is no evidence supporting this.

This research project aimed to determine the descriptors that differentiate between the entry-level ATC and those that exhibit a set of characteristics sought after by patients. A set of characteristics that improve the quality of health care provided. These descriptors will broaden the athletic training literature, which at this time, currently lacks a set of characteristics depicting an expert athletic trainer. The current study also assessed if sex, age, education level, and experience influence these personal attributes.

Statement of the Problem

The certification process alone cannot ensure that entry-level professionals will become quality ATCs. A lack of consensus exists in the athletic training literature pertaining to the exact characterization of a quality ATC. Therefore, the initial focus of this mixed-methods research study was to conduct a grounded theory qualitative study to
conceptualize the latent constructs that define a quality ATC. The qualitative approach also generated specific research questions to drive the quantitative portion.

Qualitative Research Purpose

The primary research purpose was to establish criteria depicting a quality ATC so they may be differentiated from an entry-level ATC.

Quantitative Research Questions

The research questions were as follows:

RQ1: Will age of participants explain variation in the summative score of the Quality Athletic Trainer Questionnaire (QATQ)?

RQ2: Will sex of participants explain variation in the summative score of the QATQ?

RQ3: Will participants' years of experience explain variations in the summative score of the QATQ?

RQ4: Will participant's degree level explain variations in the summative score of the QATQ?

Quantitative Null Hypotheses

Ho₁: Participant's age will not explain the summative scores of quality descriptors of ATCs.

Ho₂: Participant's sex will not explain the summative scores of quality descriptors of ATCs.

Ho₃: Participants' years of experience will not explain the summative scores of quality descriptors of ATCs.
H04: Participant's degree level will not explain the summative scores of quality descriptors of ATCs.

Assumptions

The study has the following assumptions.

1. ATCs with five or more years of experience are beyond what is considered recently certified or entry-level practitioners.

2. ATCs from the three most prevalent job settings would be representative of ATCs in all settings.

3. ATCs from the four largest NATA districts would be representative of all NATA ATCs in good membership status.

4. ATCs share an underlying personality set of descriptors that will lead to the perception of quality ATCs.

5. All participants answered questions or made selections honestly and precisely.

Delimitations

The following steps intentionally limited the scope of this research.

1. The qualitative portion of the study used ATCs with five years or more professional practice experience.

2. The qualitative portion of the study used ATCs practicing in the three most prevalent job settings (college, high school, and clinic).

3. The qualitative portion of the study used ATCs practicing in the four largest NATA districts (Eastern Athletic Trainers Association, Mid-Atlantic Athletic Trainers Association, Great Lakes Athletic Trainers Association, and the Southeast Athletic Trainers Association).
4. The quantitative portion of the study used regular certified athletic trainers that are NATA members in good standing.

Limitations

This study was limited by the following factors:

1. The results of the study are only generalizable to regular certified athletic trainers.

2. The degree that participants honestly answered interview questions and responded to the QATQ.

3. The degree that the entire aspect of quality was captured in the qualitative portion and the quantitative portion.

4. The researchers proper use of qualitative methods and statistical inferences.

Definition of Terms

1. Construct- An idea or concept not directly observable or measurable. Its manifestations or consequences must be observable or measurable by some method in order to formulate theories and test them (Lweis-Beck, Bryman, & Liao, 2004).

2. Latent Variables- Constructs not directly observable such as preferences, attitudes, and personality traits. These constructs are measured indirectly by an observable indicator (Lweis-Beck, Bryman, & Liao, 2004).

3. Grounded Theory- A theory that is derived from data that was systematically gathered and analyzed. There is no preconceived theory in mind at the beginning and the theory is allowed to emerge from the data (Strauss & Corbin, 1998).
4. Qualitative Research- Research that produces findings through interpretative analysis. Used to explore intricate phenomena (Strauss & Corbin, 1998).

5. Quantitative Research- Based on numerical data collected from carefully designed experiments. The data is used to make statistical inferences to a population by use of statistics (Lweis-Beck, Bryman, & Liao, 2004).

6. Representativeness- Collecting data in a manner across the population to allow the statistics derived from the data to apply to the population of interest (Lweis-Beck, Bryman, & Liao, 2004).

7. Delphi Method- A qualitative research method to achieve consensus among a group of geographically dispersed individuals. Consists of two phases, an exploratory phase and an evaluation phase. Subjects are presented with broad terms or problems to answer in the first phase. In the second phase, participants are given a second set of problems constructed from answers to the first. This process continues until there is significant agreement (Adler & Ziglio, 1996).
CHAPTER II: RELEVANT LITERATURE REVIEW

Introduction to the Literature

Presented is literature relevant to developmental traits and personal characteristics of providers of quality healthcare. First, is a review of methodological challenges academic institutions face when attempting to ensure quality performance of graduates as they transition from a school to a clinical setting. Second, is a review of literature pertaining to personality characteristic factors and their impact on medical practice. Presented third is a literature review of distinguishing characteristics of medical professionals including doctors, nurses, physical therapist, and athletic trainers. The fourth section provides a rationale for the use of variables selected in this study.

Challenges of Academic Preparation

Introduction

In 2003, Larry Locke, professor emeritus from the University of Massachusetts, commented that most educators have experienced a minimum of one student completing their educational program in the hopes that they fail a licensing requirement. Dr. Locke was referring to the idea that educational preparation is not the only factor contributing to success. He proposed that additional screening take place beyond demonstration of competencies. The literature refers to these as employability skills or attitudes required to enable knowledge and transfer of core skills necessary for success (Wayda & Lund, 2005). The affective domain and personal dispositions pertaining to the specific abilities to think critically, solve problems, and negotiate oral communications to accomplish teamwork need to be addressed in educational environments (Wayda & Lund, 2005).
Standards and Testing

Nationwide Educational Standards

Academic standards became the norm nationwide in the 1990's and national commissions worked diligently tying them to subject matter. Employers started putting value in grades and high-test scores. However, when these failed to deliver the qualities desired, a push for even higher scores and grades occurred. Employers and national commissions failed to realize that dispositions and propensities to be a quality employee are not necessarily predicted by high test scores (Goodlad, 2002).

Test

Standardized test

Standardized tests have been one of the main background indicators of an applicant's likeliness to be successful. Intelligence and Scholastic Aptitude Tests (SAT) can predict scores on vocabulary tests and other non-standardized tests students are likely to take in academic settings. These styles of measurement tend to predict occupational achievement when achievements are tied to school performance. However, when looking at real-life day-to-day settings, these indicators fail to be as effective (Ritchhart, 2002). SAT scores tend to be strong predictors of success during the first year of college, but its predictive power decreases as a student's experience in college increases (Ritchhart, 2002). Standardized tests of intelligence may matter to some extent for most placement or employment settings, but other factors might be more important. Examples where skills beyond those captured on a standardized test would be important are those of a surgeon, watchmaker, or French professor. Each of these professionals needs vast knowledge in their area regardless of their standardized test scores (Anderson & Herriot, 1994).
skills needed by a surgeon or a watchmaker will not need be detected on a grammar test. Likewise, a French professor would not score high in arithmetic. These are items assessed on standardized tests (Anderson & Herriot, 1994; Ritchhart, 2002) that fail to relate to the ability of individuals to perform their jobs.

Psychologists agree that there is more to intelligence than would be defined by a standard test of intelligence. Some intelligences not typically captured by standardized tests include interpersonal and intrapersonal skills, kinesthetic, musical, creativity, and practical skills. Creative abilities fostered by these types of intelligences are important in many fields that would unjustly score against individuals if standardized testing was a sole selection criteria (Anderson & Herriot, 1994).

*Ability test.*

Ability tests, or assessment center styled tests, place individuals in groups and require them to work through a problem. They are often a combination of written subject area knowledge, performance, and interactive tests such as: (a) Group problem solving discussion exercises, (b) group planning or evaluation discussion exercises, (c) written assignment exercise, and (d) role play exercise (Levesque, 1996). These tests allow an evaluator to assess: (a) Communication skills, (b) analysis and problem solving, (c) judgment, (d) initiative, (e) leadership, (f) clarity and control, (g) thoroughness, and (h) interpersonal skills (Levesque, 1996).

Buckingham and Coffman (1991) agree that ability tests are important, they believe people will be true to their personality or instincts. In a study of hundreds of companies, they found that great managers fail to believe people change all that much. They recommend screening of potential employees that have the skills and abilities
desired instead of attempting to change the person or educate them (Buckingham & Coffman, 1991). Great managers and leaders select for talent, the recurring patterns, thoughts, feelings, and characteristics of a person (Buckingham & Coffman, 1991). Talents are those behaviors a person cannot help but do (Buckingham & Coffman, 1991). In their research, they found three kinds of talents: (a) Striving, which explains the why of a person, (b) thinking, which explains how a person thinks or comes to a decision through “what if?” games, and (c) relating, which explains the who of a person and how he builds relationships (Buckingham & Coffman, 1991). To select for talent, one must identify the desired talents and characteristics by studying the best performing employees (Buckingham & Coffman, 1991). To learn what talents quality ATCs posses, one will need to study the talents of successful ATCs and then find a method to assess them.

Intellectual Character and Types of Knowledge

There is a need to find a measure that will predict job success that goes beyond standard intelligence tests (Anderson & Herriot, 1994). Most items on these tests lack real world application. A gap exists between the thinking process of test taking where a person is free from distractions and the mental moves required for functioning in everyday situations. Functioning in the real world requires screening out distractions, being self-motivated, framing problems for ourselves, and solving identified problems (Ritchhart, 2002).

Intellectual Character

A term used to move away from the paradigm of ability-based ideas of intelligence is “Intellectual Character.” It covers the dispositions involved with good and productive thinking as well as recognizes attitude and affect in the cognition of developed
behavior patterns (Ritchhart, 2002). Adjectives used to describe intelligent individuals include flexible, critical, methodical, unconvinced, shrewd, questioning, planned, conscientious, impartial, and insightful (Ritchhart, 2002). Traditional tests of intelligences do not assess these terms. Various educators, philosophers, and psychologists have created numerous lists of habits or dispositions associated with intellectual character. Dispositions from their perspectives may include: (a) To be clear about intended meanings; (b) to determine and maintain focus; (c) to take the total situation into account; (d) to seek and offer reasons; (e) to try and be well informed; (f) to seek precision as required; (g) to be open-minded; (h) passion for clarity, accuracy, fair-mindedness; (i) fervor for getting to the bottom of things; (j) drive to seek out evidence; (k) aversion to contradiction, sloppy thinking, inconsistent use of standards; (l) intellectual courage; (m) intellectual perseverance; and (n) intellectual sense of justice (Ritchhart, 2002). It is possible that quality ATCs will possess some of these intellectual characteristics. These characteristics might make it possible to differentiate between an ATC that is entry-level and one that is quality.

**Tactic Knowledge**

An additional type of knowledge, not depicted by a standardized intelligence test, is tactic knowledge. Tactic knowledge is not formally taught and is used to succeed in an endeavor or selected discipline (Anderson & Herriot, 1994). Tactic knowledge involves a specific habit of thinking or a thought scheme used in circumstances that arrive unexpectedly. Unlike formal knowledge that prompts a person regarding what to do, tactic knowledge reveals when and where they should or should not do something based on experiences. Tactic knowledge also tends to increase with experience, and among
employees improves the functionality of organizations that prosper within unpredictable environments (Anderson & Herriot, 1994).

Selective encoding, selective comparison, and selective combination are the three primary processes of tactic knowledge acquisition. Selective encoding consists of a person taking selected pieces of practical information from a whole host of informational inputs to lead them in the direction of a solution. Selective comparison occurs when a person relates new information to previous experiences or information. A doctor looking at old cases to shed light on new ones would be an example of selective comparison. Selective combination involves putting together information so it makes sense to the individual (Anderson & Herriot, 1994). Finding a commonality is the key to selective combination.

Measuring tactic knowledge requires the individual to apply a rating scale to set scenarios and potentially complete a response to a scenario. This ensures that the individual will develop their own set of options rather than just rating provided solutions. The development of scenarios that assess tactic knowledge leading to success in a particular field starts with interviewing successful people in that field (Anderson & Herriot, 1994). There are no objectively correct responses. This lack of objectively related to correct responses may facilitate the opportunity to capitalize on unique features that indicate function in the desired field (Anderson & Herriot, 1994).

**Personality**

**Introduction**

Closely related to personal dispositions are individuals' personalities. Personality is the quality that makes a person different and unique (Berube, 1982). Personality is
often assessed as traits, or enduring dispositions that are less transient than moods and show thought and feeling patterns (Costa & Widiger, 2002). Certain dimensional models of personality contain various numbers of factors tapping into personality. The Guilford-Zimmerman Temperament Survey (Guilford & Zimmerman, 1949) contains 10 factors or sub constructs of personality, while the Sixteen Personality Factor Questionnaire (Cattell, Eber, & Tatsuoka, 1970) has 16 represented personality traits. Mounting evidence supports that the Big Five or the Five-Factor Model (FFM) subsumes the additional constructs of other instruments, and recognizes that they are tapping traits or constructs at a lower hierarchical level (Costa & Widiger, 2002). A well-constructed theory to assess personality must address universal processes, individual differences, and unique personal characteristics, which the FFM succinctly accomplishes (McCrae & John, 1991).

_The Five Factor Model_

The FFM's dimensions are Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A) and Conscientiousness (C) (Costa & Widiger, 2002). Individuals described as being highly neurotic present with excessive cravings, are intolerant, have poor coping skills and unrealistic goals, and express anxiety and hostility (Costa & Widiger, 2002). Extraversion scores depict individuals that are sociable, affectionate, fun loving, and have a positive outlook on life. Low scores on E describe a person who is happy but more reserved, quit, and independent (Costa & Widiger, 2002). Individuals that are open, experience emotions more vividly than others, and seek experiences for the pure appreciation of the event and tend to be curious and imaginative. Closed people are set in their ways, rigid in personal beliefs, and set as emotionally unresponsive (Costa & Widiger, 2002). Vengefully manipulative and cynical persons are...
low scorers in agreeableness. A tender hearted person, who people want to trust and shows compassion in a forgiving nature and helpful to others, is agreeable (Costa & Widiger, 2002). Conscientious people are self-directed and work toward a goal on their own accord. They display perseverance and ambition where those that are low on this dimension are negligent, untrustworthy, and without direction (Costa & Widiger, 2002).

Assessment of the FFM uses numerous instruments based on adjective pairs, bipolar adjective sets, and personal response to statements. Self-reports are the most common assessments. Other procedures to measure the FFM dimensions are spouse, peer, and clinician ratings. Non self-rating methods preferred are semi-structured interviews and structured interviews (Costa & Widiger, 2002). Spouse reported personality inventories correlate high with self-reported results across the different measures of the FFM (Costa & Widiger, 2002). Spouse ratings of patients admitted to a behavior health study correlated highly with the patients self report 21 of 23 times. The other two had marginal correlations (Muten, 1991). Self-reported attitudes toward polarized adjective pairs describing constructs of a quality athletic trainer may capture important personality characteristics of ATCs.

Established convergent and discriminate validity across instruments and observers supports use of the FFM (McCrae & Costa, 1997). The FFM has been compared in men and women, children, college students, adults, and native speakers of English, German, Dutch, and Japanese (McCrae & John, 1991). Literal translation of the English version of the NEO-PI based on the FFM performed well in German, Portuguese, Hebrew, Chinese, Korean, and Japanese cultures establishing personality as a human universal (McCrae & Costa, 1997).
Assessing the Big Five Factors can consistently predict behaviors and potential social development concerns (Paunonen, 2003). A positive link between personality and social development emerged from a longitudinal study of men and women from age 33 to 36. At age 33, participants completed a FFM assessment, and at age 36, completed a social development instrument measuring work-family conflict (WFC) and psychological distress. Psychological distress and WFC were positively correlated with neuroticism in both sexes, while agreeableness was negatively linked (Rantanen, Pulkkinen, & Kinnunen, 2005). Psychologists have concluded that describing and assessing personality will continue to evolve, but they agree that the FFM captures the primary dimensions of personality (McCrae & John, 1991). Use of the FFM in athletic training may identify prominent personalities.

Distinguishing Characteristics of Medical Professionals

Introduction

Descriptors of personalities and their presence in medical professionals and medical students are essential. A doctor's ability to improve patients' lives through surgery is evident. Less noticeable is a doctor's ability to use their own personality traits such as honesty, compassion, or showing respect to place patients at ease. These traits may also benefit younger medical colleagues working with or being mentored by experienced medical personnel (Reider, 2006).

Medical Doctors

A thorough characterization of a doctor entails personality constructs that are not directly measurable, such as competencies and test scores. Identified qualities of anesthesiologists in a study using a Delphi technique included: humanistic, personal
development and meta-competencies (Kearney, 2005). Kearney (2005) found that the humanistic domain contained descriptors of sub constructs such as: (a) Integrity, (b) confidentiality, (c) ethical, (d) respect for patients, (e) respect for colleagues, (f) responsibility, (g) trustworthy, (h) maturity, and (i) empathy. Kearney's (2005) domain of personal development contained: (a) Self-awareness, (b) commitment to lifelong learning, (c) copes with uncertainty and error, (d) accepts criticism, and (e) maintains balance between personal and professional endeavors. The construct of meta-competencies consisted of: (a) Vigilance, (b) responsiveness, (c) team worker, (d) advocacy, (e) flexibility, (f) decisiveness, (g) confidence, (h) communicativeness, and (i) expert pattern recognition (Kearney, 2005). These are terms defining generic professionalism, or non-didactic based competencies.

Didactic based competencies are important, but intellectual abilities are not the only predictors of professional success among doctors (Mohammadreza Hojat, Callaham, & Gonnella, 2004). Since academic criteria are not valid predictors, the determination, or assessment of doctor's or a medical student's personality, or pattern of behaviors, can predict clinical success (Hobfoll, Anson, & Antonovsky, 1982). In a number of studies (Gough, Hall, & Harris, 1964; Howell, 1966; Korman, Stubblefield, & Martin, 1968), the California Psychological Inventory (CPI) differentiates successful versus unsuccessful students overall performance in medical schools (Hobfoll, Anson, & Antonovsky, 1982). The CPI measures positive characteristics of personality using a 468-item personal inventory (Hobfoll, Anson, & Antonovsky, 1982). In a study measuring personality attributes using 6 scales and comparing them to medical students with marginal, good, excellent, and high honors ratings in clinical internships, personality was a significant

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predictor (Mohammadreza Hojat, Callaham, & Gonnella, 2004). Students having ratings of lower competency in internships showed lower self-esteem, lower sociability, and higher loneliness scores. These attributes are an important part of interpersonal skills which lead to clinical competency (Mohammadreza Hojat, Callaham, & Gonnella, 2004). Findings supporting personality as a predictor to success as a medical provider sustain the notion of adding psychosocial assessment to student selection criteria (Mohammadreza Hojat, Callaham, & Gonnella, 2004). It is feasible to believe that certain personalities may be able to predict quality athletic trainers.

**Personal Characteristics**

*Empathy.*

Empathy is not directly measurable, and often appears as part of a personality assessment. Numerous research articles (DiLalla, Hull, & Dorsey, 2004; Mohammadreza Hojat et al., 2002; Kim, Kaplowitz, & Johnston, 2004; Larson & Yao, 2005; Rabow, Hauser, & Adams, 2004) make connections between the practice of medicine and patient outcomes or personal impressions based on empathy. Empathy is described as the ability to emotionally appreciate what another individual is feeling and using this to make meaningful connections (Berube, 1982). Displaying empathy helps patients be more forthcoming. It increases medical data collection thus improving treatment plans and improving self-efficacy (Halpern, 2001). Developing empathy is paramount for effective medical treatments and requires that one be patient, curious and willing (Halpern, 2001). Patient dissatisfaction develops out of poor communication and failure to perceive concerns from the patient's perspective. This also contributes to patients taking legal action against doctors (Mohammadreza Hojat et al., 2002). Increasing patient satisfaction
can reduce the frequent switching of doctors and malpractice lawsuits (Kim, Kaplowitz, & Johnston, 2004). The Jefferson Scale of Physician Empathy (Hojat et al., 2001) measures empathy in relation to medical providers and patients, and has shown linear association with clinical competency ratings (Mohammadreza Hojat et al., 2002); yet, many doctors fail to display empathy (Matheson, 2005). The characteristics of empathy and compassion are juxtaposed to the characteristics required to complete medical school, (e.g. self absorption, selfishness, and narcissism) (Matheson, 2005).

When patients receive medical care at home, they are people first and patients second. When they receive care at a hospital, they are patients first and people second (Rabow, Hauser, & Adams, 2004). Family members will have a stronger memory of how their loved one died than where they died. Physicians have a profound ability to be of service and foster healing at the end of a family member's life when empathizing with the family as people and not just patients (Rabow, Hauser, & Adams, 2004). Empathy will not only aid the bereavement of a family, but assist a physician in finding meaning in his own work (Rabow, Hauser, & Adams, 2004).

Personalities tend to be stable after reaching adulthood, and empathy is an inherent part of an individual's personality. Empathy can however be taught if a physician acknowledges its importance even though it is an aspect of personality (DiLalla, Hull, & Dorsey, 2004). The Accreditation Council on Graduate Medical Education identified compassionate patient care as a critical component in developing successful practitioners (DiLalla, Hull, & Dorsey, 2004). Medical students who participated in wellness, spirituality, and empathy training had significant higher empathy factor scores when compared to non-participants (DiLalla, Hull, & Dorsey, 2004).
Burnout.

Feelings of inefficacy, cynicism, and depersonalization can be personality characteristics. They also describe the individual medical doctor who is experiencing burnout. Burnout is a pathological state developed by prolonged emotional depletion and failed coping skills (Thomas, 2004). Certain personality types can possibly predispose medical doctors to burnout. In cross sectional surveys, avoidant, dependant, antisocial, and passive-aggressive personality traits correlated with burnout scores (Thomas, 2004). Assessing the contribution of personality to the prevalence of burnout on medical professionals, Piedmont (1993) used the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1989) and the Maslach Burnout Inventory (MBI) in a 7-month longitudinal study. Between the FFM and the burnout scores, moderately strong correlations occurred concurrently and longitudinally. These findings support that personality is associated with rates of burnout, or how professionals perceive the work environment (Piedmont, 1993).

Nurses

Knowing a didactic amount of knowledge and knowing how to use it are two different issues. We have many skills we know how to do, but fail to grasp the scientific formulations behind (Benner, 2001). The 'know how' type of knowledge extends through theory and applied practice in a discipline. Expertise evolves through refinement of hypothesis in actual practice situations. Thus, experience is required for expertise (Benner, 2001). There is a difference in the problem solving process of expert and beginner or competent nurses (Benner, 2001). In 1981 Dreyfus formulated a model that describes the transitions a nursing student makes through five levels of proficiency: (1)
Novice, (2) advanced beginner, (3) competent, (4) proficient, and (5) expert (Benner, 2001). To move from one level to the next, students must move from reliance on abstract principles to concrete experiences. Learners perceptions change and they become an involved performer instead of a detached observer (Benner, 2001).

A novice nurse has no experience and merely follows rules. Following rules however, cannot legislate success and does not depict the most relevant task to perform when caring for patients. An advanced beginner displays marginally acceptable performance after coping with a real life situation. They can now identify global characteristics of patients (Benner, 2001). Benner describes the competent nurse as one who has worked in a consistent setting two or three years, and becomes consciously aware. He is able to contemplate problems before they arise, and is organized in advance (Benner, 2001). The proficient nurse no longer sees nursing as a list of tasks, and uses experience to recognize what events might occur without having to think them out in advance (Benner, 2001). Capturing a definition to describe expert nurses or practitioners is challenging because it develops from deep personal understanding. Formal assessment is limited in its scope to capture experts and more qualitative measures are used. A section of an interview depicting an expert nurse's conversation includes the following:

When I say to a doctor, "the patient is psychotic," I don't always know how to legitimize that statement. But I am never wrong. Because I know psychosis from inside out. And I feel that, and I know it, and I trust it. I don't care if nothing else is happening, I still really know that. It's like the feeling another nurse described in the small group interview today, when she said about the patient, "She just wasn't right." One of the things that I am doing now is getting
some in-service in to talk to us about jargon to talk about something that I don't think this is particularly describable. (Benner, 2001, p. 32)

This perceptual certainty comes from years of experience. This ability is not one that would easily be assessed on a standard test. In a short story to explain the transformation from novice to expert, Dreyfus and Dreyfus (1977) note:

As long as the beginner pilot, language learner, chess player, or driver is following rules, his performance is halting, rigid, and mediocre. But with the mastery of the activity comes the transformation of the skill which is like the transformation that occurs when a blind person learns to use a cane. The beginner feels pressure in the palm of the hand that can be used to detect the presence of distant objects such as curbs. But with mastery the blind person no longer feels pressure in the palm of the hand, but simply feels the curb. The cane has become an extension of the body. The performer is no longer aware of the features and rules, and his/her performance becomes fluid and flexible and highly proficient.

