PHYSICAL DISABILITIES IN ATHLETIC TRAINING EDUCATION

A dissertation submitted to the
Kent State University College and Graduate School
of Education, Health, and Human Services
in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

by
Katherine Rose Newsham

August 2006
ACKNOWLEDGMENTS

I would like to thank the members of my committee for their valuable contributions to this work. The guidance and advice provided by Dr. Stephen Thomas, Dr. Mark Kretovics, and Dr. Kimberly Peer, was timely, appropriate, and appreciated. I would also like to recognize my family members for their patience and support throughout this process.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>viii</td>
</tr>
<tr>
<td><strong>CHAPTER</strong></td>
<td></td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>3</td>
</tr>
<tr>
<td>The Purpose</td>
<td>4</td>
</tr>
<tr>
<td>Research Questions</td>
<td>5</td>
</tr>
<tr>
<td>Summary</td>
<td>6</td>
</tr>
<tr>
<td>II. REVIEW OF LITERATURE</td>
<td>7</td>
</tr>
<tr>
<td>Defining and Identifying Disabilities</td>
<td>10</td>
</tr>
<tr>
<td>Essential Requirements</td>
<td>19</td>
</tr>
<tr>
<td>Reasonable Accommodations</td>
<td>25</td>
</tr>
<tr>
<td>Undifferentiated Degree</td>
<td>32</td>
</tr>
<tr>
<td>Professional Licensing Process</td>
<td>35</td>
</tr>
<tr>
<td>Current Practice</td>
<td>37</td>
</tr>
<tr>
<td>Summary</td>
<td>38</td>
</tr>
<tr>
<td>III. METHODS</td>
<td>40</td>
</tr>
<tr>
<td>Instrument</td>
<td>41</td>
</tr>
<tr>
<td>Validity and Reliability of the Instrument</td>
<td>41</td>
</tr>
</tbody>
</table>
V. DISCUSSION .....................................................................................................................88

Awareness of Disability Among Students in ATEPs ....................................................... 88
Perceptions Regarding Reasonable Accommodation..................................................... 89
Decisions Regarding Accommodation .......................................................................... 100
Accommodations and Undue Hardship........................................................................ 103
Conclusions .................................................................................................................. 107
Future Research ......................................................................................................... 108
Summary ...................................................................................................................... 110

APPENDIXES ....................................................................................................................113

APPENDIX A