The chess player develops a feel for the game; the language learner becomes fluent; the pilot stops feeling like he/she is flying the plane and simply feels that he/she is flying. (p. 12)

Expert nurses or health care providers would be fluid and highly proficient. Newly certified athletic trainers may also be mediocre until they have significant experience.

Nursing has, at its heart, the goal of healing the complete person. A comprehensive model of holistic nursing believes illness has a biological, psychological, social, and psychosomatic factor. As therapeutic partners with patients, holistic nurses use theories, expertise, and intuition (Dossey, Keegan, Guzzetta, & Kolkmeier, 1995).
They believe there is more to nursing than human anatomy. Expertise in health care occurs when a practitioner can comprehensively address the patient.

**Personal Characteristics**

*Communication.*

Communication between a nurse, a family, a patient, or colleague is of great importance. It requires the sending, receiving, and processing of information between people. It can take the form of verbal communication, with a rise and reflection in tone of voice, or non-verbal communication, which emphasizes body language and facial expressions. Effective relationships with patients are built on many perceived interactions, but successful communication must occur. A nurse wants to put the needs and concerns of a client first (Riley, 2000). To build a client first relationship, nurses develop rapport. Nurses demonstrate that they care, value the patient as a person, and are truly interested in the patient's best interest. Honest communication presents itself as genuine and is a display of integrity. Expert nurses convince patients through sincerity that they understand the client's feelings and truly empathize with them. The use of humor mixed with self-disclosure while being specific to the situation at hand develops meaningful relationships (Riley, 2000).

*Critical Thinking.*

Thinking habits can impede communication. Thinking is a precursor to decision making and may affect a person's communicative style. Barriers to thinking and communication are attitudes where an individual believes their way is best. Additional barriers are defensive responses, resistance to change, and a desire to conform (Boggs & Arnold, 1999). Thinking about or reflecting on one's own thinking is critical thinking,
and requires that individuals reflect on personal thoughts (Boggs & Arnold, 1999). Bandman (1988) defined critical thinking as an examination of "assumptions, beliefs, propositions, and the meaning and uses of words, statements, and arguments" (p. 1).

Expert nurses are characteristically critical thinkers. Critical thinkers piece information together trying to find what is missing, are open minded, and also consider alternatives (Boggs & Arnold, 1999). Expert nurses are not always able to articulate the thinking process used, but can organize input as relevant and quickly arrive at a decision. The expert nurse has an experience of facts that are organized into a pattern and new information fills in the gaps allowing for a conclusion (Boggs & Arnold, 1999).

Engrossment.

Nurses become engrossed in caring for others by a three-step process (Noddings, 1984). The first step is engrossment. It occurs when a nurse decides to direct mental attention to another, followed by showing empathy, or having an affective response toward the other. The final step is making the choice to respond to the moral imperative to help the other (Crigger, 2001). Noddings (1984) viewed caring as a social process that students learned and as a result, teaching caring is possible. Student nurses learn to care by modeling others, and by reflectively internalizing that they feel they can help the patient (Crigger, 2001). Crigger interviewed 13 nurses to discover what led them into an engrossed relationship with a patient. The students characterized engrossed caring as an emotional response, not just caring for an individual by performing standard required medical tasks for a patient. Elaborating on descriptors of engrossed caring, students listed bonding, rapport, being special, attached, a positive feeling for, friend, and loving
(Crigger, 2001). The use of reflective or critical thinking can help students become aware of the ability to form meaningful relationships.

Rapport.

The importance of developing rapport, expressing a caring attitude, and fostering positive relationships with patients is invaluable for nurses. Nurses can reduce the risk of lawsuits by treating each patient as a person; anger among patients fuels perceptions of substandard care and increases litigation (Mock, 2001). Mock (2001) states, "Being courteous to patients is not just a nicety. Research suggests that showing compassion and demonstrating that you care may help reduce your risk of a lawsuit down the road" (p. 83). In 71% of malpractice cases reviewed of a selected 67, poor relationship perception and perceived lack of caring was the cited reason for the lawsuit (Mock, 2001). The best way to show caring is through communication and empathy. Communicating caring decreases the risk of lawsuits.

Quality Care

Numerous studies assess methods and descriptors to measure caring and quality of care among nurses. Lundberg and Boonprasabhai (2001) conducted an ethnographic study of twenty Thai female nurses. According to the study, the following categories describe caring:

1. Compassion: to give care from the heart, have sympathy, be kind and helpful, have and share feelings, be friendly and be concerned, be honest.

2. Competency: have knowledge, skill, and experiences, be interested to learn, have responsibility, be professional, be confident, and know what to do without hesitation.
3. Comfort: assist, help and treat patients as self, attend, give patient dignity and respect, have goals and give nursing care correspondence to the patients' needs.

4. Communication: have time to listen, talk and explain, be willing to listen and inform patients, meet patients' needs.

5. Creation: create new knowledge, apply theory in practice, continue MSc or PhD study, and do research.

6. Courage: advocate for patients' needs and rights, intervene for and with patient, make decisions about nursing care, face and solve patients' problems (Lundburg & Boonprasabhai, 2001, p. 35).

Providing quality care is a dynamic mixture of personality traits that allow a nurse to interact with patients in a meaningful manner. Using a Delphi method to assess perceptions of healthcare nurses in the United Kingdom and the United States, similar descriptors of quality care emerged. These findings support a global description of quality care. Items identified include:

1. Staff is competent.
2. Good communication between staff and between staff and patients.
3. Staff is caring and approachable.
4. Staff knows who their patients are.
5. Patients' personal needs are understood.
6. Staff respects dignity and privacy of patients.
7. Patients feel listened to.
8. Staff is committed and has high morale.
9. Patients are provided with consistent information and professional expertise (McKenna, Currie, & West, 2006, p. 347).
These studies present similar descriptors related to quality care related to nursing. A qualitative approach to establish characteristics of quality athletic trainers may find similar descriptors.

Assessments and psychometric testing are methods to obtain descriptors of caring. The Jefferson Scale of Physician Empathy (JSPE; M Hojat et al., 2001) uses 20 Likert-type items to obtain a mean score on empathy or a professional's ability to experience events from the perspective of the patient. The higher the mean score, the more likely the nurse or physician will be able to develop essential patient relationships to improve medical intervention outcomes. Using the JSPE and comparing mean scores of male and female clinicians, females consistently presented with significantly higher empathy scores (Mohammadreza Hojat, Fields, & Gonnella, 2003). The Relational Care Scale (RCS; McGilton, Pringle, O'Brien-Pallas, Wynn, & Streiner, 2005) was designed to measure relational care between nurses and nursing home residents. Construct validity was demonstrated by correlation with the Relationship Visual Analog Scale ($r = .63$, $p < .0001$) and the Relational Behavior Scale ($r = .42$, $p < .001$). The RCS can test interventions to measure relational care improvement (McGilton, Pringle, O'Brien-Pallas, Wynn, & Streiner, 2005). The RCS is a six item instrument that measures care by a choice of 5 responses: 5 = always, 4 = often, 3 = occasionally, 2 = seldom, and 1 = never (McGilton, Pringle, O'Brien-Pallas, Wynn, & Streiner, 2005). The six items relate to previous descriptors of care and are as follows:
1. The care provider takes your likes and dislikes into account when he/she is providing care.

2. The care provider tries to meet your needs. For example, in such ways as listening to you if you need someone to talk to and/or comforting you when something bad or unexpected happens.

3. The care provider knows you well enough to recognize when you are happy, sad, mad, or stressed about something.

4. You can depend on the care provider to be there for you. For example, when you ask for help, and know that she/he will do what she/he promises to do.

5. The care provider tries to make your day go the way you like and helps you with any unexpected changes.

6. The care provider tolerates your being frustrated or irritated without responding negatively in return (McGilton, Pringle, O'Brien-Pallas, Wynn, & Streiner, 2005, p. 55).

Unlike previous studies that assessed a perception of quality care from the perspective of nurses, this instrument collected data from patients.

Physical Therapist

Measuring personality is a complex and difficult issue based on centuries of theory. Exploring personality types of physical therapists and their patients can enhance job performance, improve job satisfaction, and success (Coyne, 2004). When strengths and weaknesses in staff are viewed as tendencies and not as positives and negatives, matching of the patients needs to the appropriate clinician is easy (Coyne, 2004).
Personal Characteristics

Behaviors.

Beattie et al, developed an instrument to measure patient satisfaction with outpatient physical therapy among worker’s compensation patients (Beattie, Pinto, Nelson, & Nelson, 2002). Measuring satisfaction is multidimensional, because like personality, it is not directly observable. Numerous studies of patient satisfaction with physical therapy have centered around the patient-practitioner relationship (Beattie, Pinto, Nelson, & Nelson, 2002). Identification of behaviors displayed by physical therapists is important, because they can enhance or jeopardize patient satisfaction and adherence to rehabilitation. The instrument consisted of 20 Likert items anchored by 1 = strongly disagree and 5 = strongly agree. Factor analysis of the patient questionnaires produced three factors. The first factor included the items: the physical therapist explains treatments, answers my questions, listens, is courteous, spends enough time with me, gives detailed instructions, and advises me (Beattie, Pinto, Nelson, & Nelson, 2002). Factor 1 described personal aspects of communication. Physical therapists can improve their communication skills if made aware of them. Physical therapists that receive feedback on their communication skills are more likely to change their behavior (Hayes, Huber, Rogers, & Sanders, 1999). The remaining factors described aspects not related to the therapist but costs, location, registration procedures, and the facility in general (Beattie, Pinto, Nelson, & Nelson, 2002).

Generic Abilities.

Educators in allied healthcare fields have recognized a set of behaviors aside from core knowledge and psychomotor skills that are essential for success in health
professions. Frustrations in the current inabilities to assess these traits exist. These behaviors are referred to as 'generic' abilities and include narrative evaluations of items such as communication, responsibility, and time-management (May, Morgan, Lemke, Karst, & Stone, 1995). May et al, identified 10 generic abilities presented in rank order required of successful physical therapist: (a) Commitment to learning, (b) interpersonal skills, (c) communication skills, (d) effective use of time and resources, (e) use of constructive feedback, (f) problem solving, (g) professionalism, (h) responsibility, (i) critical thinking, and (j) stress management. Each of these generic abilities can be further classified into: beginning, developing or advanced levels (May, Morgan, Lemke, Karst, & Stone, 1995). A differentiation between the levels for the ability of commitment to learning might be the identification of problems at the beginning level. However, at the developing level the physical therapist might realize that more than one answer is possible and works collaboratively to prioritize information needs. At the advanced level a physical therapist questions conventional wisdom, reconciles conflicting information, and can respond to unexpected situations appropriately (May, Morgan, Lemke, Karst, & Stone, 1995).

The 10 generic abilities expected of physical therapist provide a framework for identifying professional behaviors. Wolff-Burke (2005) studied physical therapy clinical instructors' perceptions of physical therapy students that exhibited unprofessional non-cognitive behaviors along with appropriate professional behaviors. In most instances, clinical instructors described traits identified by the framework of generic abilities. An additional appropriate behavior that emerged was empathy. Clinical instructors expected to see physical therapy students exhibit empathy during practicum rotations (Wolfe-
Burke, 2005). In stark contrast to expected behaviors, unprofessional behaviors identified were an arrogant attitude, deficient display of interest or lack of, poor verbal and non-verbal communication, and immaturity or failure to follow policy (Wolfe-Burke, 2005). The most readily identifiable non-cognitive behavior that students needed to be made aware of was poor communication (Hayes, Huber, Rogers, & Sanders, 1999).

Performing a confirmatory factor analysis of the generic abilities framework for physical therapists, Jette and Portney (2003) developed a 152 item 7 point Likert instrument. Item development came from the first iteration of identified behaviors in the Delphi study leading to the development of the 10 generic abilities (Jette & Portney, 2003). Factor loading produced a 7 factor model that accounted for 52% of the variance (Jette & Portney, 2003). A 10-factor model could not be generated. Based on the researched personal judgment, the 7 factors were titled professionalism, critical thinking, professional development, communication management, personal balance, interpersonal skills, and working relationships (Jette & Portney, 2003). These factors provide evidence for the identified constructs being part of a concept of professional behaviors.

Burnout.

Professional burnout is a concern in many healthcare settings (Piedmont, 1993; Thomas, 2004) and is not unique to physical therapists. Physical therapists believe that burnout is a growing concern in today’s workplace and potentially damages the care provided to patients (Waldrop, 2003). While burnout is a complex event, the most common cause can be related to a breakdown in communication followed by signs of negative self concept and poor performance (Waldrop, 2003). Coping with burnout can be accomplished by keeping lines of communication open between clinicians and
managers. It is also important for therapist to be able to step back and separate themselves from patients, if not done to extremes. Therapists also need a support group, or network, and should appreciate recreational endeavors (Waldrop, 2003). Failure to prevent or treat burnout among physical therapists can result in performance detriments and position turnover.

Expert Clinicians

Theoretical models of physical therapists' behaviors have been developed using input and feedback from physical therapists. Theories describing expert clinicians should also be addressed based on patient outcomes and interactions. In a study qualitatively reviewing videotaped interactions between a patient and an expert physical therapist (classified as such by their peers), 4 dimensions emerged (Jensen, Gwyer, Shepard, & Hack, 2000). The selected therapists worked in geriatrics, neurology, orthopedics, and pediatrics and the identified dimensions of expert practice include:

1. A dynamic, multidimensional knowledge base that is patient centered and evolves through therapist reflection.
2. A clinical reasoning process that is embedded in a collaborative, problem-solving venture with the patient.
3. A central focus on movement assessment linked to patient function.
4. Consistent virtues seen in caring and commitment to patients (Jensen, Gwyer, Shepard, & Hack, 2000, p. 28).

These findings are consistent with descriptors from previous research. Expert medical providers need to be caring and committed to their patients.
In addition to determining what defines an expert physical therapist by patient interactions, it is also important to assess patient outcomes. Health related quality-of-life (HRQL) outcomes contained in the Focus On Therapeutic Outcomes (FOTO) database were used to measure patient outcomes of physical therapists (Resnik & Jensen, 2003). Physical therapists whose patients' scores on the HRQL were in the top 10% were selected to represent the expert group, while physical therapists whose patients reported mean scores in the 45th -55th percentile were selected to the average group (Resnik & Jensen, 2003). Subdivision of the expert group resulted in a novice expert and an experienced expert. Themes revealed during structured interviews resulted in the distinct classification of novice expert and experienced expert. The average group was not subdivided. An experienced expert had been practicing more than 13.5 years while the novice expert group had less than 6 years experience combined with backgrounds in exercise science and athletic training. The average group had experience ranging from 7 to 19 years (Resnik & Jensen, 2003). Expert therapists engaged in greater social interchange evaluating and educating the patient, and spent more time working hands-on with them. They used frequent verbal encouragement and tactile cues along with problem solving techniques to focus on the patient (Resnik & Jensen, 2003). Resnik and Jenson (2003) found that work experience type and academic background played a larger role in expertise ratings than years of experience. All expertly classified physical therapists had been injured in sports, or had a background in exercise science or athletic training. Personal exposure to injuries helps physical therapists empathize with patients.
Athletic Trainers

The healthcare professions of nursing, medicine, and physical therapy have clearly explained theories of expert practice and possess instruments to assess the requisite aptitudes of experts (Benner, 2001; Jensen, Gwyer, Shepard, & Hack, 2000; Resnik & Jensen, 2003; Scott-Smith, 2006). Athletic training fails to have a theory depicting expert athletic trainers. Athletic training literature has indiscriminately attacked questions of perceived importance to the profession without developing a grounded theory of expert care. A literature search (EBSCOhost, TOPICsearch, PubMed, PsycARTICLES, CINAHL, Google Scholar, Physical Education Index, MEDLINE, Health Source Nursing/Academic Edition, ERIC, Dissertation Abstracts, PubMed Central, & Galileo) for athletic training articles using descriptors of experts from other healthcare professions returned titles too varied to be collapsed into specific categories or allow for construction of a succinct graphical network.

In 2002, Turocy reported on professional athletic training education research. She stated that today's practices have been generally adopted from education with little validation for the profession of athletic training (Turocy, 2002). The last 15 years have seen a proliferation of literature on topics including learning styles, teaching methods, and predicting certification exam success (Turocy, 2002). This research, however, has been plagued with flaws in statistical inferences, lacks depth and breadth in design methods, is limited in scope, or fails to be validated (Turocy, 2002). Between 1994 and 2006, a series of articles (Curtis, Helion, & Domsohn, 1998; Geisler, 2003; Laurent & Weidner, 2001; Leaver-Dunn, Harrelson, Martin, & Wyatt, 2002; McChesney & Peterson, 2005; McLaine, 2005; Scifers & Manners, 2005; Scriber & Alderman, 2005;
Walker, 2005; Walker & Gazzillo, 2003) have been published in athletic training journals. The topics include:

1. Leadership and supervision techniques.
2. Improving and using psychology during rehabilitation.
3. Methods to enhance communication and being effective.
4. Clinical instructors as situational leaders.
5. Perceived comfort of patients in an athletic training room.
6. Multiculturalism and cultural competence in athletic training.
7. Promotion of and encouragement to think critically.
8. Balancing life and work, finding satisfaction as an athletic trainer.
9. Ethics and professionalism
10. Interpersonal relationships
11. Burnout and year round sports seasons.

These articles mention characteristics present or important in the profession of athletic training that have been identified as descriptors of expert nurses' or physical therapists' theories (Benner, 2001; Crigger, 2001; Jensen, Gwyer, Shepard, & Hack, 2000). They nevertheless fail to develop a psychometrically sound theory regarding quality athletic training.

**Personal Characteristics**

*Communication.*

Important aspects in developing a theory of expert athletic trainers are the perceptions and expectations of clients served. In a study conducted by Kahanov and Fairchild (1994), interpersonal skills and communication were deemed the most
important in preventing misunderstandings between injured athletes and athletic trainers during initial injury evaluations. Athletes expect information to be provided to them in understandable and meaningful methods.

**Critical thinking.**

The ability to think critically, or review one's own thoughts repeatedly emerges in nursing and physical therapy theories of expert. Reflective thinking differentiates average healthcare providers from great ones (Leaver-Dunn, Harrelson, Martin, & Wyatt, 2002). In a sample of 91 student athletic trainers at 3 accredited programs completing the California Critical Thinking Disposition Inventory weak tendencies to think critically among athletic training students emerged (Leaver-Dunn, Harrelson, Martin, & Wyatt, 2002). An atmosphere where students only need to learn facts and not why the facts or answers to questions are correct, may stifle critical thinking processes (Leaver-Dunn, Harrelson, Martin, & Wyatt, 2002). While the ability to think critical is important, methods to develop it are not (Leaver-Dunn, Harrelson, Martin, & Wyatt, 2002; Walker, 2003). Students need to be exposed to diverse teaching methods, ambiguity, and given problems to solve on their own to develop critical thinking skills in order to discover that different methods may be appropriate when faced with a task (Walker, 2003).

**Learning styles.**

Learning styles are relatively stable indicators of how students perceive and interact in their educational setting (Stradley et al., 2002). Learning styles have been assessed in athletic training students to establish a link to success in ATEP programs and whether a particular learning style predicted success (Brower, Stemmans, Ingersoll, & Langley, 2001). Learning styles are often assessed using the Kolb Learning Style
Inventory. Educators cognizant of learning styles can make pedagogical adjustments to enhance instruction (Stradley et al., 2002). However, two studies failed to find a predominant learning style associated with athletic training students (Brower, Stemmans, Ingersoll, & Langley, 2001; Stradley et al., 2002). Along with identification of learning styles, Peer-Assisted Learning (PAL) has been purported to be a valuable pedagogic tool in medical education (Henning, Weidner, & Jones, 2006). PAL takes place anytime peers assist other peers in learning, assessing, monitoring, and modeling. In a convenience sample of 138 athletic training students, the students reported using PAL in their educational setting (Henning, Weidner, & Jones, 2006). The survey instrument used in this study was modified from the Iwasiaw and Goldenberg's Clinical Teaching Preference Questionnaire that had only been validated in nursing students (Henning, Weidner, & Jones, 2006). The authors failed to assess the validity of the modified instrument prior to use. However, they concluded that educators should deliberately incorporate PAL into athletic training education programs based on the results (Henning, Weidner, & Jones, 2006). Extending on the assessment of learning styles, differences in stylistic learning have been reviewed in one study relevant to athletic training using the Gregorc Mind Styles Delineator (Gould & Caswell, 2006; Gregorc, 1982). The results do not support a theory of expert athletic trainers, but finds the sample group of students and program directors to prefer concrete sequential learning styles (Gould & Caswell, 2006). Based on the dearth of conclusive information pertaining to learning styles and the best educational approaches for athletic training no common denominator is evident.
Clinical instructors.

Allied healthcare educators realize the importance of providing students real life experiences to apply didactic classroom knowledge and assist students in development of confidence and thinking skills (Athletic Training Educational Competencies, 2006; Laurent & Weidner, 2001). These clinical education components are vital and the presence of helpful instructors cannot be discounted. Numerous studies address the characteristics and importance of clinical instructors (Curtis, Helion, & Domsohn, 1998; Lauber, Toth, Leary, Martin, & Killian, 2003; Laurent & Weidner, 2001; Weidner & Henning, 2004; Weidner & Laurent, 2001). Identifying critical behaviors of clinical instructors as student athletic trainers perceived them, the categories that emerged included explaining and demonstrating, provides constructive feedback, shows respect to the student, builds confidence with support, and creates effective environments (Curtis, Helion, & Domsohn, 1998). Using a questionnaire developed from a review of allied health literature and pilot tested, perceptions of clinical instructors and students rating of helpful clinical instructors characteristics were assessed. Agreement between mean scores of the instructors and students was high (r = .88) with mean ratings (r = .95) between male and female students (Laurent & Weidner, 2001). The ten items with the highest mean scores for helpfulness of clinical instructors include:

1. Displays confidence.
2. Demonstrates respect for students.
3. Manages clinical emergencies well.
4. Provides students opportunities to practice.
5. Demonstrates skills for students.
6. Willing to admit when he/she does not know.

7. Discusses practical application of knowledge and skills.

8. Remains accessible to students.

9. Communicates what is expected.


The perceived importance of clinical instructors' behaviors from the perspective of athletic training education program directors and clinical instructors has also been investigated. Reviewing allied healthcare literature associated with clinical instructors and published surveys along with consulting a panel of experts, the Clinical Instructor Behavior Instrument (CIBI) was created (Lauber, Toth, Leary, Martin, & Killian, 2003). No pilot test was conducted so all athletic training education programs could be surveyed. Statements in the CIBI fit one of five specific behavior categories: instructional, interpersonal, evaluative, professional, and personal (Lauber, Toth, Leary, Martin, & Killian, 2003). A statistical difference between ratings of the importance of the evaluative category existed between program directors and clinical instructors \( (P = .011) \) with program directors rating it more important. No significant difference was found among other categories (Lauber, Toth, Leary, Martin, & Killian, 2003). Further research is necessitated to increase generalizability of these results.

**Professional Socialization**

Professional socialization influences individuals' development within a profession (Pitney, Lisley, & Rintala, 2002). Learning a profession's values, requisite skills, and expected behaviors are part of the professional socialization process (Pitney, Lisley, & Rintala, 2002). The process can be divided into two general aspects: anticipatory and
organizational (Pitney, Lisley, & Rintala, 2002). The anticipatory phase is prior to being fully active as an employee in the profession, and it will be affected by observation of those professionals in the work environment. The organizational aspects of professional socialization occur after the athletic trainer enters the profession or is employed by organizations (Pitney, Lisley, & Rintala, 2002). It is important for educators to realize that students can be positively or negatively affected by observations of mentors, and that communication is vital in the process (Pitney, Lisley, & Rintala, 2002). Athletic trainers not only need to socialize with other athletic trainers, but with coaches (Mensch, Crews, & Mitchell, 2005). Preconceived ideas of a profession may hinder an individual's ability to practice athletic training (Mensch, Crews, & Mitchell, 2005). Twenty high school basketball coaches were part of a qualitative research design to examine how they perceived athletic trainers and their role in a high school (Mensch, Crews, & Mitchell, 2005). Poor communication limited the athletic trainer's ability to function because coaches failed to appreciate the preparation and knowledge of athletic trainers, and simply expected them to be there (Mensch, Crews, & Mitchell, 2005). The full effect of professional socialization in athletic training is not yet fully understood.

**Predicting Success**

Professionals have attempted to establish predictors of success in relation to academic achievement in athletic training programs and passing the BOC certification exam (Erickson & Martin, 2000; Harrelson, Gallaspy, Knight, & Leaver-Dunn, 1997; Keskula, Sammarone, & Perrin, 1995). Reviewing the preadmission undergraduate grade point average (GPA) of students (N = 55) applying to a graduate athletic training program over a 5 year period accounted for 34% of the variance in the graduate program
GPA (Keskula, Sammarone, & Perrin, 1995). This finding is consistent with GPA research in other allied health fields and was significant in this study (p < .001) (Keskula, Sammarone, & Perrin, 1995). Overall GPA, athletic training courses GPA, and core courses GPA have also been used as academic variables to predict success on the NATA BOC Certification Exam (Harrelson, Gallaspy, Knight, & Leaver-Dunn, 1997). This study used a survey and only addressed students (N = 52) enrolled in a single university. Statistical evaluation of the collected data found relationships between the independent variables (GPA, AT major GPA, core GPA, semesters in school, and attempts on the BOC exam), but no significant variable appeared to have a relationship with success on the BOC exam (Harrelson, Gallaspy, Knight, & Leaver-Dunn, 1997).

A Delphi technique has also been used to establish constructs that contribute to success on the BOC exam (Erickson & Martin, 2000). Three questionnaires were used to solicit ideas from 29 athletic training program directors resulting in 221 items of perceived importance. These were paired down to 23 that are contributors to first-time success on the BOC exam (Erickson & Martin, 2000). See Table 2.1 for the identified contributors to success (Erickson & Martin, 2000). Research supports that a student's GPA will predict future academic GPA, but fails to predict success on the BOC exam (Harrelson, Gallaspy, Knight, & Leaver-Dunn, 1997; Keskula, Sammarone, & Perrin, 1995). Research has also identified a series of contributors deemed important for students to be successful on the BOC exam, but these are extrapolated from opinions of instructors and not proven to support passing the BOC exam (Erickson & Martin, 2000).
Table 2.1

Identified Contributors to Success

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The student's ability to interpret the question correctly.</td>
</tr>
<tr>
<td>2. Clinical assessment skills.</td>
</tr>
<tr>
<td>4. Clinical instructors committed to providing a positive environment.</td>
</tr>
<tr>
<td>5. Clinical settings that allow students to take active role in athlete care.</td>
</tr>
<tr>
<td>6. Students demonstrate genuine inquisitiveness and take learning initiative.</td>
</tr>
<tr>
<td>7. Knowledge of anatomy and physiology.</td>
</tr>
<tr>
<td>8. Knowledge in the prevention and evaluation of athletic injuries.</td>
</tr>
<tr>
<td>9. Integration of cognitive, psychomotor, and affective competencies into clinical practice.</td>
</tr>
<tr>
<td>10. Ensuring all NATA competencies are being covered in courses.</td>
</tr>
<tr>
<td>11. Courses that place a demand on students to perform optimally.</td>
</tr>
<tr>
<td>12. High level of common sense and ability to adapt to situations not covered in courses.</td>
</tr>
<tr>
<td>13. The ability of the student to think critically.</td>
</tr>
<tr>
<td>14. Possession of appropriate problem-solving skills.</td>
</tr>
<tr>
<td>15. Quality clinical experiences.</td>
</tr>
<tr>
<td>16. Decision-making skills.</td>
</tr>
<tr>
<td>17. Students willing to review and seek out further information in weak areas.</td>
</tr>
<tr>
<td>18. A well-structured, positive learning environment where students are frequently evaluated and everyone has stake in success of the students.</td>
</tr>
<tr>
<td>19. Ability of the student to focus.</td>
</tr>
<tr>
<td>20. Leadership and mentoring by a variety of challenging and supportive clinical instructors.</td>
</tr>
<tr>
<td>21. Instructors with a pedagogic background and are committed to student education.</td>
</tr>
<tr>
<td>22. Completion of an accredited curriculum.</td>
</tr>
<tr>
<td>23. Integration of appropriate supporting materials throughout curriculum.</td>
</tr>
</tbody>
</table>

Employment Expectations

The criteria set by employers may expand the list of possible characteristics desired of expert athletic trainers. Arnold et al. (1998), surveyed the NATA position vacancy notices from January 1, 1994 to October 1, 1994, and requested employers to rate 35 employee characteristics. Across college, clinical and high school settings, the reputation of the candidates' educational program, written recommendations, interview performance, and NATA-BOC certification rated as important to very important. At the
college, high school, and clinical settings, college, high school, and clinical experience rated high respectively (Arnold et al., 1998). Modifying the Hiring Criteria Survey (HCS), the Athletic Training Employer Needs Assessment Survey (ATENAS) was developed (Kahanov & Andrews, 2001). After minor adjustments as a result of a pilot study, the ATENAS was administered to 82 athletic trainer employers advertising on the NATA position vacancy notice board from NATA districts 7, 8, and 10 from October 1996 to October 1998 (Kahanov & Andrews, 2001). The four prominent factors of hiring identified were personal characteristics, educational experience, professional experience, and work-related attributes. Personal characteristics accounted for 25 % of the total variance in the model and included descriptors such as self-confidence, maturity, enthusiasm, communication skills, ambition, and problem solving skills (Kahanov & Andrews, 2001).

Beginning Theory

Seven male NCAA Division I athletic trainers with over 20 years experience at the Division I level participated in an unstructured qualitative interview process (Malasam, Bloom, & Crumpton, 2002). Members of the study were classified experts and included because of their longevity and contributions to the profession of athletic training. They were asked questions related to the factors that allowed them to rise to prominence, and were further probed for greater details to initial answers provided (Malasam, Bloom, & Crumpton, 2002). Interviews were transcribed, returned to participants to verify content, names were removed, and data were coded into three categories with agreement of continued member checks. The three categories with detailed properties include:
1. Meaningful experiences (athletic background, career experiences, job conditions, educational conditions, and additional responsibilities).

2. Personal attributes (personal characteristics, philosophies, and relationships).

3. Mentoring (ways of learning, and ways of teaching) (Malasarn, Bloom, & Crumpton, 2002).

This study began to look at a theory of an expert athletic trainer. It is limited by looking only at males because of hypothesized differences in the sexes, and employment setting. The limited scope of the study can be expanded to include variables looking at sex, age, and employment settings in future studies.

Literature on Variables

*Age Variation*

Research in psychology supports expected differences in age across social, cognitive, and psychological measures. Netz and Raviv (2004) found significant age differences on the variables of self-efficacy and outcome expectations. A study exploring self-efficacy of clinical nurse instructors found job self-efficacy ratings of nursing teachers varied significantly according to age (Yang, Kao, & Huang, 2006). A comparison of learning styles among nurses found that age significantly influenced preferred learning styles (Deshields, 2005). Predicting student nurse performance based on age and qualifications revealed that students over 34 years of age had better overall performance, and that prior qualifications were not reliable predictors (Ofori, 2000). Assessments of nursing student performance as influenced by age and ethnicity found that age positively related to performance academically (Salamonson & Andrew, 2006).
Research pertaining to non-medical professionals also supports variations according to participant's age. Perception experiments of young (M = 20.63) and old (M = 74.20) perceivers discovered that old individuals perceived and judge scenarios significantly different (Erber, Szuchman, & Prager, 2001). Age also affects individuals' self-ratings. Examining social functioning and cognitive measures across adulthood, young adults (M = 21.3) and older adults (M = 68.5) had different ratings of their social roles and intellectual abilities (Parks, Perlmutter, & Mitchell, 1986).

**Sex Variation**

Unger (2001) reviewed the historical, theoretical, and methodological issues of gender biased research. She noted that biological differences exist and may effect social and cognitive perceptions, but research is contradictory to stereotypes and constantly evolving (Unger, 2001). Supporting that biological differences may perpetuate social and cognitive perceptions, nurses were observed caring for newborns. Response patterns of female nurses to infants found that boys were held close to the nurse's torso and girls sat on their laps. The nurses also used more non-vocal sounds with boys than they did with girls (Hollenbeck, 1989).

Societal expectations of medical fields and male or female jobs affect entrants into those professions. This in turn can skew how these professionals perceive their environment or behave. Studying nurses in central Florida, male nurses rated masculine adjectives higher (assertive, independent, and analytical) and females rated feminine items higher (loyal, warm, and shy); they also reported varied social values (McCutcheon, 1996). Nurses assessing simulated patients treated males and females differently (Wallston, DeVallis, & Wallston, 1983). The simulated patients were
identically matched except for their sexual characteristics. Using a semantic differential to establish the patient as calm or excited, the nurses rated traditional male traits as calm and feminine traits less mentally healthy or excitable (Wallston, DeVallis, & Wallston, 1983).

Sex has been reported as a significant factor in the perceived importance of continuing education (Cuppett, 2001). In an editorial by Perrin (2000), he discussed the changing percentages of male and female athletic trainers in the profession. He suggested that perhaps there is a difference in the perception of the skills or performance of athletic trainers that should begin to be researched (Perrin, 2000). Malasarn, Bloom, and Crumpton (2002) hypothesized that females may have a varied perception of an expert athletic trainer and purposely excluded them from their study (Malasarn, Bloom, & Crumpton, 2002). In a study assessing stylistic learning, it was noted that male students had preferences that varied from females (Gould & Caswell, 2006).

**Education Level and Experience**

The ability to reflectively think or look at one's own thought processes critically is described as part of an expert clinician. Educational level or college degree attainment can adjust a person's propensity or ability to think critically. Using several measures of critical thinking ability, undergraduate and graduate college students in social sciences varied by educational level (King & Magolda, 1990). Along with an increase in critical thinking with higher education levels, reflective judgment has shown to increase from high school to college to graduate school (Brabeck, 1981). Welfel (1982) also looked at reflective judgment across year in college and academic major, and found significant differences on judgment for number of years in college (Welfel, 1982).
Adults with little knowledge or experience with a topic are novices and approach things differently as they learn more or gain knowledge and experience (Brandt, 1998). People learn by connecting new knowledge with old knowledge, and an increased educational level provides greater knowledge content allowing for greater connections and interpretations (Brandt, 1998). Greater knowledge and educational rank also account for different perceptions of behaviors viewed as professional in health occupations (Nath, Schmidt, & Gunel, 2006).

Employers have classified educational levels as important hiring criteria for athletic trainers; hence, they support a difference in job performance ability based on education level (Kahanov & Andrews, 2001). Seegmiller (2006) researched the perceptions of what made a quality post certification graduate education course of study according to educators with a masters or a doctorate. He found that athletic trainers with doctoral degrees believed research was a significant contributor to quality programs, where master level athletic trainers felt clinical education was more important (Seegmiller, 2006).

Summary and Conclusions

The transition and development of novices to experts have been addressed in educational settings, nurses, and physical therapists. Literature exists that would clearly depict the qualities of expert practitioners in nursing and physical therapy, and required teacher dispositions for success. While there is a description of an entry-level athletic trainer, or one who just successfully became certified, there is not a well-designed theory depicting an expert athletic trainer. This study aims at developing a theory of an expert athletic trainer, or identifying a transition from entry level or novice toward exhibiting the
qualities of an expert. This study will add to the existing literature in athletic training by examining if sex, age, educational attainment, experience, and work setting effect the perceptions of an expert athletic trainer.
CHAPTER III: METHODS

Mixed Methods Design

Combining the strengths of both qualitative and quantitative research methods, this research utilized a mixed method design. A sequential exploratory design is a specific mixed method procedure that can emphasize quantitative or qualitative methods determined by the order the portions are completed (Creswell, 2003). Starting a sequential exploratory model with a qualitative portion is beneficial when a researcher constructs a new instrument, or theory, and desires to test it (Creswell, 2003). The topic of a quality athletic trainer has not been previously explored and no quantifiable data exists upon which to base a theory. This paucity of data provided a rationale for starting with the qualitative section to establish an introductory grounded theory of a quality athletic trainer. The quantitative portion followed and further assessed the grounded theory using a semantic differential and vignettes. Statistical procedures addressed the instruments and possible inferences that could be supported.

Qualitative Methods

Research Design

Qualitative research deals with articulate descriptors. Qualitative data collection takes the form of participant observation, detailed interviews, and field research to name a few. Qualitative researchers emphasize closeness to the data and learning the values and beliefs of people (Chadwick, Bahr, & Albrecht, 1984). A Delphi technique was the qualitative method used in this research, and established a grounded theory. A grounded theory is a theory derived from systematically collected data (Strauss & Corbin, 1998). The researcher repeatedly reviews the data, makes analysis, and develops a theory as free
from preconceived ideas as possible. The theory is allowed to emerge from the collected data (Strauss & Corbin, 1998). The theory develops out of a process of coding, or placing observations in specific categories (Chadwick, Bahr, & Albrecht, 1984).

The Delphi technique obtains consensus among a group of experts and maintains anonymity of participants, avoiding domination of strong willed individuals (Lweiss-Beck, Bryman, & Liao, 2004). Geographically dispersed participants submit data in response to a preliminary set of questions. The researcher summarizes the data and uses it to develop a second questionnaire. Respondents re-evaluate their initial response and ensure accuracy of data by reviewing original data synopsis (Adler & Ziglio, 1996). This process continues until agreement across participants is achieved (Adler & Ziglio, 1996).

A literature review led to the development of the qualitative research questions used in this study. Questions were developed to prompt participants to describe athletic trainers that present positive and negative qualities. A purposively stratified randomization process selected potential participants.

**Qualitative Sampling Plan**

Collecting data from an entire population is often not feasible. The task of the researcher was to establish a sample of the population that was representative. Reviewing the 2006, NATA Certified Membership by Setting and District revealed that the majority of athletic trainers (55.17%) were employed at a physical therapy clinic, high school, or college setting (18.74%, 16.35%, and 20.08% respectively). The next largest employment setting consisted of students (7.98%), followed by a group of ATCs that listed their employment setting as high school/clinic outreach (6.84%). The remaining employment settings accounted for minimal total percentages of employment settings ranging from
.02% to 4.2%. The same data revealed that of the ten NATA districts, districts 2, 3, 4, and 9 accounted for 15,646 of 25,493 members or 61.37%. A combination of 12 participants stratified randomly across the three largest employment settings and four largest districts was determined to be feasible and representative of the opinions of the greater population of athletic trainers. To ensure equal representation stratified across the variables, a participant from each setting needed to come from one of the four districts. The sampling plan ensured that a clinically-based, high school, and college-based ATC was selected from each of the four identified NATA districts. Participants were contacted through personal communications, the NATA Listserv, the NATAWATC Listserv, and respective NATA district presidents.

**Structured Interview Instrumentation**

Interviews took place in person or over the phone. Semi-structured interviews revolved around the central purpose of defining a successful athletic trainer. The statements participants were asked to elaborate on included:

1. Define a successful ATC.
2. Describe the best ATC you know or have worked with.
3. Describe the ATC you would hire to work alongside yourself.
4. Describe the ATC you wish or desire to emulate.
5. Describe the ATC you would allow to treat a loved one.
6. Describe the ATC you would not hire.

Three experts reviewed the statements to establish if they were likely to elicit meaningful answers and descriptors of a quality athletic trainer.
Procedures

Institutional Review Board (IRB) approval to begin data collection was received April 27\textsuperscript{th}, 2006 (Appendix A). Reading and accepting the terms of the "Authorization to Participate in Research Project" form (Appendix B) established informed consent. At the start of each interview, the researcher reviewed the consent form and provided a brief explanation of the procedures. Participants were asked to answer the question, "This interview is being audio recorded, and do you agree to be audio recorded"?

Interviews preceded addressing the structured interview questions centering around the research purpose. Audio recordings were transcribed verbatim using the professional transcription services of Renee DiNicola, Your Virtual Office Assistant, Hollywood FL. Listening to the original interview while reading the transcriptions and making minor textual error corrections, provided an initial error check leading to trustworthiness of the data. Accomplishment of data immersion occurred when the researcher could recognize the voice of participants by reading the text. Data immersion became further evident when the researcher could recite the next line of audio when reviewing sound files. Double spacing of participants' transcribed interviews and reduction of text to key points in answers occurred after data immersion. The double spaced key points that followed one of the six primary questions were returned to participants providing an initial check of the researcher's understanding of the participant's intent. Participants made minor corrections and added points they remembered and felt important between the time of the initial interview and the first follow-up. Data immersion continued with repeated listening to audio recordings and review of adjusted textual data.
Next, the answers to the semi-structured interview questions were cut from the original documents and pasted on a wall sized poster under one of 6 categorized appropriate areas (define a successful ATC, describe best ATC, describe ATC you would hire, describe ATC you would not hire, describe the ATC you would emulate, describe ATC you want treating a loved one). This resulted in an exhaustive list of answers from all participants to each of the general questions. On the opposite office wall was another poster free from any text or graphic. Words with similar context on the first wall were crossed out, condensed, and placed near the bottom of the second poster. Cared, cares, and caring are examples of words that would have been reduced to the word "care" on the second poster. This process of coding and placing terms out of context continued for each of the general categories above. After exhaustion of terms on the first wall, review of the words on the second wall began. Similar words on the second wall-sized poster grouped together in larger context and produced five latent constructs. The five latent constructs identified were caring, integrity, knowledge, communication, and commitment. Further review of participants' statements during the interviews and the researchers' interpretation of these led to the development of three higher order constructs. These higher order constructs were family rapport, patient rapport, and professional rapport. It was expressed that they are requisites to the overall concept of quality. Furthermore, according to participants in this study, in order to develop the needed level of rapport, an athletic trainer must exhibit the five latent constructs. A graphical model was developed and participants contributed to a second data check by assessing the fit of their data to the developed graphical model (Appendix D).
Limitations

The most significant threat to the qualitatively derived theory is participants not answering truthfully. One method of controlling this is the use of a group. It is unlikely that an entire sample would independently be misleading. The second threat to trustworthiness of the data is the researcher's misunderstanding of the participants intent. The two data checks aided in the understanding of participants' thoughts.

Quantitative Methods

Research Design

Quantitative research provides numeric descriptions of trends. The trends may be represented by attitudes or opinions and collected from a sample of a population (Creswell, 2003). The researcher then generalizes the observed trends to the population. Following the sequential exploratory design aiming at quantitatively assessing the qualitatively derived grounded theory, a non-experimental exploratory method was started. Two quantitative instruments were developed and piloted. The instruments further explored the qualitative data presumptively supporting the theory allowing broader population generalizations. The instruments assessed psychological concepts that are not directly measurable.

Instrument Selection and Scaling Method

Numerous quantitative methods can establish how a person feels about a concept. A researcher may choose a Guttman Scaling, Thurstone Scaling, Likert Scales, or a Semantic Differential to assess attitudes or feelings (Neuman, 2000). A Semantic Differential provides an indirect measure of feelings using polar opposites. Participants
mark a location on a continuum between two opposite adjective pairs. It allows a researcher to establish how different people view a concept (Neuman, 2000).

This portion of the research project compared qualities of athletic trainers that were found to be favorable or non-favorable as revealed from the grounded theory. The Semantic Differential, developed in the 1950s by Charles Osgood (Mueller, 1986; Neuman, 2000) is an effective method to examine opinions between descriptive opposites and is the chosen method to collect quantitative data for this research. Osgood looked at English adjectives across a wide variety of words and found they fell into one of three categories of meaning: evaluation, potency, and activity (Neuman, 2000). A special form of a semantic differential consisting of adjectives in the evaluation dimension is used to measure attitudes (Mueller, 1986). This study evaluated attitudes toward adjectives in the evaluation dimension. To construct a semantic differential instrument, a researcher develops a list of opposite adjectives relative to the subject matter they wish to have participants evaluate. Seven response categories between pairs representing equal units anchor the opposites on a continuum. Participants mark the location between the adjectives that best reflect their feeling in relation to that adjective pair (Neuman, 2000). Adjectives presented by interviewees during the qualitative component were used to select adjective pairs. Using a dictionary and thesaurus, the word root of adverbs and nouns were adjusted to retain consistency in the use of adjectives. A minimal number of adjective pairs are capable of producing a scale with high internal consistency (Mueller, 1986).
Operational Definition of Variables

All participants were Certified Athletic Trainers (ATC). An ATC is a credentialed individual who has met the established requirements of the Board of Certification (BOC) and maintained that status (BOC Standards of Professional Practice, 2006). A participant’s age was determined by their date of birth and was collected as a continuous quantitative variable. Male and female defined the variable of sex and are discrete variables. Experience was classified as the years an individual has been certified and practicing and is a continuous variable. Primary settings were defined as, High School (employed at and by a high school to provide athletic training services), Clinic (employed at a medical clinic to provide athletic training services to clients at the clinic), Clinic-Outreach (employed at a medical clinic to provide athletic training services to clients and extending to service areas outside of the clinic), College (employed by a degree granting institution to provide athletic training services), Professional (employed by a professional athletic association to provide athletic training services), and Hospital (employed by a hospital to provide athletic training services). The primary setting was a discrete variable. All NATA districts were defined by region and classified as 1 through 10 and are discrete. Highest degree completed, a discrete variable, was determined by the education levels of Bachelors, Masters, Educational Doctorate, or Philosophical Doctorate. Descriptors used by participants in the qualitative structured interviews determined adjective pairs.

Identification of the Population

The theoretical target population was all certified athletic trainers. Collecting data from an entire population is often not feasible. Surveying all certified athletic trainers
may not be possible since not all are NATA members or have contact information available. The task of the researcher was to establish a sample of the population that will be representative and meaningful.

**Sampling Plan**

**Target Population**

The theoretical target population for the final data collection process was all certified athletic trainers. Sampling all certified athletic trainers was impractical. To establish a selectable group, or sampling frame; the certified regular membership of the NATA in good standing was the identified population (Kalton, 1983). Certified members in good standing with the NATA are distributed in 10 geographical districts, each with unequal member numbers. A proportional stratified sample ensures a geographically disbursed sampling where potential participants from each district had an equal probability of selection (Kalton, 1983).

**a priori Estimation of Sample Size**

The scientific community generally uses an alpha (α) of .05, which indicates a 5 percent chance that such results could be produced by chance alone. This is a type I error or the chance of rejecting a true or null hypothesis. A type II error or (β) is the probability of failing to reject a false null hypothesis (Neuman, 2000). Power is the probability of correctly detecting a false null based on significance level, treatment effects, and sample size (Keppel & Wickens, 2004). Significance level and treatment effects are often not adjusted so to increase power the sample size needs to increase.

For this study, alpha was set at α = .05 a priori. Regression has three general effect sizes of small (.02), moderate (.15), and large (.35) (Aiken & West, 1991). The
effect size determined by the pilot was .107. Using the program GPOWER (Erdfelder, Faul, & Buchner, 1996) to achieve a power of .8, with an effect size of .107, 4 predictor variables, and \( \alpha = .05 \) the total sample size needed was 117.

**Sampling Procedures**

The NATA office of Information Technology reports an approximate return rate of electronic surveys as 11%. Over sampling to ensure the minimum sample size of 117 participants required soliciting 1,068 participants. The required solicited participant number was approximately 5% of the total 21,847 certified regular members of the NATA. To ensure the random sample of 5% was equally stratified across the 10 districts, each district was randomly sampled independently.

Table 3.1 displays the proportionate stratified sample or the number of certified regular members in each of the 10 NATA districts and the simple random sample to be drawn from each district.

**Table 3.1**

<table>
<thead>
<tr>
<th>Proportionate Stratified Sample of NATA Districts</th>
<th>NATA District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Certified Sample Size</td>
<td>1  2  3  4  5  6  7  8  9  10 Total</td>
</tr>
<tr>
<td>1467 3247 2406 4802 1701 1087 1226 1801 3132 978 21847</td>
<td></td>
</tr>
<tr>
<td>72 159 118 234 83 53 60 88 153 48 1068</td>
<td></td>
</tr>
</tbody>
</table>

The researcher contacted the NATA Information Technology office and purchased a computer generated random list of 5% of the certified regular members from each of the 10 districts as presented in table 3.1. This list included members' e-mail addresses. Study participants received an introductory e-mail (Appendix J) requesting...
participation with a hyperactive link to the web based Quality Athletic Trainer Questionnaire (Appendix I).

Pilot Population

The theoretical target population was the certified regular membership of the NATA in good standing. Attendees of the 2007 NATA Educators Conference were nonprobability sampled. Nonprobability sampling is a sample of convenience and assessed by subjective evaluation (Kalton, 1983). It was assumed that these individuals would represent the 10 NATA districts because it was a national conference. This would provide for greater generalizability. It was further hypothesized that the attendees would diligently complete the instrument based on their interest in an educational and researched designed conference. A random selection of members from this nonprobability sample produced the pilot study population.

Pilot Study Instrument Development

Semantic Differential

The evaluative semantic differential used in this study was based on adjectives derived from the qualitative study. The researcher reviewed qualitative transcriptions, codings, and audio files making note of descriptive adjectives used by participants under the headings of care, commitment, communication, knowledge, and integrity that emerged from the grounded theory. The researcher made every effort to use words actually expressed by respondents. The use of a thesaurus assisted in finding polar adjective opposites for each word. The direction of adjective pairs was randomly ordered to prevent or allow for the detection of response sets or satisficing. Each adjective pair was separated by a continuum of 7 spaces to allow for responses. To assist in keying
participants in on the relative mindset to compare the adjective pairs, adjectives had a heading corresponding to the headings derived from the grounded theory (care, commitment, communication, knowledge, and integrity). Each set of adjective pairs was preceded with brief instructions (Appendix I).

To establish face validity, three faculty members, two were athletic trainers and one a qualitative researcher, reviewed the draft version of opposing adjectives under the appropriate headings. Once agreement on the adjective pairs was reached, demographics were added. Previous research suggested that attitudes differ between the sexes, and that attitudes change as individuals gain experience and education (Brandt, 1998; Hollenbeck, 1989; King & Magolda, 1990; Unger, 2001). Age, sex, years of experience and level of education were included to help explain variability of the summative score of the semantic differential scale. Interpretation of the qualitative interviews suggested that experience and education would significantly contribute to summative scores on the semantic different scale. The grounded theory did not support work setting or NATA districts as variables that would effect mean scores. They were included for exploratory purposes based on the reviewed literature.

Vignettes

Further exploring how athletic trainer's view the five latent constructs discovered in the grounded theory, a vignette was developed for each latent construct. Participants were not informed which construct the vignette addressed. The purpose behind the vignettes was to gain further perception of how participants would view an incident in their real lives versus simply comparing adjective pairs. The situations presented simulated real life scenarios that globally demonstrate one of the qualitative theories.
derived latent constructs, and provided names to the characters to enhance a sense of personalization. Three professors, two certified athletic trainers and one qualitatively trained, reviewed the vignettes to determine face validity. Each vignette was followed by three questions of the following context:

1. I feel (name of person) made a quality decision.
2. I would let (name of person) treat a loved one.
3. I feel the context of this scenario is important.

The first question signified if the intended latent construct of that vignette was determined, and if the participant felt it was related to quality. This supported the grounded theory that the latent constructs feed into the higher order construct of quality. The second question tapped on a personality thread, where it is pre-determined that individuals would not let a medical professional of poor quality treat a loved one. The third question determined the saliency of the vignette, or if the participant felt the scenario was worth attention. For specific directions provided for the vignettes, please see Appendix I.

Data Collection

To expedite dissemination of the instrument and data collection, it was administered electronically. Researchers have found web based surveys to have no difference in response rates or varied response quality. They often have fewer missing responses (Balter, 2005; Boyer, Olson, Calantone, & Jackson, 2002). Use of a device on the webpage that shows participants their progress also increases responses (Heerwegh, 2004). The three faculty members that reviewed the vignettes ensured succinct appearance and error free navigation by reviewing construction of the webpage and
layout. Participants identified in the sampling plan were contacted by e-mail, provided a brief description of the study, and instructed on informed consent. The e-mail contained a hyperlink to the data collection website. The website constructed a Microsoft Access database of responses that were downloaded by the primary investigator and analyzed using the Social Package for Social Sciences (SPSS, Inc., Chicago, Ill., v. 15).

Pilot Study

Fifty-eight percent of a convenience sample of athletic trainers (n = 175) attending the 2007 NATA Educators Conference provided the pilot population (n = 102). Each participant was contacted by phone to request participation (Appendix G) and then sent a follow up e-mail message. The e-mail message contained a brief overview of the project, a request to participate, a consent acknowledgement to participate in a research study, and a link to the web based data collection instrument (Appendix H, and Appendix G).

Descriptive Statistics

The pilot population was 54.9 percent male and 44.1 percent female (M = 56, F = 45) one participant did not report their sex. Participants were classified into one of four degree levels based on their response and highest degree actually completed (BS = 2, MS = 52, EdD = 18, PhD = 29). The ages of participants in years and years of certified experience ranged from 20 to 64 and 0 to 37 respectively. Table 3.2 contains complete descriptive statistics for the pilot data.
Table 3.2

Descriptive statistics for pilot data

<table>
<thead>
<tr>
<th>Item and Sum Scores</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years Experience</td>
<td>14.48</td>
<td>7.545</td>
<td>0</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Age in Years</td>
<td>37.62</td>
<td>8.221</td>
<td>20</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Care</td>
<td>102</td>
<td>18.34</td>
<td>5.09</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td>Communication</td>
<td>101</td>
<td>17.42</td>
<td>6.08</td>
<td>11</td>
<td>44</td>
</tr>
<tr>
<td>Integrity</td>
<td>101</td>
<td>16.43</td>
<td>4.50</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>Commitment</td>
<td>100</td>
<td>17.12</td>
<td>4.74</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>Knowledge</td>
<td>101</td>
<td>23.69</td>
<td>8.08</td>
<td>13</td>
<td>52</td>
</tr>
<tr>
<td>Total Semantic</td>
<td>100</td>
<td>93.05</td>
<td>25.24</td>
<td>56</td>
<td>200</td>
</tr>
<tr>
<td>Differential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Typical Day</td>
<td>94</td>
<td>28.91</td>
<td>6.90</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Scenarios</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Instrument</td>
<td>94</td>
<td>120.82</td>
<td>27.18</td>
<td>77</td>
<td>245</td>
</tr>
</tbody>
</table>

Psychometric Properties

No psychological instrument is completely valid or reliable. However, there are methods to assess and maximize their quality (Mueller, 1986). The freedom of random associations and a measurement that is accurate and consistent is reliability, but this fails to ensure assessment of the correct construct (Mueller, 1986). If the assessment instrument is measuring the correct or intended construct, it is said to be valid (Mueller, 1986). In order to have a measure of validity, reliability must first be established at a reasonable level.
Assessment of the instrument began with an exploratory factor analysis (EFA) of the pilot data to establish if the instrument was functioning as anticipated. The items did not group according to the developmental theory. The limited number of participants required for a pilot study would contribute to this limitation. A total Cronbach's alpha of the semantic adjective pairs prior to recoding was .588. The total Cronbach's alpha after recoding the reversed semantic differential adjective pairs was .961. Reviewing the items with negative item correlations for clarity resulted in three adjective pairs being removed from the final instrument. The pairs of (pride/modest, vulnerable/protected, and staunch/restrained) had correlations of -.07, -.23, and -.01 respectively. The revised Cronbach's alpha for all remaining adjective pairs was .972.

Each of the five vignettes consisted of three questions with a combined Cronbach's alpha of .64. The third question of each vignette was positively phrased while the first two questions were negatively phrased. As a result, the third item of each vignette was recoded resulting in a total Cronbach's alpha of .785. All vignette items remained in the final instrument, while no items functioned negatively. They all appeared to be clearly understandable. Table 3.3 contains reliability statistics for the pilot study broken down by subsection after recoding.
Table 3.3

Recoded reliability statistics for pilot data

<table>
<thead>
<tr>
<th>Instrument Section and Items</th>
<th>Cronbachs Alpha</th>
<th>Number of Items</th>
<th>Negative Item</th>
<th>Cronbachs Alpha after deletion</th>
</tr>
</thead>
<tbody>
<tr>
<td>All SD</td>
<td>.972</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care</td>
<td>.776</td>
<td>9</td>
<td>9</td>
<td>.895</td>
</tr>
<tr>
<td>Communication</td>
<td>.921</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrity</td>
<td>.793</td>
<td>9</td>
<td>4</td>
<td>.907</td>
</tr>
<tr>
<td>Knowledge</td>
<td>.913</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>.806</td>
<td>8</td>
<td>3</td>
<td>.895</td>
</tr>
<tr>
<td>All Vignette</td>
<td>.785</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vignette Decision</td>
<td>.752</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vignette Loved</td>
<td>.597</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vignette Context Recoded</td>
<td>.834</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* SD Semantic Differential

Procedures

Upon completion of qualitative data collection and the formation of a quantitative instrument, a request for an updated IRB was submitted on December 18th, 2006. Exempt approval to begin quantitative data collection, and a revised continuation of the previous IRB approval was received January 16th, 2007 for a one year period, protocol C26040301 (Appendix E). The final data collection instrument was developed after the pilot study was completed, and revisions were made based on data analysis. Following the a priori sampling plan and using the e-mail list provided by the NATA Information Technology office, potential participants were sent a single e-mail message. The e-mail message...
contained a brief overview of the project, a request to participate, a consent acknowledgement to participate in a research study, and a link to the web-based Quality Athletic Trainer Questionnaire (Appendix J). Participation and completion of the instrument signified informed consent had been provided. The web based instrument created a Microsoft Access Database file. This file was then downloaded from the server and imported into SPSS for analysis.

**Data Analysis**

Hierarchical multiple regression was used to test the effect of the independent variables on the dependant variable, the summative score on the QATQ. The QATQ was comprised of the Quality Athletic Trainer Scale (QATS) and the Quality Athletic Trainer Dilemmas (QATD). According to comments made during participant interviews it was expressed that the most pervasive variables were degree and years of experience, and of less significance were sex and age. These variables became the four research questions to establish if they would explain the variability of the summative score of quality descriptors. To remove the variability of less pervasive variables, sex and chronological age were entered in the first block to remove their variance from the developed model. The second block consisted of educational degree and years of experience. Regression results were examined and reviewed relevant to the stated research hypothesis.

Prior to analysis of the data set, it was screened for errors. Descriptive statistics were used to describe the data. To create the most parsimonious assessment and decrease the chance of type II errors, multiple hierarchical regression was run after the assumptions of regression were met. All statistical calculations were completed using the Statistical Package for Social Sciences (SPSS, Inc., Chicago, Ill., v. 15).
The independent variables of interest included participant sex (male and female), education level (BS, MS, EdD, and PhD), years of experience as an athletic trainer, and their age. The summed score of the semantic differential and the typical day scenarios served as the dependant variable. Multiple hierarchical regression is used to predict a dependant variable value based on the knowledge of one or more independent variables (Ryan, 1997). All significant predictors were measured at the p < .05 level.

Statistical Assumptions of Hierarchical Regression

The statistical assumptions of regression must be addressed to ensure trustworthiness of the data analysis. Regression assumes that no measurement errors are made in the independent variables (IV), but this was impossible to ensure (Tabachnick & Fidell, 1996). The selection of IVs should be based on theory, the fewest possible IVs that are strongly correlated to the dependant variable (DV) and uncorrelated to each other were used (Tabachnick & Fidell, 1996).

Outliers are cases that impact the regression solution to a far greater extent than other variables when the goal is to have cases contribute equally (Tabachnick & Fidell, 1996). Screening for outliers was completed prior to completing a regression analysis. This avoided the desire to make screening decisions trying to achieve desired outcomes (Tabachnick & Fidell, 1996). Outliers that leverage other cases but lie along the same regression line are detected using Mahalanobis distance (Rousseeuw & Leroy, 1987). Outliers beyond three standard deviations are to be eliminated from the analysis. A case that is not near the regression line but lies far from others is a discrepancy (Tabachnick & Fidell, 1996). Cook's distance detects cases that influence regression coefficients, and influence takes place when a case has leverage and discrepancy (Tabachnick & Fidell, 1996).
A Cook's distance greater than four divided by the number of cases minus one less than the number of independents is suggested as a cut off for removing a case, \( 4/(n-k-1) \) (Rawlings, Pantula, & Dickey, 1998). Review and deletion of outliers detected by Mahalanobis distance and Cook's distance improved generalizability to population values (Tabachnick & Fidell, 1996).

When one or more independent variables provides basically the same information, there is limited dispersion in variables and collinearity exists (Rawlings, Pantula, & Dickey, 1998). Independent variables with limited dispersion poorly estimate the regression coefficients (Rawlings, Pantula, & Dickey, 1998). When the correlation between two independent variables is greater than 0.9, regression coefficients may be insignificant because of the increased size of standard errors (Tabachnick & Fidell, 1996). Independent variables with strong correlations were independently removed to assess the affect on the regression output. The variance inflation factor (VIF) is also an indicator easily assessed, indicating collinearity between independent variables (Rawlings, Pantula, & Dickey, 1998). A VIF > 10 would indicate redundant information is being provided by two independent variables, independent orthogonal variables will present a VIF near 1 (Rawlings, Pantula, & Dickey, 1998).

Regression is generally robust to a minor degree of departure from a normal distribution of residuals (Rawlings, Pantula, & Dickey, 1998). The estimation of parameters is not affected by non-normality when other assumptions are met, but it might affect confidence intervals and tests of significance (Rawlings, Pantula, & Dickey, 1998). A simple method to assess skewness and kurtosis of residuals is observation of residual plots as well as the coefficients. A normal distribution has a skewness coefficient of 0 and
a kurtosis coefficient of 3 (Rawlings, Pantula, & Dickey, 1998). A normal distribution about the mean is symmetrical; a skewed variable has a mean not in the center. If a skewed or non-skewed curve rises to a tall narrow peak, it has a positive kurtosis while values below zero indicate a flat curve (Tabachnick & Fidell, 1996). Underestimation of a variable's variance occurs when kurtosis is nonnormal (Tabachnick & Fidell, 1996). The visual review of plotted residuals will review violations of normality. The dependent variable should appear normally distributed (Rawlings, Pantula, & Dickey, 1998).

The variance in a single variable is referred to as scedasticity. Groups of variables may be homoscedastic or heteroscedastic, equal or unequal in variance respectively (Gerstman, 2008). Homoscedasticity is easily assessed using bivariate scatterplots and can be corrected by transformation of variables (Tabachnick & Fidell, 1996). A variable with non-normal distributions will result in heteroscedasticity, but this is not fatal to an analysis. A scatterplot shows the linear relationship between variables, and the lack of homoscedasticity may weaken predictability; it can however, be accounted for or explained (Tabachnick & Fidell, 1996).
CHAPTER IV: RESULTS

Qualitative Article

Introduction

The rating of professionals or individuals based on expected outcomes or performance (e.g., certification processes) has been a long-standing practice. College athletes are ranked and recruited based on their potential; coaches make these judgments based on a set of qualities or skills. Employers conducting interviews have established a requisite set of qualities they are looking for in potential employees. The professions of nursing and physical therapy have assessed non-didactic skills that contribute to clinical success by measuring medical outcomes (Benner, 2001; Wolfe-Burke, 2005). They have established a set of characteristics that are sought after. Patients looking for medical personnel that can provide care to them want the individual that positively stands out above others. They are searching for a set of descriptors they deem important. When patients experience satisfaction with a medical visit, or find a medical professional exhibiting the descriptors they deem important, they are more likely to return or refer a friend (Ware & Hays, 1988). The profession of athletic training has not established a set of non-didactic characteristics important to the profession through means beyond anecdotal conversation. The certification process alone cannot ensure that entry-level professionals will become quality healthcare providers.

There is a dearth of literature pertaining to the characterization of a quality Certified Athletic Trainer (ATC). An athletic trainer must complete a rigorous program of study at an institution, which has met standards set by the Commission on Accreditation of Athletic Training Education (CAATE). In addition to successful
completion of an accredited program, an athletic trainer must also pass an exam
administered by the Board of Certification (BOC). The BOC provides the certification
program for entry-level ATCs and ensures athletic trainers agree to abide by the BOC
Standards, but it does not guarantee job performance or competence (BOC Standards of
Professional Practice, 2006). Likewise, CAATE was developed to maintain minimum
standards for entry-level Athletic Training Education Programs (ATEPs) (Standards for
the Accreditation of Entry-Level Athletic Training Education Programs, 2006). While
CAATE encourages ATEPs to exceed the minimum standards, there are no evaluations
or assurances that this is accomplished. The National Athletic Trainers' Association's
(NATA) Athletic Training Educational Competencies 4th edition identifies competencies
and clinical proficiencies required for effective performance of entry-level Athletic
Trainers (Athletic Training Educational Competencies, 2006). An entry-level ATC is a
recently certified individual but there is no literature delineating when an ATC moves
beyond an entry-level classification. By providing a description of a "quality" athletic
trainer this research intends to identify characteristics that places him/her above others.

In 2003, Larry Locke, professor emeritus from the University of Massachusetts
commented that most educators have experienced at least one student completing their
educational program, whom they would like to see fail a licensing requirement. With this
comment, Dr. Locke was referring to the idea that educational preparation is not the only
factor contributing to success. He proposed that additional screening occur beyond
demonstration of competencies. The assessment of employability skills or attitudes
required to enable knowledge and transfer of core skills are necessary for professional
success (Wayda & Lund, 2005). Towards this end, the affective domain and personal

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dispositions pertaining to the specific abilities to think critically, solve problems, and negotiate oral communications to accomplish teamwork need to be addressed in educational environments (Wayda & Lund, 2005).

Academic standards in secondary education became the norm nationwide in the 1990's and national commissions worked diligently tying them to subject matter (Goodlad, 2002). Employers started putting value in grades and high-test scores. However, when these methods failed to deliver the qualities desired, a push for even higher scores and grades occurred (Goodlad, 2002). Employers and national commissions failed to realize that dispositions and propensities to be a quality employee are not necessarily predicted by high test scores (Goodlad, 2002).

Standardized tests have been the peremptory indicator of an applicant's likeliness to be successful (Ritchhart, 2002). Intelligence and Scholastic Aptitude Tests (SAT) can predict scores on vocabulary tests and other non-standardized tests students are likely to take in academic settings (Ritchhart, 2002). These styles of measurement tend to predict occupational achievement when achievements are tied to school performance. However, when looking at real-life day-to-day settings, these standardized indicators fail to be as predictive of success (Ritchhart, 2002).

Psychologists agree that there is more to intelligence and innate abilities than would be defined by a standard test of intelligence (Anderson & Herriot, 1994). Some intelligences or abilities not typically captured by a standardized test are interpersonal and intrapersonal skills, kinesthetic, musical, creativity, and practical skills (Anderson & Herriot, 1994). Creative abilities fostered by these skills are important in many fields that
would unjustly score against individuals if standardized testing was a sole selection criteria (Anderson & Herriot, 1994).

The professions of nursing, physical therapy, and other allied healthcare fields have established characteristics of quality care and professional performance (Boggs & Arnold, 1999; Coyne, 2004; Crigger, 2001). Nursing has published documentation pertaining to the development of quality nurses, quality healthcare, transformation from a novice to an expert nurse with experience, and how experienced nurses provide a higher quality of care (Benner, 2001; Boggs & Arnold, 1999; McKenna, Currie, & West, 2006). Nursing has further reviewed interpersonal relationships and the resulting perceptions of quality care in clinical settings (Crigger, 2001; McKenna, Currie, & West, 2006).

The profession of physical therapy has assessed patient outcomes using a multitude of descriptors. Physical therapists have qualitatively described expert practices of physical therapists and have also identified generic abilities (Resnik & Jensen, 2003; Wolfe-Burke, 2005). Generic abilities of physical therapists included commitment to learning, interpersonal skills, communication and professionalism (Wolfe-Burke, 2005). Performing a confirmatory factor analysis on qualitatively derived data, construct validation of professional behaviors in physical therapists established and supported that professional development, communication, personal balance, interpersonal skills, and working relationships significantly contributed to the model of professional behavior (Jette & Portney, 2003).

The identified characteristics of a quality athletic trainer may be similar to the ones described or supported in previous healthcare fields. However, theoretically supported investigations of the constructs defining a quality athletic trainer have not been
previously established. Therefore, the purpose of this study was to develop a grounded theory explaining the constructs of a quality athletic trainer. This theory will contribute to the literature by identifying desirable characteristics of an athletic trainer.

Methods

A qualitative method was chosen because of its ability to offer in depth understanding relating to the types of intelligences, innate abilities, or personalities that make a quality athletic trainer. The basic premise was founded on the notion that not all athletic trainers are equal in skill and ability. Prior to assessing differences between various athletic trainers and their skill level, the descriptors of a quality athletic trainer must be established, and qualitative methodologies are particularly suited to this task. Qualitative research deals with articulate descriptors and can take the form of participant observation, detailed interviews, and field research. Qualitative researchers emphasize closeness to the data and learning the values and beliefs of people (Chadwick, Bahr, & Albrecht, 1984).

A Delphi method is a structured process to collect ideas from a group of experts through the use of interviews (Adler & Ziglio, 1996) and was the qualitative method applied in this research. It assisted in establishing a grounded theory, and was used to explore the description of the components describing a quality athletic trainer. A grounded theory is a theory derived from systematically collected data where the researcher repeatedly reviews the data, makes analysis, and develops a theory as free from preconceived ideas as possible. The theory is allowed to emerge from the collected data (Strauss & Corbin, 1998), and develops out of a process of coding, or placing observations in specific categories (Chadwick, Bahr, & Albrecht, 1984).
Avoiding domination of strong willed individuals, the Delphi method allowed for consensus among a group of experts and maintained anonymity of participants (Lewis-Beck, Bryman, & Liao, 2004). The geographically dispersed participants in this study submitted data in response to a preliminary set of questions during an interview. The researcher summarized the interviews and used them to develop a second correspondence. Respondents re-evaluated their initial responses and insured accuracy of data by reviewing original data synopsis (Adler & Ziglio, 1996). This process was repeated three times (Adler & Ziglio, 1996).

As identified previously in the paper, the dearth of athletic training literature related to quality characteristics resulted in review of quality descriptors of other healthcare providers such as nurses, physical therapists, and physicians (Beattie, Pinto, Nelson, & Nelson, 2002; Benner, 2001; Boggs & Arnold, 1999; Crigger, 2001). This review led to developing the purpose of this study which was establishing descriptors to identify the difference between an entry-level athletic trainer and a quality athletic trainer. Specific interview questions were created to prompt participants to describe positive and negative qualities in athletic trainers and revolved around the central purpose of defining a successful athletic trainer.

Participants

Collecting data from an entire population is often not feasible. Therefore, the task of the researcher is to establish a representative sample of the population. A review of the 2006, NATA Certified Membership by Setting and District indicated that the majority of athletic trainers (55.17%) are employed at a physical therapy clinic, high school, or college setting (18.74%, 16.35%, and 20.08% respectively). The next largest
employment, or current primary setting according to the membership statistics, consisted of students (7.98%) followed by a group of ATCs that listed their employment setting as high school/clinic outreach (6.84%). Athletic training students were not a variable of interest in defining quality, and other settings contributed to a minor over all percentage of the NATA membership. The remaining employment settings accounted for minimal total percentages of employment settings ranging from .02% to 4.2%. The same data revealed that of the ten NATA districts, districts 2, 3, 4, and 9 accounted for 15,646 of 25,493 members or 61.37%. A combination of 12 participants stratified randomly across the three largest employment settings and four largest districts was determined to be a feasible and representative sample of the opinions of the greater population of athletic trainers. Table 4.1 contains the representation of athletic trainers (N = 13) from the stratified locations. To ensure equal representation stratified across the variables, a participant from each setting needed to come from one of the four districts. The sampling plan ensured that a clinically-based, high school, and college based ATC were selected from each of the four identified NATA districts. Participants were contacted through personal communications, the NATA Listserv, the NATAWATC Listserv, and respective NATA district presidents.
Table 4.1

<table>
<thead>
<tr>
<th>Participant Stratification</th>
<th>NATA District</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>9</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>High School</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>College</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Clinical</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td>4</td>
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<tr>
<td>Total</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
<td>13</td>
</tr>
</tbody>
</table>

Data Collection

Interviews took place in person or over the phone. Semi-structured interviews revolved around the primary concern of establishing descriptors of quality athletic trainers. Statements participants were asked to elaborate on included:

1. Define a successful ATC.
2. Describe the best ATC you know or have worked with.
3. Describe the ATC you would hire to work alongside yourself.
4. Describe the ATC you wish or desire to emulate.
5. Describe the ATC you would allow to treat a loved one.
6. Describe the ATC you would not hire.

While these were the primary questions addressed, additional related questions developed during individual interviews in response to participants' answers. These participant-prompted questions were used to further explore concepts presented and gain a greater understanding of a quality athletic trainer. The above questions were repeated in a variety of forms during interviews to capture detail from participants.
During the interview, the researcher wrote brief notes and comments in response to answers provided by the participant. These notes included key words or phrases that the researcher would return to later in the interview to ask follow-up questions. They also served as points for further clarification. This technique added to the depth and richness of answers provided by participants. An additional technique employed was an extended pause on behalf of the researcher when a participant seemed to complete an answer. During this time, the researcher would lean forward, nod and appear as if he was waiting for further detail from the participant. This technique allowed participants to offer additional thoughts and add descriptors to their answers.

Data Analysis

A threat to the trustworthiness of the qualitatively derived theory was participant error or reluctance to answer truthfully, possibly because of bias of having an interviewer present (Adler & Ziglio, 1996; Creswell, 2003). However, using an independently drawn sample of participants aided in controlling this threat. It was unlikely that individuals in an entire sample would be misleading. The second correspondence would also allow participants to make corrections to their original answers without an interviewer present. An additional threat to trustworthiness of this qualitative theory was the researchers misunderstanding of participants' intent (Adler & Ziglio, 1996). To ensure proper understanding of the participants' thoughts and intents, the researcher completed repeated data checks.

Audio recordings were transcribed verbatim using professional transcription services. Upon receipt of the transcripts, listening to the original interview while reading the transcriptions and making minor textual corrections, an initial error check that led to
increased trustworthiness of the data was completed. Repeated listening to the interviews established data immersion, which became evident when the researcher could recognize the voice of participants by reading the textual transcriptions. Data immersion became further evident when the researcher could recite the next line of audio when reviewing the audio files.

Double-spacing of participants' transcribed interviews and reduction of text to key points in answers occurred after data immersion. Utilizing the Delphi technique, the double spaced key points that answered each of the six primary interview questions were returned to the participants providing an initial check of the researcher's understanding of the participants' intent. Participants made minor corrections and added points they remembered and felt were important between the time of the initial interview and the first follow-up. During these transactions, data immersion continued with repeated listening to audio recordings and review of adjusted textual data.

After the first follow-up, participant corrected responses to semi-structured interview questions were cut from the original documents and pasted on a wall-sized poster under one of the appropriate categories (define a successful ATC, describe best ATC, describe ATC you would hire, describe ATC you would not hire, describe the ATC you would emulate, describe ATC you want treating a loved one). This resulted in an exhaustive list of answers from all of the participants to each of the interview questions. Words with similar context on the first wall-sized poster were crossed out, condensed, and placed near the bottom of a second wall-sized poster. For example, cared, cares, and caring were reduced to the word "care" on the second poster. This process of coding continued for each of the general categories above. After exhaustion of terms on the first
poster, review of the words on the second poster began. Similar words on the second wall-sized poster grouped together in larger context and produced five latent constructs (care, commitment, communication, integrity, and knowledge). Further review of participants' statements during the interviews and the researchers' interpretation of these led to the development of three higher order constructs. These higher order constructs were family rapport, patient rapport, and professional rapport. It was expressed that they are requisites to the overall concept of quality. Furthermore, according to participants in this study, in order to develop the needed level of rapport, an athletic trainer must exhibit the five latent constructs. As suggested by Wolcott (1994, p. 31), a "think display" or graphical presentation aided in emphasizing aspects of the study. Numerous iterations of graphical models depicting the five lower order constructs feeding into three higher order constructs were developed until a succinct display was finalized. This model was disseminated to the original participants and they contributed to a second data check by assessing the fit of their data to the developed graphical model (Appendix D).

Participants reported that the theory driven graphic concisely fit their data. This step further established trustworthiness of the data and the developing theory.

Results

Five Lower Level Constructs

The results of this study revealed five latent constructs associated with being a quality athletic trainer. These five constructs were identified as caring, integrity, knowledge, communication, and commitment. These latent constructs fed into three higher order constructs identified as family rapport, patient rapport, and professional rapport (Appendix D).
Care

The concept of caring and its importance for the athletic trainer appeared in all interviews. Participants noted that an athletic trainer needs to care about their patients as well as others with whom they interact. Participants in this study suggested that patients could sense an athletic trainer merely going through the motions, one who fails to sincerely and passionately care about them. One athletic trainer described this level of care as:

Athletes need to know you care for them, not only now, but that you are thinking about them long term. What is the effect of this decision going to have today or tomorrow or this weekend but also a year, five, ten or fifteen years from now.

From this participant it appeared that simply treating the current injury was insufficient; caring about long-term effects of that treatment was necessary for athletes to feel care.

Spending time with patients was also perceived as a component of caring. When one participant responded to a question about being treated as an athlete, she said:

It's important that the athletic trainer care about me as an individual, that even though there might be 15 other patients or injured athletes all around me, the time that the athletic trainer is with me, I want to know that they're going to look at me, call me by name, look me in the eyes and remember my individual injury and do what's best for me, not send me away.

Every individual athlete deserves attention and regardless of the number of patients present for care, a quality athletic trainer should realize that no one patient is more important than any other. From the above quote, it is obvious that athletes recognize quality athletic trainers as professionals who are willing to spend time caring for them.

Describing an athletic trainer that an additional participant wanted to emulate, or how she wanted to be remembered by her student athletes, she stated:

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Athletes like knowing that I genuinely care about them as people and I want to see them do well, whether it's in school or with interacting with teachers or friends or on the athletic field.

It is clear that she values athletes under her professional care knowing she sincerely wants them to do well in and out of athletic competition.

The perception of truly caring about an individual was often referred to by participants as being compassionate. The following is a description of compassion provided by an athletic trainer identifying how she wanted to be treated as an athlete:

Athletic trainers need to be compassionate. What might seem like a minor injury to them, may appear serious to me. This is happening to me and so even if it’s something fairly minor, it’s happening to me and my body, I want an athletic trainer to be compassionate and recognize the injury from my perspective.

An athletic trainer must be cognizant of how the athlete or patient feels. The tendency to brush aside or spend less time with injuries less severe in nature damages the caring relationship. Quality athletic trainers will see injuries from the athletes perspective and not simply the apparent medical necessity. A quality athletic trainer is compassionate and will spend the time required to provide care to injured patients. If athletes think an athletic trainer is misleading them, they may not feel that individual is committed to their best interests.

*Integrity*

According to the participants, the construct of integrity included numerous characteristics revolving around honesty. Quality athletic trainers are loyal to the individuals they interact with and provide clear concise answers that will not mislead individuals. Additionally, athletic trainers in this study suggested that they need to be
honest and athletes need to trust them. One athletic trainer described a successful athletic trainer as one whom:

Is loyal to the institution, the coaching staff as long as the coaching staff is doing the right thing, and work to the best of their ability.

A quality athletic trainer needs to demonstrate integrity in the work place. They will negatively influence professional perceptions of athletic trainers and athletic training if they make harmful comments about the individuals they work with on a daily basis.

When describing how he would want an athletic trainer treating him, another participant elaborated on the construct of integrity by saying:

I want the athletic trainer to be straight with me. I don't want a generic answer. I don't want them to beat around the bush. Tell me what's wrong and how we can fix it.

From this quote, it is clear that patients want to be educated and clearly informed. If the injury is season ending, or will be difficult to rehabilitate, then it is important that athletic trainers tell the patient and avoid vague misleading answers.

When asked to describe the best athletic trainer one participant ever worked with, she stated:

He was respected by the athletes, I don't want to say they look at you as their friend, but they develop a relationship where they feel that they can trust you.

Again, the idea that an athlete must put their faith in judgments and decisions is an important part of integrity and eventually in building rapport with clientele. When describing an athletic trainer from the perception of being a patient, trust and integrity were further described as:

...someone who is very approachable, easy to talk to, someone that I can trust,
who will be honest with me and not hide information from me.

This statement echoes previous statements from participants. In order to be perceived as having integrity, athletic trainers must be honest in all aspects of their professional positions. Quality athletic trainers will be loyal and work hard providing care to their patients. Not showing loyalty or misleading a patient will undermine the trust they place in their healthcare provider. Failure to acknowledge limits to one's own requisite knowledge or to provide sound answers will also negatively affect integrity.

Knowledge

A certain amount of knowledge was deemed important by the participants and is inherent in becoming a certified athletic trainer. Quality athletic trainers need to be competent in a vast amount of relevant knowledge to be strong clinicians. However, a strong certified athletic trainer will also capitalize on the importance and opportunities to share their knowledge with others. Furthermore, quality athletic trainers are continually extending themselves to garner more knowledge to improve the care they can provide. One athletic trainer, when describing how he wanted to be remembered, expressed the importance of a broad range of knowledge:

I want to be identified as somebody who understands, who is a very strong clinician 'cause people, you want to be able to give them answers, so someone who stretches themselves a little bit. It's a difficult profession because we need to know so much, a little bit of so much because a lot of times we are moving people into another direction whether it is we're sending to an orthopedist or a dentist or anything of that nature, we kind of have to know a little bit about everything.

Clearly, a quality athletic trainer will have a vast amount of knowledge reaching across a wide array of topics. The demands of the profession necessitate a broad depth of medical knowledge. Lacking a sufficient base of knowledge will negatively affect an athletic
trainer's ability to become successful. When describing a successful athletic trainer, a female participant concluded that:

I think a successful athletic trainer is someone who first of all is competent in the domains of athletic training and the skills to perform the job.

If an athletic trainer is deficient in the basic knowledge to perform the job, patients will not receive adequate care. Even if an athletic trainer passes a test of entry-level competence, they may lack other skills required to perform on the job, such as administrative duties.

The construct of knowledge was not limited in scope to knowledge attained by the individual, but included sharing the knowledge and educating others. This was demonstrated by the following comment:

A successful athletic trainer is dedicated, a good communicator, and first and foremost an educator, no matter who you're educating, you need knowledge to educate a classroom or an athlete about an injury.

While the idea that a quality athletic trainer has a vast amount of knowledge has already been established, this quote supports that they also must share knowledge with others. It would be a difficult task to educate other future athletic trainers if an instructor lacked a breadth of comprehension. A wide array of knowledge, or items of context to draw upon, will help the quality athletic trainer relate injury explanations to understandable terms for patients and students.

In relation to education, a successful athletic trainer was also described as a person who:

Can relate to all people, who has a solid academic background, and knowledge of injuries but more importantly I guess the knowledge to know when to refer when
something's out of their scope of practice, or the ability to learn new task when the opportunity presents itself or is needed.

The importance of knowledge is not only that which a person already possesses, but the desire to extend oneself and garner more knowledge as needed or desired. Learning is a lifetime event and the athletic trainer that extends him or herself to achieve a wider knowledge base will provide better care to patients. The previous quote also connects knowledge to two of the other five sub-constructs: integrity and communication. Quality athletic trainers will admit when something is beyond their scope of ability, but they can also relate and communicate to people with whom they interact.

*Communication*

Communication is important if an athletic trainer is going to provide quality care to patients. A quality athletic trainer needs to be able to discuss relevant issues with a wide array of individuals on levels they can understand. The skills and abilities of the clinician will serve little use if patients are unable to understand what is taking place or why procedures may be important. Expressing care and providing feedback on rehabilitation programs are accomplished through communication. When one of the participants was describing the best athletic trainer she had ever worked with, she stated:

He was the type of guy who could carry on a conversation with anyone, anytime, and place. Whether dealing with a gymnastics female or a football player, he could just break it down for them and let them know what was going on.

An athletic trainer deals with a diverse population of individuals, and communicating effectively with all of them is important. Building on the idea that a quality athletic trainer can converse with anyone, and further highlighting the importance of communication, one participant stated:
Communication...probably the number one thing that I'd think would make an athletic trainer successful is communication and that's with parents, with coaches, administration, and of course the athlete. You can have all the greatest skills in the world and be a PhD but unless you can communicate effectively and in a level and tone that would be acceptable to the family and the parents and the administration, you know. You might have all that knowledge and they'll say well, you know, we don't understand what he's talking about.

All the technical ability and didactic knowledge is of little importance if an athletic trainer is unable to express concerns to others, or ask them questions in a fashion that will assist in completing an evaluation. The tone of communication is vital to the quality athletic trainer. The goal is not to offend individuals by exasperating them with errant questions or unclear descriptors. When listing characteristics of a successful athletic trainer, another participant mentioned communication skills, and when asked to elaborate, she stated:

Communication is key for an athletic trainer. If you communicate in writing to a parent you cannot speak with, that writing needs to be very reader friendly and easy to read. Verbal communication needs to be very concise and at a level that's understandable. Meaning, if you're speaking with somebody who has no background in sports medicine, you need to direct it that way. If they have background in medical terms, then you can direct it that way. However, it needs to be very clear, concise and at the level of the stake holder you are speaking with.

It is very likely that a note sent home with an athlete might be received by a parent without a background in medicine. If the written communication is laden with complex medical terms void of clear descriptors, the note will not effectively convey its intent or the needs to be provided to the patient. The extra time ensuring effective communication shows a commitment on behalf of the athletic trainer, and is an important aspect of a quality athletic trainer.
Commitment

Participants reported that quality athletic trainers commit a significant amount of time to the profession. They will make themselves available to others and understand that the profession is not typically constrained to set hours. Patients depend on quality athletic trainers to be available when they need assistance. One participant was explaining a mentor she described as committed to the profession and his students when she stated:

Somebody who's willing to teach, willing to share their experiences and share their knowledge with you. He was always willing to help and take me under his wing he gave me that opportunity to learn. His door was always open, he was willing to help, he still is and that openness and willingness to help and that caring about the individual whether it be an athlete or one of his former students.

A quality athletic trainer places a high regard on being available to those he may tutor or care for. Commitment is obvious to others when they can rely on the athletic trainer to assist them at needed intervals. However, these intervals may not fall during expected or scheduled times. When describing a successful athletic trainer another participant mentioned:

The job is not your typical nine to five; you need to take the opportunities you have to meet with coaches or athletes in the morning, or late at night. You have to make yourself available.

Opportunities to present oneself as a quality athletic trainer may not always follow a pre-conceived schedule. A certain amount of flexibility to meet with coaches, or stay after a game to sit down and discuss an issue with an athlete is important. These moments show a necessary level of commitment to helping others.
Providing a deeper description of a committed athletic trainer one participant wanted to emulate, she discussed how her student athletic trainers would describe their mentor:

I would hope they would say, caring and a communicator. They would say I was understanding but also that I was enthusiastic about the field and about the athletes and patients. That I was dependable and trustworthy.

An athletic trainer must be dependable as well as trustworthy if others are going to describe them as committed. The committed quality athletic trainer is not only dependable, but also enthusiastic about the opportunities presented to help others. Enthusiasm will assist the athletic trainer in developing a caring and committed relationship with others.

The previous quote captures four of the five latent constructs in one succinct statement. The quality athletic trainer cares, communicates well, establishes integrity by being trustworthy, and shows commitment by being dependable. The fifth construct is knowledge. These five lower order constructs feed into three higher order constructs, which feed into the highest order, construct of quality.

Three Higher Order Constructs

The five lower order constructs were developed by coding the participants' transcribed interviews one word at a time, without considering the context of participants' quotes. The three higher order constructs developed after repeated review of the participants' statements and listening to the audio files. These developed based on the researcher's understanding of the context and implied beliefs of the participants. Each of the three higher order constructs contains components of the lower constructs.
Participants repeatedly referred to the working relationship with those professionals around them. Depending on the employment setting, these individuals might be coaches, doctors, physical therapist, or other athletic trainers. Participants also emphasized the importance in forming a relationship and really sitting down and getting to know the athletes or patients under an individual's care. The strain that the profession places on an athletic trainer's family and personal life was also mentioned. Several participants discussed the efforts made to balance person or family time with being committed to the profession and the on-going conflicts this causes. The understood context in statements of this nature led to the development of the three higher order constructs explaining a quality athletic trainer. The constructs are labeled professional rapport, patient rapport, and family rapport.

To develop rapport with the individuals a person associates with, they must be honest, caring, and committed while also being able to communicate these traits. Developing rapport, expressing a caring attitude, and fostering positive relationships with patients is invaluable for healthcare providers (Mock, 2001). In addition to possession of the five lower order constructs, an athletic trainer who fosters a positive relationship with his patients and other professionals, while not neglecting his family, has been determined by study participants to be a quality athletic trainer.

*Family Rapport*

On numerous occasions when participants were describing an athletic trainer they wanted to emulate or ways they could improve, they mentioned spending more time with their family. They desired a method of finding a balance between a commitment to work
and a commitment to family. One participant described the importance of his family stating:

I have never been around a coach that's probably going to change their practice schedule because I have to take my daughter to a doctor's appointment, or I have to go to her school play or something like that. You know, now, that's a priority, those things are very, very important to me, you know, to also be a family member and a husband and be a dad in addition to being a certified athletic trainer, so I try to balance the best I can.

Often in the profession of athletic training, an athletic trainer will place the demands of the job above the desires of a family. An attempt to balance time with a family and employer is important. Further supporting the deleterious effect of many traditional athletic training roles, one participant was discussing how many respected athletic trainers have been in the profession for years, and have paid a terrible cost by neglecting their families. When discussing a recent symposium he attended he expressed these concerns:

I was at a meeting a few weeks ago and someone was introduced and they were talking about them and it was a great, great athletic trainer, very, very good person, very good at what he does. They talked about how he had missed a lot of birthdays, missed a lot of anniversaries, missed a lot of family events and I was sitting there thinking to myself, "Gosh, I do not want someone saying that about me." You know, obviously, I have to miss some, but hopefully, I want a good balance.

A balance between the time spent committed to work and time for a social life or events away from work is vital. According to these participants, sacrificing personal, social, and family time is not a desired requirement for a quality athletic trainer. The idea of a balance between work and life was also presented when asking one participant about the athletic trainer she wanted to emulate when she stated:
I think one that is, and this is my weakness, number one, they're balanced. I'm not as balanced in my life as I need to be. I spend a lot of time, probably a lot more time here, than I need to, but I have a hard time letting go. So first of all it's someone who knows how to balance their personal life more with their job. I'm gettin' better but I'm not there yet.

It is obvious through the responses of the participants in the study that many athletic trainers are committed to the position, but they appear to be neglecting other facets of their lives. When participants were asked to elaborate on how they might balance their professional life with employment demands, no clear-cut answers were provided. They acknowledged it was a weakness in their professional life because of the traditional demands placed on them from administrators, coaches and a conflicting commitment to their patients.

Family rapport is one of the three higher order constructs of a quality athletic trainer. A quality athletic trainer will devise methods to spend time away from work. This may require larger staff, trusting others to provide care in your absence, and being open with family that you may indeed miss some family events. Often the athletic trainer’s commitment to his /her patients is difficult to juggle.

Patient Rapport

Having a positive relationship with patients is expected among healthcare providers. However, participants in this study expressed numerous ways patient rapport is established, and how deeply it is rooted in effective care. When describing dealing with patients on an emotional level, one participant stated:

A great athletic trainer makes rehab fun for his athletes or student athletes, it's not just a job, it's encouraging athletes, reading their body language. Adjusting to their emotional status to help in the recovery process, your tone of voice is important, watching their eyes and helping them through feeling down when they are missing practice. Establishing a physical and emotional foundation to begin the rehab process.
Establishing a foundation of understanding and demonstrating empathy is required to establish patient rapport. Athletes and patients need to feel that a bond exists between them and the healthcare provider during the rehabilitation process. This personal bond is vital if patients are going to feel as if they are receiving the best care possible. When one participant described what patients liked about being treated by her, she stated:

They don't like it when I miss their session because of my administrative duties. They don't like me leaving them to someone else to treat. They like the fact that I take my time, I give them the time of day, like they're the only patient I have. I treat them like they are the most important thing in my day and they're going to be getting, they're going to get better.

Her patients have developed an emotional bond with her. This is evident because they feel brushed aside when they are placed second to administrative duties. The rapport this participant establishes with her patients is appreciated and fosters the perception of improved healthcare. When various job responsibilities detract from an athletic trainer's ability to place the primacy of a patient's care above other duties, patients may feel as if the athletic trainer is not doing what is best for them. When a participant started describing the best athletic trainer she had ever worked with, she explained that his success was established by building rapport with his athletes:

He was very knowledgeable, very friendly, had a great sense of humor, easy to interact with, and willing to help or treat us, to do whatever was best for his athletes. He had a great rapport with his athletes and was respected and revered. Very few people disliked him.

Developing rapport can be accomplished by being friendly, using humor to ease tough interactions, and doing what is best for patients. These abilities are essential characteristics of a quality athletic trainer.
Patient rapport is built on numerous interactions. These interactions need to be non-threatening and as encouraging as possible. Patients have to trust and feel that the athletic trainer is committed to helping them return to their normal functioning levels. Patients may read a clinician's body language. They may also be sensitive to the manner they are communicated with, or the time spent communicating with them. Failure to meet a patient’s expectation in any of these opportunities can negatively influence patient rapport. An additional factor that can damage patient rapport is disagreement between the professionals providing care. If professional healthcare providers have varied opinions on a proper course of action, one should not callously discuss a fellow employee with a patient.

*Professional Rapport*

Similar to patient rapport, professional rapport, or the relationships with other professionals an athletic trainer interacts with, is built on numerous interactions. These interactions include trust, integrity, an understanding of each other’s abilities in terms of strengths and weaknesses, commitment to the patient, and open communication. Athletic trainers work in various settings, all of which will require working and coordinating with other professionals to provide the best patient care possible. When addressing a successful athletic trainer in a clinical setting, one participant stated:

A successful athletic trainer as we know it at this time is one that can work well with others because of our responsibilities currently with our legal structure is that we work as an ancillary portion within the clinical setting. They need to understand the current legislative setting that we're in, we aren't the primary care provider as far as billing and things of that nature. We are working for someone as their hands and we can't make changes to programs without approval without causing problems.
Athletic trainers in many clinical settings are assisting other healthcare professionals and the athletic trainer may not be the primary person responsible for evaluations or designing of rehabilitation programs. In these settings, it is important all healthcare providers responsible for patients have a functional working relationship built on mutual respect. When a participant was elaborating on a statement about professional relationships and how he would differentiate between two job applicants, he stated:

I would look at their relationships with the coaches and other professionals in the community, with physicians, etc. How well they get along with them. Are they able to communicate effectively? Are they, do they have a working relationship at all. Is there some sort of mutual respect in communication between the two? Are they cooperative with one another? You know, if I call up a physician and need an athlete seen in a reasonable amount of time, are they going to be willing to do that?

Effective communication is evidently important to establishing rapport. Rapport is built on respect between both parties in a relationship, and a commitment to help each other is needed. When describing how an athletic trainer successfully develops professional rapport and respect with his coaching staff, one participant stated:

To promote yourself within the coaching staff, to have them along side you, to be able to do a lot of injury prevention things, throughout the preseason, the in game season and off season you need sit down and educate the coaches. You need to get to know them, what they like and don't like.

A quality athletic trainer will share knowledge with the coaching staff while establishing a working relationship. This relationship will allow an athletic trainer to enhance the athletic program through injury prevention methods and the conditioning demands of varied sport seasons.

Depictions of the five sub-constructs (care, integrity, knowledge, communication, and commitment) are apparent in the participants' quotes. The context of the quotes...
supports the three higher order constructs of family, patient, and professional rapport. Rapport is important in order to enhance the care provided to patients. Athletic trainers also need to balance the commitment to patients with personal time. In order to establish rapport a quality athletic trainer will be committed to caring, communicating, sharing or acquiring knowledge, and being honest.

**Discussion**

The derived theory demonstrates the characteristics of quality athletic trainers from the perceptions of certified athletic trainers. According to study participants, athletic trainers who demonstrate the ability to care, show commitment and integrity, value professional knowledge, and communicate effectively with others can be identified as quality athletic trainers. These abilities allow the quality athletic trainer to create positive relationships and develop rapport. The people they will develop a positive rapport with will be other professionals and their patients while not sacrificing family or personal time. The developed theory suggests that these five sub-constructs feed into the three higher order constructs and quality is the next higher order. Accordingly, recommendations are appropriate for professionals, researchers, and educators. For the purpose of clarity, the theory will be referenced as the Quality Affirmation Theory (QAT).

This theory supports focusing on characteristics that are not traditionally assessed in an athletic training curriculum. If these characteristics will allow athletic trainers to become quality athletic trainers (e.g., work better with others, balance their family life or personal time while improving the standard of healthcare), they must be considered in educational settings. If the profession of athletic training is going to continue to advance,
working well with others and improving patient care are important issues. Employment in a setting that causes employees to experience internal conflicts, between the time required to perform quality work and having a social life are not favorable in recruiting and retaining quality athletic trainers.

In an employment setting, the instruments used to assess the employed athletic trainer may or may not include items related to the identified characteristics of a quality athletic trainer. In an effort to retain or develop quality athletic trainers, those responsible for their assessment should understand the requisite characteristics of a quality athletic trainer and strive to develop them. This may improve healthcare, working relationships, and help athletic trainers maintain a healthy family or personal life. A systematic review of current assessment instruments may be beneficial.

It is recommended that employers and educators become familiar with the characteristics of quality athletic trainers that were identified by participants in this study. It is further recommended that they work on the development of these characteristics and encourage them. The methods may be in the form of qualitative or quantitative data collection. Employees could provide a rating of their agreement with the quality descriptors and then rate the level that they demonstrate these characteristics. This data may provide constructive feedback to athletic trainers assisting them in their professional development.

Future research to address the limitations of this study are also warranted. This research collected information solely from certified athletic trainers. Other individuals that would be able to contribute meaningful descriptors of quality characteristics include coaches in education settings, physical therapists or medical doctors in clinical settings,
the patients or athletes in all settings, as well as family members. While these individuals might commonly arrive at many of the same descriptors of a quality athletic trainer, they could possibly add additional descriptors of importance. Future studies should also address the development of quality characteristics of athletic trainers from a variety of viewpoints.

**Conclusion**

This research examined an area of athletic training that is often discussed among professionals. However, no consensus or defendable theories appeared to exist in the literature. According to study participants, the quality athletic trainer exhibits the five latent constructs consisting of caring, communication, integrity, knowledge, and communication. Caring was described as being able to truly express an individual's concern for another's well being. According to study participants, quality athletic trainers have a vast amount of knowledge and value life-long learning. Being honest in all facets of the profession, and communicating effectively with others, were also identified as characteristics of a quality athletic trainer. Participants expressed that these characteristics require a time commitment, as well as dedication, if one is to become a quality athletic trainer. The five latent constructs fed into three higher order constructs of family rapport, patient rapport, and professional rapport. Study participants expressed that the quality athletic trainer will use the five latent constructs to develop and maintain positive relationships with their family and in their personal lives, while not sacrificing relationships with professionals and building rapport with patients to enhance healthcare. The profession of athletic training is constantly evolving and this research adds to the
profession's growth by clearly identifying and defining aspects required to become a quality athletic trainer.
An athletic trainer must complete a rigorous program of study at an institution, which has met standards set by the Commission on Accreditation of Athletic Training Education (CAATE) (Standards for the Accreditation of Entry-Level Athletic Training Education Programs, 2006). In addition to successful completion of an accredited program, an athletic trainer must also pass an exam administered by the Board of Certification (BOC) (BOC Standards of Professional Practice, 2006). However, academic achievement and high-test scores do not predict personality dispositions expected of professionals (Goodlad, 2002). In 2003, Larry Locke, professor emeritus from the University of Massachusetts commented that most educators have encountered at least one student effectively completing their educational program, whom they feel will not be a successful professional (Wayda & Lund, 2005). With these comments, Dr. Locke was referring to the idea that educational preparation is not the only factor contributing to the achievement or quality of professionals (Wayda & Lund, 2005). Therefore, while the evaluation of clinicians based on job performance or expected clinical outcomes has been a long-standing practice in the allied health care professions, successful completion of a certification process alone fails to ensure entry-level professionals will become quality health care providers.

The professions of nursing, physical therapy, and other allied health care fields have established characteristics of quality care and professional performance (Boggs & Arnold, 1999; Coyne, 2004; Crigger, 2001). Nursing has published documentation pertaining to the development of quality nurses, quality health care, transformation from
a novice to an expert nurse with experience, and how experienced nurses provide a higher
good of care (Benner, 2001; Boggs & Arnold, 1999; McKenna, Currie, & West, 2006).
Nursing has further reviewed interpersonal relationships and the resulting perceptions of
quality care in clinical settings (Crigger, 2001; McKenna, Currie, & West, 2006).
Likewise, the profession of physical therapy has assessed patient outcomes using a
multitude of descriptors. Physical therapists have qualitatively described expert practices
of physical therapists and have also identified generic abilities (Resnik & Jensen, 2003;
Wolfe-Burke, 2005). Generic abilities of physical therapists included commitment to
learning, interpersonal skills, communication and professionalism (Wolfe-Burke, 2005).
Confirmatory factor analysis performed on the qualitatively derived descriptors resulted
in construct validation of professional behaviors in physical therapists. It also supported
that professional development, communication, personal balance, interpersonal skills, and
working relationships significantly contributed to the model of professional behavior
(Jette & Portney, 2003).

The Quality Affirmation Theory (QAT; Raab, 2007) was the first study to
establish characteristics of a quality athletic trainers across a nationally generalizable
sample. The QAT was the first grounded theory attempting to verify the attitudinal
opinions of athletic trainers toward what makes an athletic trainer quality. According to
the QAT, quality athletic trainers exhibit five latent characteristics including care,
communication, integrity, knowledge, and commitment. These characteristics may enable
the quality athletic trainer to develop and maintain meaningful relationships with patients,
professionals and family members thereby enhancing the quality of health care provided
(Raab, 2007). According to comments made by participants in the QAT, they felt that
years of experience and education level predisposed an athletic trainer to being "quality" (Raab, 2007). Previous research involving health care professionals suggests that attitudes differ between the sexes and that attitudes change as individuals gain experience and education (Brandt, 1998; Hollenbeck, 1989; King & Magolda, 1990; Unger, 2001). Therefore, the purpose of this research was to establish if a certified athletic trainer's age, sex, years of experience and education level could account for agreement of the adjectives found in the QAT. The effect these variables have on the descriptors has not been previously explored. The Quality Athletic Trainer Questionnaire (QATQ) used a semantic differential and typical day vignettes to measure participants attitudes toward quality athletic trainer descriptors.

Methods

Sampling and Participants

The theoretical target population of this study was the entire certified regular membership of the NATA in good standing. A nonprobability convenience sample of attendees (N = 102) at the 2007 NATA Educators Conference was utilized for the pilot study (Kalton, 1983). The researcher attempted to contact each participant by phone to request participation (Appendix G) and then sent a follow up e-mail message. The e-mail message contained a brief overview of the project, a request to participate, a consent acknowledgement to participate in a research study, and a link to the web-based data collection instrument (Appendix H and F).

For this study, alpha was set at $\alpha = .05$ a priori. The regression effect size reported during the pilot study was .107. Using the program GPOWER (Erdfelder et al., 2006) to achieve a power of .8, with an effect size of .107, 4 predictor variables, and $\alpha = .05$ the
total sample size needed was 117. The NATA office of Information Technology reports an approximate return rate of electronic surveys as 11% (NATA, 2007). Over sampling to ensure the minimum sample size of 117 participants required soliciting 1068 participants. The required solicited participant number is approximately 5% of the total 21847 certified regular members of the NATA as reported in March 2007 ("NATA Membership Statistics", 2007). To ensure the random sample of 5% was equally stratified across the 10 districts, each district was randomly sampled independently. Table 4.2 displays the proportionate stratified sample or the number of certified regular members in each of the 10 NATA districts and the simple random sample to be drawn from each district.

Table 4.2

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</tr>
</tbody>
</table>

a priori power needed sample

The NATA Information Technology office provided a computer generated random list of 5% of the certified regular members from each of the 10 districts as presented in table 4.1. This list contained e-mail addresses of members that agreed to be contacted through their association with the NATA. Participants received an introductory e-mail (Appendix J) requesting participation in the study. A hyperlink to the web-based
Quality Athletic Trainer Questionnaire (QATQ) was provided for convenience (Appendix I).

Instrumentation

The Semantic Differential scaling technique, developed in the 1950s by Charles Osgood (Osgood, 1952) is an effective method to contrast opinions between descriptive opposites and is the chosen method to collect quantitative data for this study (Mueller, 1986; Neuman, 2000). Osgood looked at English adjectives across a wide variety of words and found they fell into one of three categories of meaning: evaluation, potency, and activity (Neuman, 2000). This study assessed evaluative adjectives in order to measure attitudes (Mueller, 1986). To construct a semantic differential instrument, a researcher develops a list of opposite adjectives relative to the subject matter they wish to have participants evaluate. Seven response categories between pairs representing equal units anchor the opposites on a measurement continuum. Participants mark the location between the adjectives that best reflects their feeling in relation to that adjective pair (Neuman, 2000). A minimal number of adjective pairs in well-constructed evaluative semantic differential scale are capable of producing high internal consistency coefficients of .90 or better (Mueller, 1986; Osgood, 1952).

QATS Development

The Quality Athletic Trainer Scale (QATS) is the first section of the QATQ. This evaluative semantic differential scale was developed using adjectives derived from the QAT. The researcher reviewed qualitative transcriptions, codings, and audio files making note of descriptive adjectives used by participants under the headings of care, commitment, communication, knowledge, and integrity that emerged from the QAT. The
researcher made every effort to use words actually expressed by respondents. The use of a thesaurus assisted in finding polar adjective opposites for each word. The direction of adjective pairs was randomly ordered to prevent or allow for the detection of response sets or satisficing. Each adjective pair was separated by a continuum of seven spaces to allow for responses. To assist in keying participants in on the relative mindset to compare the adjective pairs, adjectives had a heading corresponding to the headings derived from the QAT (care, commitment, communication, knowledge, and integrity). Each set of adjective pairs was preceded with brief instructions. Appendix I contains the complete instrument with instructions. The draft version of opposing adjectives was reviewed by three university professors, two of which are ATC's, for clarity and saliency to the subconstructs headings. Once agreement on the adjective pairs was reached, the literature driven demographics to be collected were added.

**QATD Development**

Further exploring how athletic trainers view the five latent constructs discovered in the QAT study, a vignette or real life dilemma was developed for each latent construct. Participants were not informed which construct the vignette addressed. The purpose behind the vignettes was to gain further insight of how participants would view an incident in their real lives. The situations presented simulated real life scenarios that globally demonstrate one of the QAT derived latent constructs. Anonymous names were provided to the characters to enhance a sense of personalization. The aforementioned professors also reviewed the vignettes for content and saliency. Each vignette was followed by three questions developed to elicit an attitudinal response from participants (Appendix I). The first question indicated the participant's agreement with the quality of
the decision made by the athletic trainer portrayed in the dilemma. The second question explored the possibility that an athletic trainer may have a varied opinion in the quality decision of another and may or may not still let that person provide care to a loved one. It is feasible that an individual may disagree with the professionalism portrayed by a health care provider, but still allow him to treat a loved one based on skill competence. Saliency of the dilemma was assessed by the third question. The demonstration of saliency increases response rate and objective responses (Paunonen, 1989; Sullins, 1989).

**Pilot Study Psychometric Properties**

The pilot sample consisted of 56 males and 45 female participants. Participants were classified into one of four degree levels based on their response and highest degree actually completed (BS: n = 2; MS: n = 52; EdD: n = 18; PhD: n = 29). The ages of participants in years and years of certified experience ranged from 20 to 64 and 0 to 37 respectively. Table 4.3 contains complete descriptive statistics for the pilot data.
Table 4.3

Descriptive Statistics for Pilot Data

<table>
<thead>
<tr>
<th>Item and Sum Scores</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years Experience</td>
<td>14.48</td>
<td>7.545</td>
<td>0</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Age in Years</td>
<td>37.62</td>
<td>8.221</td>
<td>20</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Care</td>
<td>102</td>
<td>18.34</td>
<td>5.09</td>
<td>9</td>
<td>36</td>
</tr>
<tr>
<td>Communication</td>
<td>101</td>
<td>17.42</td>
<td>6.08</td>
<td>11</td>
<td>44</td>
</tr>
<tr>
<td>Integrity</td>
<td>101</td>
<td>16.43</td>
<td>4.50</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>Commitment</td>
<td>100</td>
<td>17.12</td>
<td>4.74</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>Knowledge</td>
<td>101</td>
<td>23.69</td>
<td>8.08</td>
<td>13</td>
<td>52</td>
</tr>
<tr>
<td>Total Semantic Differential</td>
<td>100</td>
<td>93.05</td>
<td>25.24</td>
<td>56</td>
<td>200</td>
</tr>
<tr>
<td>Total Typical Day Scenarios</td>
<td>94</td>
<td>28.91</td>
<td>6.90</td>
<td>15</td>
<td>50</td>
</tr>
<tr>
<td>Total Instrument</td>
<td>94</td>
<td>120.82</td>
<td>27.18</td>
<td>77</td>
<td>245</td>
</tr>
</tbody>
</table>

An exploratory factor analysis (EFA) was performed on the pilot data at the individual item level of the QATS to establish evidence for validity of the five subconstructs found in the QAT. Item level factor analysis revealed an indeterminate structure of the scores. A five factor model could not be established. The items grouped in the first component and accounted for 44.4% of the variance, the second component only added an explanation of an additional 5.4%. A secondary EFA was performed on the summative scores for each of the five constructs in the QATS, again the constructs contributed significantly to the first component, accounting for 77.4% of the variance. The single component grouping provides a medium of evidence that the items are collectively measuring the construct of quality as identified by the QAT.
The item analysis performed after recoding the reversed semantic differential adjective pairs in the QATS produced a Cronbach alpha of .961. Reviewing the items with negative item correlations for clarity resulted in three adjective pairs being removed from the final instrument. The pairs of (pride/modest, vulnerable/protected, and staunch/restrained) had correlations of -.07, -.23, and -.01 respectively. The revised Cronbachs alpha for all remaining adjective pairs was .972.

The five vignettes presented in the QATD consisted of three questions per vignette. An item analysis conducted on all the vignette items yielded a Cronbach alpha of .785. All vignette items appeared to be clearly understandable and no items functioned negatively. The second question of the vignette did however have a lower item correlation than other subsections. This was attributed to participants varied opinions toward the value of some violations of the quality characteristics and a person's ability to provide competent healthcare. Table 4.4 contains the item analysis results for the pilot study broken down by subsection after recoding reversed items.
Table 4.4

<table>
<thead>
<tr>
<th>Instrument Section and Items</th>
<th>Cronbach Alpha</th>
<th>Number of Items</th>
<th>Negative Item</th>
<th>Cronbach Alpha after deletion</th>
</tr>
</thead>
<tbody>
<tr>
<td>All SD</td>
<td>.972</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care</td>
<td>.776</td>
<td>9</td>
<td>9</td>
<td>.895</td>
</tr>
<tr>
<td>Communication</td>
<td>.921</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrity</td>
<td>.793</td>
<td>9</td>
<td>4</td>
<td>.907</td>
</tr>
<tr>
<td>Knowledge</td>
<td>.913</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>.806</td>
<td>8</td>
<td>3</td>
<td>.895</td>
</tr>
<tr>
<td>All Vignette</td>
<td>.785</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vignette Decision</td>
<td>.752</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vignette Loved</td>
<td>.597</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vignette Context Recoded</td>
<td>.834</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* SD Semantic Differential

Procedures

Information gained from the pilot study led to the development of the final QATQ instrument. Following the a priori sampling plan and using the e-mail list provided by the NATA Information Technology office, potential participants were sent a single e-mail message. The e-mail message contained a brief overview of the project, a request to participate, a consent acknowledgement to participate in a research study, and a link to the web-based QATQ (Appendix I). Participation and completion of the instrument signified informed consent had been provided. The web-based instrument created a Microsoft Access Database file. This file was then downloaded from the server and

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imported into the Statistical Package for Social Sciences (SPSS, Inc., Chicago, Ill., v. 15) for analysis.

*Data Analysis*

Hierarchical multiple regression was used to determine if the independent variables (Sex, Age, Years Experience, and Educational Level) could predict change in the dependant variable (summative QATS and QATD scores). The QAT indicated that the most pervasive variables were degree and years of experience and of less significance were sex and age. To remove the variability of less pervasive variables sex and chronological age were entered in the first block to remove their variance from the developed model. The second block consisted of educational degree and years of experience. All statistical calculations were completed using the Statistical Package for Social Sciences (SPSS, Inc., Chicago, Ill., v. 15).

*Results*

In order to create a more parsimonious assessment and decrease the chance of errors a multiple hierarchical regression statistical technique was implemented. The data was screened for accuracy of entry and missing values prior to final analysis. The assumptions of linearity, normality, homoscedasticity, and multicollinearity were also assessed. The independent variables of age and years of experience were significantly correlated, \( r = .953 \), increasing the risk of large standard errors (Tabachnick & Fidell, 1996). The same variables had a variance inflation factor (VIF) of 11.1 and 10.9 respectively. A VIF greater than 10 indicates redundant information or collinearity (Rawlings, Pantula, & Dickey, 1998). Subsequently, age was removed from future calculations because it was not a pervasive variable of interest. Assessing the
independence of errors in the sequence of cases, the Durbin-Watson statistic was 2.05 or within an acceptable range (Tabachnick & Fidell, 1996). Cook's distance and Mahalanobis' distance statistics along with outliers beyond three standard deviations revealed two suspect cases. These two outliers were deleted from subsequent analyses. Graphs used for the visual interpretation of the assumptions of regression are available in the appendix (Appendices K-P).

The independent variables included participant sex (male and female), education level (BS, MS, EdD, and PhD), and years of experience as a certified athletic trainer. The categorical variable of educational level was coded into three variables: bachelors, masters, and a terminal degree. The summed score of the QATS and the QATD served as the dependant variable. All significant predictors were measured at the p < .05 level.

Demographics

A total of 301 athletic trainers completed all portions of the questionnaire, 31 were incomplete. The completed return rate of the 1068 solicited participants was 28%, exceeding the required 10% return determined by the a priori power analysis. The mean age of participants was 37.4 ± 9.32 with a range of 22 to 66 years. Females accounted for 38.6% (n = 128), males 59% (n = 196), while 8 participants did not report their sex. Participants degree levels were reported in 327 responses (BS: n = 51; MS: n = 242; EdS: n = 12; PhD: n = 22). The mean years of experience was 13.73 ± 8.43 ranging from 1 to 40 years. The dependant variable had 320 cases completed with a mean of 101.1 and a range of 62 through 184. Table 4.5 contains participants descriptive statistics.
Table 4.5

Participants Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in Years</td>
<td>309</td>
<td>37.40</td>
<td>9.32</td>
<td>22</td>
<td>66</td>
</tr>
<tr>
<td>Years Experience</td>
<td>331</td>
<td>13.73</td>
<td>8.43</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>QATQ Sum Score</td>
<td>320</td>
<td>101.08</td>
<td>21.24</td>
<td>62</td>
<td>184</td>
</tr>
</tbody>
</table>

Observed Psychometric Properties

An exploratory factor analysis (EFA) was performed on the data at the individual item level of the QATS to establish evidence of the five subconstructs, or components found in the QAT. Item level factor analysis revealed an indeterminate structure of the scores. A five factor model could not be established. The items grouped in the first component and accounted for 32.9% of the variance, the second component only added an explanation of an additional 5.6%. Review of the nomological network established during the QAT depicted that all the descriptors used in the QATQ summatively loaded into quality. If that is the case, it would be expected that the individual items would load into one component. A secondary EFA was performed on the summative scores for each of the five constructs in the QATS, again the constructs contributed significantly and near equally to the first component, accounting for 72.4% of the variance. The single factor grouping provides a medium of support that the items are collectively measuring the construct of quality as identified by the QAT. Table 4.6 provides EFA values of the summative scores.
Table 4.6

Exploratory Factor Analysis Loading of Summative Scores

<table>
<thead>
<tr>
<th>Component Matrix</th>
<th>Care</th>
<th>Comm</th>
<th>Inte</th>
<th>Know</th>
<th>Mmit</th>
<th>Eigen Value</th>
<th>% Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component 1</td>
<td>.85</td>
<td>.87</td>
<td>.80</td>
<td>.87</td>
<td>.87</td>
<td>3.62</td>
<td>72.42</td>
</tr>
</tbody>
</table>

Communalities Matrix

| Extraction       | .72  | .76  | .64  | .76  | .75  |

Note. Comm = Communication, Inte = Integrity, Know = Knowledge, and Mmit = Commitment.

The item analysis performed after recoding the reversed semantic differential adjective pairs in the QATS produced a Cronbach alpha of .949. An item analysis of the QATD produced a Cronbach alpha of .764. These scores indicate homogeneity of the instrument items providing a measure of construct validity (Cronbach & Meehl, 1955). The instrument appears to be cohesively measuring quality. Table 4.7 contains reliability statistics for the data broken down by subsection after recoding.
Table 4.7

Recoded Reliability Statistics for Data

<table>
<thead>
<tr>
<th>Instrument Section and Items</th>
<th>Cronbachs Alpha</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Semantic Differential (QATS)</td>
<td>.949</td>
<td>47</td>
</tr>
<tr>
<td>Care</td>
<td>.819</td>
<td>8</td>
</tr>
<tr>
<td>Communication</td>
<td>.868</td>
<td>11</td>
</tr>
<tr>
<td>Integrity</td>
<td>.815</td>
<td>8</td>
</tr>
<tr>
<td>Knowledge</td>
<td>.854</td>
<td>13</td>
</tr>
<tr>
<td>Commitment</td>
<td>.824</td>
<td>7</td>
</tr>
<tr>
<td>All Vignette (QATD)</td>
<td>.764</td>
<td>15</td>
</tr>
<tr>
<td>Vignette Decision</td>
<td>.544</td>
<td>5</td>
</tr>
<tr>
<td>Vignette Loved</td>
<td>.742</td>
<td>5</td>
</tr>
<tr>
<td>Vignette Context Recoded</td>
<td>.826</td>
<td>5</td>
</tr>
</tbody>
</table>

Hypothesis Testing

The purpose of this study was to determine if the age, sex, education level, and years of experience of certified athletic trainers could predict their agreement with the mean sum scores of the QATQ. A hierarchical multiple regression was conducted to predict the summative attitude toward the adjective descriptors of a quality ATC using the QATQ. The QAT indicated that educational level and years of experience would be more influential on the summative attitude than sex. A theory driven decision was used to enter "sex" in the first block with "education level" and "years experience" in the second block. The regression results for the first stage of the analysis indicated that "sex" in the model failed to significantly predict the dependant variable, $R^2 = .003$, $R^2$ change = .003,
$R^2_{adj} = -0.001, F(1, 308) = 0.828, p = 0.363$. The results of the second stage of the analysis indicated that the addition of "years experience" failed to significantly predict the dependant variable, $R^2 = 0.011, R^2 \text{ change} = 0.008, R^2_{adj} = 0.004, F(2, 307) = 1.656, p = 0.193$. The third stage results indicated that the addition level of "education" also failed to predict the dependant variable, $R^2 = 0.014, R^2 \text{ change} = 0.004, R^2_{adj} = 0.002, F(5, 304) = 0.878, p = 0.496$. Table 4.8 presents a summary of the regression coefficients for the three models. The results support the three null hypotheses. This indicates that there is no difference between the variables or the instrument and theory may not have captured a complete assessment of the quality descriptors.

Table 4.8

<table>
<thead>
<tr>
<th>Regression Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>1. Sex</td>
</tr>
<tr>
<td>2. Sex</td>
</tr>
<tr>
<td>2. Years Exp</td>
</tr>
<tr>
<td>3. Sex</td>
</tr>
<tr>
<td>3. Years Exp</td>
</tr>
<tr>
<td>3. Deg BS</td>
</tr>
<tr>
<td>3. Deg MS</td>
</tr>
<tr>
<td>3. Deg Term</td>
</tr>
</tbody>
</table>
Discussion

Identification of personal characteristics that allow an athletic trainer to work along side other professionals, find time for personal life, and provide high quality health care are important considerations according to participants' in this study. The results suggest that sex, years experience, and the educational level of certified athletic trainers do not explain variance in mean sum scores on the QATQ. However, participants consistently expressed a favorable opinion toward the positive adjectives and concepts found in the QAT as measures of a quality athletic trainer. This agreement establishes a beginning level of validity. The descriptors appear to be at least part of the complete understanding of a quality athletic trainer.

Effect of the Independent Variable Sex

Previous research postulates a potential difference in attitudes between men and women (McCutcheon, 1996; Wallston, DeVallis, & Wallston, 1983). Therefore, the variability of the dependant variable in this study between the sexes was assessed. A significant difference in attitudinal agreement between the sexes could influence approaches used in educational settings in regards to methods of instruction ensuring both sexes perceive information in similar manners. These possible differences could also affect the quality of care provided. Two studies investigating the comfort of athletes and athletic trainers being treated by or treating individuals of the opposite sex reported a difference in comfort levels according to sex (Drummond, Hostetter, Laguna, Gillentine, & Rossi, 2007; Drummond, Velasquez, Cross, & Jones, 2005). While these two studies support a potential difference in attitudes or comfort levels between the sexes, they failed to assess the quality of the care provided. If discomfort fails to prevent quality care, the
recommendations made to adjust education programs based on that outcome may not be warranted. Employers may also have to consider the perception and attitudes of male or female employees and how this may impact their ability to provide quality care, balance their personal lives, and work with others. Oftentimes employers place athletic trainers in leadership positions. The interaction between males and females in the work place or as leaders may be affected if there is significant disagreement between their perceptions of what constitutes quality health care and how to be a leader. However, leadership behaviors have been assessed in athletic trainers and no significant differences were found between the sexes (Laurent & Bradney, 2007). This finding parallels the current study which also detected no significant difference between the sexes. Males and females similarly agree with the descriptors of a quality athletic trainer. This may be a result of working with diverse populations and possessing similar minimal educational backgrounds as required from the BOC. This supports that no immediate adjustments to the educational structure based on sex are necessitated. However, differences between the sexes and stylistic learning has been previously reported and pedagogical considerations for the sexes was recommended (Gould & Caswell, 2006). This obvious lack of consensus in the research pertaining to how the sex of a health care provider affects the domains of health care requires further investigation.

Effect of the Independent Variable Years of Experience

While not a component of the QAT and not included in discussion of the developed constructs, when reviewing the transcripts provided during development of the QAT, the participants referred to athletic trainers with additional years experience as being more efficient in meeting the demands of providing quality health care (Raab,
Changes in behavior perceptions among health care providers with greater experience has been previously supported (Nath, Schmidt, & Gunel, 2006). Adults with less experience have been found to approach topics as a novice and change their approach as they acquire experience (Brandt, 1998). The aforementioned studies justified the inclusion of years of experience as a variable of interest. There may be a significant difference in agreement with the descriptors of quality or the quality of care provided with additional years of experience. Clinical instructors in education programs have varied years of experience, and it is possible that these years of experience may affect their attitude toward education, or what constitutes quality health care. New graduates recently certified as athletic trainers cannot be approved clinical instructors (ACI) for at least a year (Standards for the Accreditation of Entry-Level Athletic Training Education Programs, 2006). This rule supports an expected change in performance with experience. However, this study found no support for a change in attitudes toward what constitutes quality health care with years of experience. This finding challenges the notion that ACIs are required to have one year of experience. The results of this study also challenge the presumption that a minimum number of years experience be listed as a prerequisite on a position vacancy notice. Studies assessing clinical performance based on experience have found no significant effect based on clinical experience (Brooks & Thomas, 1995; Shirk, Sandrey, & Erickson, 2006). There is no empirical evidence that supports experience as an individual predictor of being able to provide quality health care.

Effect of the Independent Variable Education Level

While not a component of the QAT and not included in discussion of the developed constructs, participant comments in the interview transcripts suggested that
education level would result in varied agreement with adjective descriptors of a quality athletic trainer (Raab, 2007). This notion was also supported in a review of certified athletic trainers perceptions describing what was important to quality athletic training programs. It was found that those with a doctoral degree compared to a masters degree had varied opinions of what was important (Seegmiller, 2006). Degree attainment has also been supported as having the ability to adjust a person's ability to think critically (King & Magolda, 1990). This study collected opinions toward descriptors of quality athletic trainers from participants with bachelors, masters, and terminal degrees. There was however, no significant difference in the summative scores on the QATQ based on degree level. This is supported clinically in a study looking at the effect of additional education on the outcomes of neck pain therapy. It reported no difference in outcomes when comparing physical therapists with additional training (Brennan, Fritz, & Hunter, 2006). An additional item of discussion among certified athletic trainers has been requiring a masters degree as the entry level requirement to become a certified athletic trainer. The profession of physical therapy has recently switched from an entry-level masters program to a clinical doctorate program. However, there is no perceived difference among physical therapy students on the importance of this transition, the enhancement of skills, or the perceived professional reflection of such a degree (Johanson, 2005). The only perceived difference was in the expectation of becoming a faculty member. Students who preferred the doctorate degree expressed an interest in becoming faculty members (Johanson, 2005). This literature suggests that terminal degrees are better suited for future educators and not necessary for clinical proficiency. This current study would not support that the ability to provide or agree on what
constitutes quality health care would be enhanced with a degree beyond a bachelors. Future studies should assess skills looking at degree as the variable of interest.

Limitations

While the participants appeared to have a positive attitude toward the descriptors of a quality athletic trainer, the independent variables of sex, experience, and education level failed to predict their level of agreement. The instrument was designed to assess opinions or feelings toward a construct, in this case, descriptors of a quality athletic trainer. The instrument did not assess if participants actually displayed or put into practice the qualities they deemed as important. In the future, an instrument assessing self-reported agreement with the descriptors and level of demonstration of the descriptors might reveal variables that predict the level of demonstration more succinctly. Patient reporting on similar adjectives and if the athletic trainer providing care exhibits these qualities may also differentiate ratings based on sex, years of experience, or education level.

Additional limitations are the number of participants with a bachelors degree and the response rate. Only four participants had a bachelors degree with a majority having a masters. This may have limited the detectable variability between educational levels. Future studies should attempt to evenly distribute participants by degree level. This study was the first step in establishing quantitative evidence supporting the QAT's definition of the constructs of a quality athletic trainer (Raab, 2007). The establishment of validity and reliability is an ongoing process and future research is warranted.
Conclusions

This incentive behind this research arose out of personal observations of patient care provided by athletic trainers and discussions with other professionals about the variations in clinical abilities of athletic trainers. The consensus was even though they may all be certified there are some whom may not be the chosen athletic trainer to care for yourself or a loved one. The second driving force pertained to athletic trainers changing professions because of time conflicts that negatively affected their personal lives. With no consensus or theories presenting repeated measures of validity describing a quality athletic trainer, the achievement of reliable measures that differentiate between entry level certified athletic trainers and quality certified athletic trainers became the global perspective of the study.

The Quality Affirmation Theory (Raab, 2007) was the first attempt to globally define a quality athletic trainer. The QAT defined constructs of a quality athletic trainer, established a list of quality descriptors and an exploratory theory of a quality athletic trainer (Raab, 2007). This study was the first attempt to quantitatively explore the previously identified constructs of a quality athletic trainer. High internal consistency and lower scores on the QAT support that certified athletic trainers in this study shared similar opinions with the descriptors presented as representing quality athletic trainers. The scaling methods chosen for the QAT were able to establish if certified athletic trainers agreed with the descriptors, but not if they demonstrated the characteristics of a quality athletic trainer. This prevented the prediction of item agreement based on the sex, years of experience, and education level of certified athletic trainers. However, having an established list of adjectives will allow for future instrument creation. Future instruments
should focus on further supporting the lists as reliable descriptors but also if health care providers demonstrate these characteristics. Additional characteristics depicting a quality athletic trainer may also be arrived at by consulting with family members and other health care professionals, expanding on those established by athletic trainers.
CHAPTER V: DISCUSSION

Summary

This incentive behind this research arose out of personal observations of patient care provided by athletic trainers and discussions with other professionals about the variations in clinical abilities of athletic trainers. The consensus was even though they may all be certified there are some who may not be the chosen athletic trainer to care for yourself or a loved one. The second driving force pertained to athletic trainers changing professions as a result of time conflicts that negatively impacted their personal lives. With no consensus or theories presenting repeated measures of validity describing a quality athletic trainer, the achievement of reliable descriptors and a theory of quality certified athletic trainers became the global perspective of the study.

This mixed methods study led to the development of the Quality Affirmation Theory (QAT) defining the characteristics of quality athletic trainers from the perceptions of certified athletic trainers. According to study participants, athletic trainers who demonstrate the ability to care, show commitment and integrity, value professional knowledge, and communicate effectively with others can be classified as quality athletic trainers. These abilities allow the quality athletic trainer to create positive relationships and develop rapport. The people they will develop a positive rapport with will be other professionals and their patients while not sacrificing family and personal time. The developed theory suggests that these five sub-constructs feed into the three higher order constructs of rapport, and quality is the next higher order construct.

Identification of personal characteristics that allow an athletic trainer to work along side other professionals, find time for personal life, and provide high quality
healthcare are important considerations according to participants in this study. While not a component of the QAT and not included in discussion of the developed constructs, comments made during participant interviews suggested that years of experience and education level predisposed an athletic trainer to being "quality." The quantitative results did not differentiate descriptors of participant's agreement with the descriptors of a quality athletic trainer based on sex, years of experience or education level. Participants consistently agreed with the adjectives and concepts found in the QAT as measures of a quality athletic trainer assessed using the Quality Athletic Trainer Questionnaire (QATQ).

Future implications

Education

While not a component of the QAT and not included in discussion of the developed constructs, participant comments during the interviews suggested that education level might result in varied agreement with the adjective descriptors of a quality athletic trainer. This notion was also supported in a review of certified athletic trainers' perceptions describing what was important to quality athletic training programs. It was found that those with a doctoral degree compared to a masters degree had varied opinions of what was important (Seegmiller, 2006). Degree attainment has also been supported as having the ability to adjust a person's ability to think critically (King & Magolda, 1990). This study collected opinions toward descriptors of quality athletic trainers from participants with bachelors, masters, and terminal degrees. There was, however, no significant difference in rating of the quality descriptors based on degree level. This is supported clinically in a study looking at the effect of additional education.
on the outcomes of neck pain therapy; it reported no difference in outcomes when comparing physical therapists with additional training (Brennan, Fritz, & Hunter, 2006). An additional item of discussion among certified athletic trainers has been requiring a masters degree as the entry level requirement to become a certified athletic trainer. The profession of physical therapy has recently switched from an entry-level masters program to a clinical doctorate program. However, there is no perceived difference among physical therapy students on the importance of this transition, the enhancement of skills, or the perceived professional reflection of such a degree (Johanson, 2005). The only perceived difference was in the expectation of becoming a faculty member. Students who preferred the doctorate degree expressed an interest in becoming faculty members (Johanson, 2005). This literature suggests that terminal degrees are better suited for future educators and not necessary for clinical proficiency. The quantitative section of the current study would not support that the ability to provide or agree on what constitutes quality healthcare would be enhanced with a degree beyond a bachelors. Future studies should assess skills looking at degree as the variable of interest.

*Years of Experience*

Reviewing the transcripts provided during development of the QAT, the participants referred to athletic trainers with additional years of experience as being more efficient in meeting the demands to provide quality healthcare. Changes in behavior perceptions among healthcare providers with greater experience has been previously supported (Nath, Schmidt, & Gunel, 2006). Adults with less experience have been found to approach topics as a novice and change their approach as they acquire experience (Brandt, 1998). The aforementioned studies justified the inclusion of years of experience
as a variable of interest on the QATQ. There may be a significant difference in agreement with the descriptors of quality or the quality of care provided with additional years of experience. Clinical instructors in education programs have varied years of experience, and it is possible that these years of experience may affect their attitude toward education, or what constitutes quality healthcare. New graduates recently certified as athletic trainers cannot be approved clinical instructors (ACI) for at least a year (Standards for the Accreditation of Entry-Level Athletic Training Education Programs, 2006). This rule supports an expected change in performance with experience. However, the quantitative portion of this study found no support for a change in attitudes toward what constitutes quality healthcare with years of experience. This finding challenges the notion that ACIs are required to have one year of experience. The results of this study also challenge the presumption that a minimum number of years experience be listed as a prerequisite on a position vacancy notice. Studies assessing clinical performance based on experience have found conflicting reports on the significance effect based on clinical experience (Ballantyne et al., 1995; Brooks & Thomas, 1995; Shirk, Sandrey, & Erickson, 2006). There is no empirical evidence that supports experience as an individual predictor of being able to provide quality healthcare and should be further studied.

Sex

While development of the QAT did not support sex as a variable determining quality characteristics, previous research postulates a potential difference in attitudes between men and women (McCutcheon, 1996; Wallston, DeVallis, & Wallston, 1983). Therefore, the variability of the dependant variable in the QATQ between the sexes was assessed. A significant difference in attitudinal agreement between the sexes could
influence approaches used in educational settings in regards to methods of instruction ensuring both sexes perceive information in similar manners. These possible differences could also affect the quality of care provided. Two studies investigating the comfort of athletes and athletic trainers being treated by or treating individuals of the opposite sex reported a difference in comfort levels according to sex (Drummond, Hostetter, Laguna, Gillentine, & Rossi, 2007; Drummond, Velasquez, Cross, & Jones, 2005). While these two studies support a potential difference in attitudes or comfort levels between the sexes, they failed to assess the quality of the care provided. The focus of the current study was quality and if discomfort fails to prevent quality care, the recommendations made to adjust education programs based on that outcome may not be warranted. Employers may also have to consider the perception and attitudes of male or female employees and how this may impact their ability to provide quality care, balance their personal lives, and work with others. Many employers place athletic trainers in leadership positions. The interaction between males and females in the work place or as leaders may be affected if there is significant disagreement between their perceptions of what constitutes quality health care and how to be a leader. Leadership behaviors have, however, been assessed in athletic trainers and no significant differences were found between the sexes (Laurent & Bradney, 2007). That parallels the results of the current research, which detected no significant difference between the sexes. Males and females similarly agree with the descriptors of a quality athletic trainer. This may be a result of working with diverse populations and possessing similar minimal educational backgrounds as required from the BOC. This supports that no immediate adjustments to the educational structure based on sex are necessitated. However, differences between the sexes and stylistic learning has
been previously reported and pedagogical considerations for the sexes was recommended (Gould & Caswell, 2006). Assessment of career success of physical therapist also found that females are limited to a greater degree by conflicts to manage their family (Rozier, Raymond, Goldstein, & Hamilton, 1998). This obvious lack of consensus in the research pertaining to how the sex of a healthcare provider affects the domains of healthcare requires further investigation.

**Employment**

In an employment setting, the instruments used to assess the employed athletic trainer may or may not include items related to the identified characteristics of a quality athletic trainer established in the QAT. In an effort to retain or develop quality athletic trainers, those responsible for their assessment should understand the requisite characteristics of a quality athletic trainer and strive to develop them. This may improve healthcare, working relationships, and help athletic trainers maintain a healthy family or personal life. A systematic review of current assessment instruments may be beneficial.

It is recommended that employers become familiar with the characteristics of quality athletic trainers that were identified. It is further recommended that they work on the development of methods to encourage these characteristics in those athletic trainers that could benefit from these enhancements. The developed methods may be in the form of qualitative or quantitative data collection. This data may provide constructive feedback to athletic trainers assisting them in their professional development.

**Limitations**

The development of the QAT collected information solely from certified athletic trainers. Other individuals that would be able to contribute meaningful descriptors of
quality characteristics include coaches, physical therapists, medical doctors, the patients or athletes treated by athletic trainers, and family members. While these individuals might arrive at many of the same descriptors of a quality athletic trainer, they could possibly add additional descriptors of importance. Future qualitative studies should address the development of quality characteristics of athletic trainers from a variety of viewpoints.

The participants completing the QATQ agreed with the descriptors of a quality athletic trainer; however, the independent variables of sex, experience, and education level failed to predict their level of agreement. The instrument was designed to assess opinions or feelings toward a construct, in this case, descriptors of a quality athletic trainer. The instrument did not assess if participants actually displayed or put into practice the qualities they deemed as important. In the future, an instrument assessing self-reported agreement with the descriptors and level of demonstration of the descriptors might reveal variables that predict the level of demonstration more succinctly. Patient reporting on similar adjectives and if the athletic trainer providing care exhibits these qualities may also differentiate ratings based on sex, years of experience, or education level.

Additional limitations are the number of participants with a bachelors degree and the response rate. Only four participants had a bachelors degree with a majority having a masters. This may have limited the detectable variability between educational levels. Future studies should attempt to evenly distribute participants by degree level. The response rate for completed instruments was 28% and is below normal conventions as an acceptable return rate. However, solicitation of athletic trainers using electronic media...
has previously been reported as averaging return rates of approximately 11%, thus 28% was deemed acceptable for this study. An aim to increase response rate might still be considered in future studies. The QATQ was the first step in establishing quantitative evidence supporting the QAT and its definitions of the constructs of a quality athletic trainer. The establishment of validity and reliability is an ongoing process and future research is warranted.

Areas of interest

Areas of interest stemming from this research will involve similar methodologies, use of qualitative data acquisition leading to a theory that can be quantitatively assessed. Following similar research designs with patients, coaches, administrators, and family members will expand the current theory depicting a quality athletic trainer. These future studies will increase the depth and understanding of the constructs of a quality athletic trainer. An expanded theory is the ultimate goal of these follow up studies that may lead to methods to improve the profession of athletic training. Of similar interest will be the assessment of teacher candidates in the fields of health and physical education. The professions of education and athletic training have parallel concerns in regards to what makes a quality professional. Educational settings refer to quality or the aptitude to be a professional instructor through assessments of dispositions. It is the researcher's belief that many of the characteristics of a quality athletic trainer will be the same that determine the quality of a physical educator.

Conclusions

According to the qualitative study participants, the quality athletic trainer exhibits five latent constructs consisting of caring, communication, integrity, knowledge, and
communication. Caring was described as being able to truly express an individual's concern for another's well being. According to study participants, quality athletic trainers have a vast amount of knowledge and value life-long learning. Being honest in all facets of the profession, and communicating effectively with others were also identified as characteristics of a quality athletic trainer. Participants expressed that these characteristics require a time commitment, as well as dedication, if one is to become a quality athletic trainer. The five latent constructs fed into three higher order constructs of family rapport, patient rapport, and professional rapport. Study participants expressed that the quality athletic trainer will use the five latent constructs to develop and maintain positive relationships with their family and in their personal lives, while not sacrificing relationships with professionals and building rapport with patients to enhance healthcare. The QAT explained above was the first attempt to globally define a quality athletic trainer. The QATQ was the first attempt to quantitatively explore the previously identified constructs of a quality athletic trainer. The QATQ found that the adjective descriptors of the five subconstructs defined in the QAT do quantitatively measure quality, even though factor support of the subconstructs was not individually achieved. High internal consistency and lower scores on the QATQ support that certified athletic trainers agreed with the descriptors presented as representing quality athletic trainers. The scaling methods chosen for the QATQ were able to establish if certified athletic trainers agreed with the descriptors, but not if they demonstrated the characteristics of a quality athletic trainer. This prevented the prediction of item agreement based on the sex, years of experience, and education level of certified athletic trainers. However, having an established list of adjectives will allow for future instrument creation. Future instruments
should focus on further supporting the lists as reliable descriptors but also if healthcare
providers demonstrate these characteristics. Additional characteristics depicting a quality
athletic trainer may also be arrived at by consulting with family members, patients, and
other healthcare professionals expanding on those established by athletic trainers in this
mixed methods study. The profession of athletic training is constantly evolving and this
research adds to the profession's growth by clearly identifying and defining aspects
required to become a quality athletic trainer.
Appendix A: Initial Qualitative IRB Application and Approval

TO: Scot A. Raab
118 College Drive #6810
Hattiesburg, MS 39406-0001

FROM: Lawrence A. Hoeman, Ph.D.
HSPRC Chair

PROTOCOL NUMBER: 26040301
PROJECT TITLE: Exploring and Identifying the Construct of a Successful Certified Athletic Trainer (ATC)

Enclosed is The University of Southern Mississippi Human Subjects Protection Review Committee Notice of Committee Action taken on the above referenced project proposal. If I can be of further assistance, contact me at (601) 266-4279, FAX at (601) 266-4275, or you can e-mail me at Lawrence.Hoeman@usm.edu. Good luck with your research.
The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.
- If approved, the maximum period of approval is limited to twelve months.

Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 26040301
PROJECT TITLE: Exploring and Identifying the Construct of a Successful Certified Athletic Trainer (ATC)
PROPOSED PROJECT DATES: 03/29/06 to 03/29/07
PROJECT TYPE: Dissertation or Thesis
PRINCIPAL INVESTIGATORS: Scot A. Raab
COLLEGE/DIVISION: College of Health
DEPARTMENT: Human Performance & Recreation
FUNDING AGENCY: N/A
HSPRC COMMITTEE ACTION: Exempt Approval
PERIOD OF APPROVAL: 04/27/06 to 04/26/07

Lawrence A. Hosman, Ph.D. Date
HSPRC Chair
Name: Scot A. Raab
Phone: 407-928-2287

E-Mail Address: scot.raab@usm.edu

Mailing Address: The University of Southern Mississippi, #6810, Hattiesburg, MS 39406 (address to receive information regarding this application)

College/Division: College of Health
Dept: Human Performance & Recreation

Department Box #: Box 5142
Phone: 601-266-6325

Proposed Project Dates: From 3/29/2006 To 3/29/2007 (specific month, day and year of the beginning and ending dates of full project, not just data collection)

Title: Exploring and identifying the construct of a successful certified Athletic Trainer (ATC)

Funding Agencies or Research Sponsors: N/A
Grant Number: N/A

X New Project

Dissertation or Thesis

Renewal or Continuation: Protocol #

Change in Previously Approved Project: Protocol #

Principal Investigator: [Signature]
Date: 3/30/06

Advisor: [Signature]
Date: 3/30/06

Department Chair: [Signature]
Date: [Signature]

RECOMMENDATION OF HSPRC MEMBER

Category I, Exempt under Subpart A, Section 46.101 (b) (2), 45CFR46.

Category II, Expedited Review, Subpart A, Section 46.110 and Subparagraph (f).

Category III, Full Committee Review.

HSPRC College/Division Member: [Signature]
Date: 04/07/06

HSPRC Chair: [Signature]
Date: 05/01/06

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Appendix B: Qualitative Consent Form

THE UNIVERSITY OF SOUTHERN MISSISSIPPI
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT

Consent is hereby given to participate in the study titled: Exploring and identifying the construct of a successful certified Athletic Trainer (ATC).

PRINCIPAL INVESTIGATOR: Scot A. Raab MS, ATC

PURPOSE: The project goals are to complete audio taped interviews with certified athletic trainers (ATC's) at high school, college, and clinical health care settings in an attempt to define what a successful ATC is. Compiled data will be used to define the construct of a successful ATC. A modified Delphi Technique will be used with one-on-one interviews with the selected panel of experts.

DESCRIPTION OF STUDY: ATCs will be interviewed from various clinical employment settings (high school div 1A, 2A, 3A, 4A, 5A, and 6A; college div I, II, III, NAIA, liberal arts, and private colleges, and clinical health care settings). Participants will be certified athletic trainers. They will hold at minimum a bachelors degree and be 25 years of age or older. Participants will be clinical practicing ATCs at and employed by the selected setting with a minimum of 5 years experience working as an ATC. The audio taped interview will consist of one primary question with various follow up questions to acquire information pertaining to the research question of, “What is a successful ATC?” The procedure will take on average 15-20 minutes and would rarely last longer than 30 minutes. At the conclusion of all interviews, audio recordings will be transcribed. A bullet list of identified interview themes with out identifying subject data will be mailed to each participant. Participants will only know the setting that the bullet list came from and not the individual. Participants will be asked to review the list and add additional descriptors that may develop as a result of reading other descriptions. The review of the list should take less than one hour. Participants will be asked to return the bullet list in a self addressed stamped envelop after making additional comments. Maximal total time required of a participant is 90 minutes. Participation will aid the investigator in defining the construct of a successful ATC.

BENEFITS: Participants will be involved in describing and gaining an understanding of the construct of a successful ATC. They will also have access to the results and may use this data to improve employee and student recruiting.

RISKS: There are no known physical, financial or social risks to the participants. Participants may feel uncomfortable speaking during the interview and being audio taped. Participants will be informed of the audio taping prior to signing the consent form and again at the start of the audio recording. Information obtained in this study that could identify the participants will be kept locked in confidential files. When the audio tapes are sent for transcription they will be numbered with out personal identifying information.

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provided to the transcription company. Publications and presentations will not contain personal identifying data. Only the primary researcher will have access to all data. Dissertation committee members will have access to all data except that which would identify individual participants. Data collected via written statements made during the interview, the audio recording of the interview, audio transcriptions, and follow up notes from participants to transcribed data will be kept in a secure locked office and file indefinitely to allow for the possibility of further qualitative review. All identifying information besides the employment setting will be destroyed.

**VOLUNTARY PARTICIPANT AND TERMINATION:** Participation in this project is completely voluntary, and participants may withdraw from this research at any time without penalty, prejudice, or loss of benefits. At anytime a participant wishes to stop further participation all the data collected from that individual will be destroyed at that time (deleted tape or shredded transcription and interview notes). Questions concerning the research should be directed to Scot A. Raab at 407-928-2287. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive # 5147, Hattiesburg, MS 39406-0001, (601) 266-6820. A copy of this form will be given to the participant.

Signature of Research Participant

Date

Signature of Principal Investigator Explaining the Research

Date
Appendix C: Scripted Qualitative Interview Sheet

Scripted Interview Question Sheet

These are general questions and orders of questions to ensure that all participants are interviewed in a similar fashion. Specific questions and phraseology may vary depending on the individuals specific responses.

**Introduction and reading:** My name is Scot Raab, the primary investigator. Please state your interview number. _______. This interview is being recorded, do you agree to be audio recorded? ______

1) Tell me what a successful ATC is?
   - How do you describe success?
   - Provide some examples

2) Tell me about the best ATC with whom you have worked.
   - What made them stand out?
   - What do you remember about them that makes them the best?

3) Tell me about the ATC you would hire to assist you
   - Why is that …… important?
   - What do you search for in an assistant?

4) Tell me about the ATC you would like to emulate

5) If you were being cared for/treated by an ATC, what would be important to you?
   - Why is that …… important?
   - Same question but for a significant other (spouse, child, etc)

6) Earlier you mentioned …… *(this list will develop with in and with increased interviews: ethics, compassion, heart felt, communication, didactic, empathy, charitable, assured, confident, inquisitive, etc)*… elaborate on that.
   - Why is that important?
   - How does that effect their job performance?

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At this point, return to previous answers and ask the question again in a rephrased format and look for elaborations.
Appendix D: Qualitative Nomological Network

Quality ATC

Family Rapport  Professional Rapport  Patient Rapport

Communication  Commitment  Caring  Integrity  Knowledge

A1 A2 A3 A4 A5  B1 B2 B3 B4 B5  C1 C2 C3 C4 C5  D1 D2 D3 D4 D5  E1 E2 E3 E4 E5
Appendix E: Updated Quantitative IRB Application and Approval

The University of Southern Mississippi
Institutional Review Board

TO: Scot Raab
118 College Drive #6810
Hattiesburg, MS 39406-0001

FROM: Lawrence A. Hosman, Ph.D.
HSPRC Chair

PROTOCOL NUMBER: C26040301
PROJECT TITLE: Exploring and Identifying the Construct of a Successful Certified Athletic Trainer (ATC)

Enclosed is The University of Southern Mississippi Human Subjects Protection Review Committee Notice of Committee Action taken on the above referenced project proposal. If I can be of further assistance, contact me at (601) 266-4279, FAX at (601) 266-4275, or you can e-mail me at Lawrence.Hosman@usm.edu. Good luck with your research.
The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.

Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: C26040301
PROJECT TITLE: Exploring and Identifying the Construct of a Successful Certified Athletic Trainer (ATC)
PROPOSED PROJECT DATES: 03/29/06 to 03/29/07
PROJECT TYPE: Dissertation or Thesis
PRINCIPAL INVESTIGATORS: Scot A. Raab
COLLEGE/DIVISION: College of Health
DEPARTMENT: Human Performance & Recreation
FUNDING AGENCY: N/A
HSPRC COMMITTEE ACTION: Change in Previously Approved Project
PERIOD OF APPROVAL: 01/16/07 to 01/15/08

Lawrence A. Hosman, Ph.D. 1-16-07
HSPRC Chair
HUMAN SUBJECTS REVIEW FORM
UNIVERSITY OF SOUTHERN MISSISSIPPI
(SUBMIT THIS FORM IN DUPLICATE)

Protocol # C 2604031

Name: Scott A. Raab
Phone: 228-219-1216

E-Mail Address: scot.raab@usm.edu

Mailing Address: 2809 Bud McKey Circle, Valdosta, GA 31602
(address to receive information regarding this application)

College/Division: College of Health
Department: Human Performance & Recreation
Department Box #: 5142
Phone: 901-266-6325

(specific month, day and year of the beginning and ending dates of full project, not just data collection)

Title: Exploring and identifying the constructs of a quality certified Athletic Trainer (ATC)

Funding Agencies or Research Sponsors: N/A
Grant Number (when applicable): N/A

__ X New Project
__ X Dissertation or Thesis
__ X Renewal or Continuation: Protocol #
__ X Change in Previously Approved Project: Protocol # C 2604031

Principal Investigator: [Signature]
Date: 12/18/2006

Advisor: [Signature]
Date: 01/03/07

Department Chair: [Signature]
Date: 1/5/07

RECOMMENDATION OF HSPRC MEMBER:

I, [Name], Category I, Exempt under Subpart A, Section 46.101(b)(2), 45CFR48.

I, [Name], Category II, Expedited Review, Subpart A, Section 46.110 and Subparagraph (c).

I, [Name], Category III, Full Committee Review.

HSPRC College/Division Member: [Signature]
Date: 01/11/07

HSPRC Chair: [Signature]
Date: 1/14/07
Appendix F: Online Quantitative Pilot Data Collection Instrument

Quality Athletic Trainer Questionnaire

Instructions: Please fill-in the blank or circle one answer.

Date of Birth (mm/dd/yyyy): [ ] [ ] [ ]

Sex: C Male C Female

Years Certified as an ATC (1, 2, 3, etc.):

Primary Setting: C High School C Clinic
C Clinic-Outreach C College
C Professional C Hospital
C Other (Explain)

NATA District (1, 2, 3, etc.):

Highest Degree Earned: C BS C MS
C EdD C PhD
C Other (Explain)

Begin Questionnaire

Quality Athletic Trainer Questionnaire

Instructions: The following sections will require you to check a position between each adjective pair. The orientating descriptor is underlined above the section. A sample is provided below. Please check the position between this adjective pair that best describes the sample. One selection must be made for each adjective pair prior to advancing to the next section.

SAMPLE

Good [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] Bad

Next

Progress:
Quality Athletic Trainer Questionnaire

Instructions: Previous research supports that a quality athletic trainer demonstrates care for family members, patients and other professionals with whom they interact. To assist with further explanation of this construct, please check the position between each adjective pair that best describes an athletic trainer that demonstrates quality care. One selection must be made for each adjective pair prior to advancing to the next section.

CARE

Unapproachable ☐ ☐ ☐ ☐ ☐ ☐ Approachable
Encourage ☐ ☐ ☐ ☐ ☐ ☐ Hinder
Empathetic ☐ ☐ ☐ ☐ ☐ ☐ Unconcerned
Sad ☐ ☐ ☐ ☐ ☐ ☐ Happy
Compassionate ☐ ☐ ☐ ☐ ☐ ☐ Unkind
Supportive ☐ ☐ ☐ ☐ ☐ ☐ Counteractive
Alienating ☐ ☐ ☐ ☐ ☐ ☐ Friendly
Interested ☐ ☐ ☐ ☐ ☐ ☐ Neglectful
Proudful ☐ ☐ ☐ ☐ ☐ ☐ Modest

COMMUNICATION

Vague ☐ ☐ ☐ ☐ ☐ ☐ Expressive
Attentive ☐ ☐ ☐ ☐ ☐ ☐ Distant
Confident ☐ ☐ ☐ ☐ ☐ ☐ Insecure
Explainable ☐ ☐ ☐ ☐ ☐ ☐ Incoherent
Neglects ☐ ☐ ☐ ☐ ☐ ☐ Listens
Articulate ☐ ☐ ☐ ☐ ☐ ☐ Unintelligible
Literate ☐ ☐ ☐ ☐ ☐ ☐ Uninformed
Adaptable ☐ ☐ ☐ ☐ ☐ ☐ Inflexible
Intolerant ☐ ☐ ☐ ☐ ☐ ☐ Tolerant
Composed ☐ ☐ ☐ ☐ ☐ ☐ Ruffled
Poised ☐ ☐ ☐ ☐ ☐ ☐ Shaky
Quality Athletic Trainer Questionnaire

Instructions: Previous research supports that a quality athletic trainer demonstrates integrity among their family members, patients, and other professionals with whom they interact. To assist with further explanation of this construct, please check the position between each adjective pair that best describes an athletic trainer that demonstrates integrity. One selection must be made for each adjective pair prior to advancing to the next section.

**INTEGRITY**

Dishonest ○ ○ ○ ○ ○ ○ Honest
Trustable ○ ○ ○ ○ ○ ○ Doubtful
Accountable ○ ○ ○ ○ ○ ○ Unaccountable
Vulnerable ○ ○ ○ ○ ○ ○ Protected
Ethical ○ ○ ○ ○ ○ ○ Immoral
Deceitful ○ ○ ○ ○ ○ ○ Straightforward
Principled ○ ○ ○ ○ ○ ○ Corrupt
Undependable ○ ○ ○ ○ ○ ○ Loyal
Truthful ○ ○ ○ ○ ○ ○ Untruthful

Progress: [Optional progress bar]

Next

---

Quality Athletic Trainer Questionnaire

Instructions: Previous research supports that a quality athletic trainer appreciates knowledge. To assist with further explanation of this construct, please check the position between each adjective pair that best describes an athletic trainer that is knowledgeable. One selection must be made for each adjective pair prior to advancing to the next section.

**KNOWLEDGE**

Ignorant ○ ○ ○ ○ ○ ○ ○ ○ Learned
Scientific ○ ○ ○ ○ ○ ○ ○ ○ Anecdotal
Current ○ ○ ○ ○ ○ ○ ○ ○ Dated
Unskilled ○ ○ ○ ○ ○ ○ ○ ○ Skilled
Teachable ○ ○ ○ ○ ○ ○ ○ ○ Obstinate
Inquisitive ○ ○ ○ ○ ○ ○ Uninterested
Follower ○ ○ ○ ○ ○ ○ ○ ○ Mentor
Resourceful ○ ○ ○ ○ ○ ○ ○ ○ Unimaginative
Intelligent ○ ○ ○ ○ ○ ○ ○ ○ Stupid
Amateur ○ ○ ○ ○ ○ ○ ○ ○ Expert
Competent ○ ○ ○ ○ ○ ○ Inept
Versed ○ ○ ○ ○ ○ ○ Green
Nonstudious ○ ○ ○ ○ ○ ○ Academic

Progress: [Optional progress bar]

Next

---

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Quality Athletic Trainer Questionnaire

Instructions: Previous research supports that a quality athletic trainer demonstrates commitment to family members, patients and other professionals with whom they interact. To assist with further explanation of this construct, please check the position between each adjective pair that best describes an athletic trainer that demonstrates commitment. One selection must be made for each adjective pair prior to advancing to the next section.

**COMMITMENT**

| Undedicated | C | C | C | C | C | C | Dedicated |
| Adherent    | C | C | C | C | C | C | Indifferent |
| Staunch     | C | C | C | C | C | C | Restrained |
| Contributable | C | C | C | C | C | C | Detract |
| Enthusiastic | C | C | C | C | C | C | Apathetic |
| Reliable    | C | C | C | C | C | C | Unreliable |
| Irrelevant  | C | C | C | C | C | C | Primacy |
| Available   | C | C | C | C | C | C | Unavailable |

Quality Athletic Trainer Questionnaire

Instructions: Please read the following typical day scenarios and respond to the accompanying statements. The statements require that you rate your level of agreement or disagreement. Please select the one response you feel best represents your opinion. Each item will require a response to advance to the next section.

Strongly Agree (SA)  Agree (A)  Neutral (N)  Disagree (D)  Strongly Disagree (SD)

With support of the team physician, Tom, the head ATC, developed a rehabilitation plan for Sally. They follow the program for two days. On the third day, Tom is at a conference and his assistant ATC, Mike, follows the plan. Mike dislikes the plan and decides to tell Sally, “Tom and the team physician inappropriately developed your program.”

1) I feel Mike made a quality decision.
   SA  A  N  D  SD
   O  O  O  O  O

2) I would let Mike treat a loved one.
   SA  A  N  D  SD
   O  O  O  O  O

3) I feel the context of this scenario is important.
   SA  A  N  D  SD
   O  O  O  O  O

Progress: [Blank]
Quality Athletic Trainer Questionnaire

Instructions: Please read the following typical day scenarios and respond to the accompanying statements. The statements require that you rate your level of agreement or disagreement. Please select the one response you feel best represents your opinion. Each item will require a response to advance to the next section.

Strongly Agree (SA) Agree (A) Neutral (N) Disagree (D) Strongly Disagree (SD)

The athletic director, Ben, is discontent with Patricia, the assistant ATC, because she failed to cover a game. On the previous day, Ben had informed the head ATC, Dan, about a schedule change. Dan decided not to leave a note or confirm this change with Patricia, causing her to miss the game.

1) I feel Dan made a quality decision.  
2) I would let Dan treat a loved one.  
3) I feel the context of this scenario is important.

John is an athletic trainer employed at a facility that caters to many patients with osteoporosis. John is unfamiliar with recent protocols addressing these conditions. The directing physician with whom he has a positive relationship, Dr. Edward, offers to financially aid John in acquiring the necessary skills to work with this population. John can elect to attend a conference, take an online course, read current literature or participate in a home study course. John decides against taking the time to acquire these skills.

1) I feel John made a quality decision.  
2) I would let John treat a loved one.  
3) I feel the context of this scenario is important.
Quality Athletic Trainer Questionnaire

Instructions: Please read the following typical day scenarios and respond to the accompanying statements. The statements require that you rate your level of agreement or disagreement. Please select the one response you feel best represents your opinion. Each item will require a response to advance to the next section.

Strongly Agree (SA)  Agree (A)  Neutral (N)  Disagree (D)  Strongly Disagree (SD)

The head ATC, Eric, has the option of setting operation hours for his athletic training facility. The administration has requested that Eric make the facility available to athletes in a reasonable fashion, but to be cognizant of the families and professionals this schedule will impact. Eric sets an "open door" policy for the athletes from 6 am till 10 pm. Eric decided to schedule himself between the hours of 10 am and 4 pm and encroach on his athletic training staff's personal and family time to provide coverage during the entire day's schedule.

1) I feel Eric made a quality decision.

2) I would let Eric treat a loved one.

3) I feel the context of this scenario is important.

Next

Progress: [Progress bar]

Quality Athletic Trainer Questionnaire

Instructions: Please read the following typical day scenarios and respond to the accompanying statements. The statements require that you rate your level of agreement or disagreement. Please select the one response you feel best represents your opinion. Each item will require a response to advance to the next section.

Strongly Agree (SA)  Agree (A)  Neutral (N)  Disagree (D)  Strongly Disagree (SD)

Over the past two weeks, Teresa, a female soccer player, has routinely complained about minor physical ailments to her head ATC, Amelia. Teresa's complaints have included minor skin irritations from tight cleats and toe nail pain from a small toe box. Today, during practice, Teresa reports to Amelia with general fatigue. Amelia decides to dismiss her concern and tells her to go back to practice without conducting an evaluation.

1) I feel Amelia made a quality decision.

2) I would let Amelia treat a loved one.

3) I feel the context of this scenario is important.

Finish

Progress: [Progress bar]

Thank you for the time and effort you put forth completing the Quality Athletic Trainer Questionnaire. Your interest in contributing to the professional research base, pertaining to the description of a quality athletic trainer, is greatly appreciated. It is with great excitement that I look forward to compiling the collected data from professionals like yourself.

Sincerely,

Scot Raab MS, ATC
Principle Investigator
Appendix G: Scripted Phone Message Recruiting Quantitative Pilot Participants

Start will vary a bit depending on who answers and how they answer.

<Ring>
I am trying to reach <person I am calling>

My name is Scot Raab, I am an assistant professor at Valdosta State University and currently completing my doctoral degree.

I am conducting research to define a “Quality Athletic Trainer.” Based on your reputation as a professional and contributions to the profession of Athletic Training, I would appreciate your help. I do realize that your time is valuable but I am hoping you would have about 10 minutes to complete a brief, web-based questionnaire. Again, your assistance is appreciated and it should take less than ten minutes. I believe the timing of the assessment ties nicely with National Athletic Training Month which is focusing on Quality Health Care.

Your participation will help distinguish the characteristics of a quality athletic trainer which in turn may have direct implications on the training of current and future athletic trainers.

<if they ask> (education, recruitment, job improvement, pedagogy adjustments, etc)

If its OK with you and you would be willing to participate I would like to send you an e-mail containing a hyper link to the site.

Confirm e-mail address that I have.

Thank them again and provide my contact info.
Appendix H: E-Mail Message Recruiting Quantitative Pilot Participants

From: Scot Raab

RE: Willingness to participate in research to define the construct of a “Quality Athletic Trainer.”

This message is a follow up to our brief phone conversation or voice message. Your time and willingness to assist with data collection is appreciated. The following hyper link will direct you to the data collection instrument. Your assistance will help define the constructs of a “Quality Athletic Trainer.” Once you have accessed the web-based instrument please follow the screen prompts.

http://teach.valdosta.edu/sraab/

This research project has been approved by the University of Southern Mississippi Institutional Review Board. Participation is completely voluntary and participants may withdrawal at anytime with out penalty, prejudices, or loss of benefits. Questions concerning the research should be directed to Scot Raab at 229-219-1216. Any concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive # 5147, Hattiesburg, MS 39406-0001, (601) 266-6820. Your participation and completion of the instrument signifies you have given informed consent for participation in this study.

Thank you,

Scot Raab

E-mail Signature
Appendix I: Online Quantitative Data Collection Instrument

Quality Athletic Trainer Questionnaire

Instructions: Please fill-in the blank or select one answer.

Date of Birth (mm/dd/yyyy): □ □ / □ / □

Sex:   O Male  O Female

Years Certified as an ATC (1, 2, 3, etc.): □

Primary Setting: O High School  O Clinic
                 O Clinic-Outreach  O College
                 O Professional  O Hospital
                 O Other (Explain)

NATA District (1, 2, 3, etc.): □

Highest Degree Earned: O BS  O MS
                       O EdD  O PhD
                       O Other (Explain)

Press Begin Questionnaire

Quality Athletic Trainer Questionnaire

Instructions: The following sections will require you to check a position between each adjective pair. The orientating descriptor is underlined above the section. A sample is provided below. Please check the position between this adjective pair that best describes the sample. One selection must be made for each adjective pair prior to advancing to the next section.

SAMPLE

Good  C  C  C  C  C  C  C  C  Bad

Next

Progress:
Quality Athletic Trainer Questionnaire

Instructions: Previous research supports that a quality athletic trainer demonstrates care for family members, patients and other professionals with whom they interact. To assist with further explanation of this construct, please check the position between each adjective pair that best describes an athletic trainer that demonstrates quality care. One selection must be made for each adjective pair prior to advancing to the next section.

<table>
<thead>
<tr>
<th></th>
<th>Approachable</th>
<th>Unapproachable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empathetic</td>
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</tr>
<tr>
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<td></td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Supportive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alienating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interested</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Quality Athletic Trainer Questionnaire

Instructions: Previous research supports that a quality athletic trainer communicates with their family members, patients and other professionals with whom they interact. To assist with further explanation of this construct, please check the position between each adjective pair that best describes an athletic trainer that effectively communicates. One selection must be made for each adjective pair prior to advancing to the next section.

<table>
<thead>
<tr>
<th></th>
<th>Expressive</th>
<th>Vague</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attentive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confident</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explainable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ignores</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Articulate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adaptable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intolerant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poised</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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# Quality Athletic Trainer Questionnaire

**INTEGRITY**

- Dishonest
- Trustable
- Accountable
- Ethical
- Decentful
- Principled
- Undependable
- Truthful

- Honest
- Doubtful
- Unaccountable
- Immoral
- Straightforward
- Corrupt
- Loyal
- Untruthful

**KNOWLEDGE**

- Ignorant
- Scientific
- Current
- Unskilled
- Teachable
- Inquisitive
- Follower
- Resourceful
- Intelligent
- Amateur
- Competent
- Versed
- Nonstudious

- Learned
- Anecdotal
- Dated
- Skilled
- Obstinate
- Uninterested
- Mentor
- Unimaginative
- Stupid
- Expert
- Inept
- Green
- Academic

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Quality Athletic Trainer Questionnaire

Instructions: Previous research supports that a quality athletic trainer demonstrates commitment to family members, patients and other professionals with whom they interact. To assist with further explanation of this construct, please check the position between each adjective pair that best describes an athletic trainer that demonstrates commitment. One selection must be made for each adjective pair prior to advancing to the next section.

**COMMITMENT**

<table>
<thead>
<tr>
<th>Undedicated</th>
<th>A</th>
<th>C</th>
<th>C</th>
<th>C</th>
<th>C</th>
<th>C</th>
<th>Dedicated</th>
</tr>
</thead>
<tbody>
<tr>
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<td>A</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Indifferent</td>
</tr>
<tr>
<td>Contributable</td>
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<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Detract</td>
</tr>
<tr>
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<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Apathetic</td>
</tr>
<tr>
<td>Reliable</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Unreliable</td>
</tr>
<tr>
<td>Irrelevant</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Primacy</td>
</tr>
<tr>
<td>Available</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>Unavailable</td>
</tr>
</tbody>
</table>

Quality Athletic Trainer Questionnaire

Instructions: Please read the following typical day scenarios and respond to the accompanying statements. The statements require that you rate your level of agreement or disagreement. Please select the one response you feel best represents your opinion. Each item will require a response to advance to the next section.

Strongly Agree (SA) Agree (A) Neutral (N) Disagree (D) Strongly Disagree (SD)

With support of the team physician, Tom, the head ATC, developed a rehabilitation plan for Sally. They follow the program for two days. On the third day, Tom is at a conference and his assistant ATC, Mike, follows the plan. Mike dislikes the plan and decides to tell Sally, "Tom and the team physician inappropriately developed your program."

1) I feel Mike made a quality decision. SA A N D SD

2) I would let Mike treat a loved one. SA A N D SD

3) I feel the context of this scenario is important. SA A N D SD

Progress: [Progress Indicator]
Quality Athletic Trainer Questionnaire

Instructions: Please read the following typical day scenarios and respond to the accompanying statements. The statements require that you rate your level of agreement or disagreement. Please select the one response you feel best represents your opinion. Each item will require a response to advance to the next section.

Strongly Agree (SA)  Agree (A)  Neutral (N)  Disagree (D)  Strongly Disagree (SD)

The athletic director, Ben, is discontent with Patricia, the assistant ATC, because she failed to cover a game. On the previous day, Ben had informed the head ATC, Dan, about a schedule change. Dan decided not to leave a note or confirm this change with Patricia, causing her to miss the game.

1) I feel Dan made a quality decision.  
   | SA | A | N | D | SD |
   | C | O | C | C | C 

2) I would let Dan treat a loved one.  
   | SA | A | N | D | SD |
   | C | O | C | C | C 

3) I feel the context of this scenario is important.  
   | SA | A | N | D | SD |
   | C | O | C | C | C 

Quality Athletic Trainer Questionnaire

Instructions: Please read the following typical day scenarios and respond to the accompanying statements. The statements require that you rate your level of agreement or disagreement. Please select the one response you feel best represents your opinion. Each item will require a response to advance to the next section.

Strongly Agree (SA)  Agree (A)  Neutral (N)  Disagree (D)  Strongly Disagree (SD)

John is an athletic trainer employed at a facility that caters to many patients with osteoporosis. John is unfamiliar with recent protocols addressing these conditions. The directing physician with whom he has a positive relationship, Dr. Edward, offers to financially aid John in acquiring the necessary skills to work with this population. John can elect to attend a conference, take an online course, read current literature or participate in a home study course. John decides against taking the time to acquire these skills.

1) I feel John made a quality decision.  
   | SA | A | N | D | SD |
   | C | O | C | C | C 

2) I would let John treat a loved one.  
   | SA | A | N | D | SD |
   | C | O | C | C | C 

3) I feel the context of this scenario is important.  
   | SA | A | N | D | SD |
   | C | O | C | C | C 

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Quality Athletic Trainer Questionnaire

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Strongly Agree (SA) Agree (A) Neutral (N) Disagree (D) Strongly Disagree (SD)

The head ATC, Eric, has the option of setting operation hours for his athletic training facility. The administration has requested that Eric make the facility available to athletes in a reasonable fashion, but to be cognizant of the families and professionals this schedule will impact. Eric sets an “open door” policy for the athletes from 6 am till 10 pm. Eric decided to schedule himself between the hours of 10 am and 4 pm and encroach on his athletic training staffs’ personal and family time to provide coverage during the entire day’s schedule.

1) I feel Eric made a quality decision.
2) I would let Eric treat a loved one.
3) I feel the context of this scenario is important.

Over the past two weeks, Teresa, a female soccer player, has routinely complained about minor physical ailments to her head ATC, Amelia. Teresa’s complaints have included minor skin irritations from tight cleats and toe nail pain from a small toe box. Today, during practice, Teresa reports to Amelia with general fatigue. Amelia decides to dismiss her concern and tells her to go back to practice without an evaluation.

1) I feel Amelia made a quality decision.
2) I would let Amelia treat a loved one.
3) I feel the context of this scenario is important.
Quality Athletic Trainer Questionnaire

Thank you for the time and effort you put forth completing the Quality Athletic Trainer Questionnaire. Your interest in contributing to the professional research base, pertaining to the description of a quality athletic trainer, is greatly appreciated. It is with great excitement that I look forward to compiling the collected data from professionals like yourself.

Sincerely,

Scot Raab MS, ATC
Principle Investigator
Appendix J: Quantitative Data Collection and Consent Form E-Mail

My name is Scot Raab; I am an athletic trainer and assistant professor at Valdosta State University currently completing my doctoral degree at the University of Southern Mississippi.

Based on your professional contributions and experience with the profession of Athletic Training, I would like to personally request your assistance completing a brief 10 minute internet based survey titled, “Defining the Constructs of a Quality Athletic Trainer”.

Your time and willingness to assist with data collection is greatly appreciated. The following hyper link will direct you to the data collection instrument. Your assistance will help define the constructs of a “Quality Athletic Trainer.” Once you have accessed the web-based instrument please follow the screen prompts. (In the unlikely event you experience technical difficulties with the site please let me know)

http://teach.valdosta.edu/sraab/

This research project has been approved by the University of Southern Mississippi Institutional Review Board. Participation is completely voluntary and participants may withdraw at anytime with out penalty, prejudices, or loss of benefits. Questions concerning the research should be directed to Scot Raab at 229-219-1216. Any concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive # 5147, Hattiesburg, MS 39406-0001, (601) 266-6820. Your participation and completion of the instrument signifies you have given informed consent for participation in this study. Upon completion of the instrument, the researcher has no method of tracking your name or e-mail with data provided. General demographic data is being collected to differentiate attitudinal scores across age ranges, sex, and location.

If you have any questions, comments or concerns, please feel free to contact me. I will respond to all messages.

Thank you,

Scot Raab
Appendix K: Standardized distribution of the Dependant Variable Residuals scores

Histogram

Dependent Variable: Total_DV_Sum

![Histogram of Regression Standardized Residuals](image)

Mean = 2.42E-17
Std. Dev. = 0.392
N = 310

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Appendix L: The linear relationship between the observed and expected dependent variables standardized residual

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Total_DV_Sum

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Appendix M: Graphical assessment of heteroscedasticity of the dependent variable

Scatterplot

Dependent Variable: Total_DV_Sum

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Appendix N: Graphical assessment of heteroscedasticity of sex on the dependent variable
Appendix O: Graphical assessment of heteroscedasticity of years of experience on the dependent variable

Partial Regression Plot

Dependent Variable: Total_DV_Sum
Appendix P: Graphical assessment of heteroscedasticity of degree on the dependent variable

Partial Regression Plot

Dependent Variable: Total_DV_Sum
REFERENCES


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*Standards for the Accreditation of Entry-Level Athletic Training Education Programs.* (2006).


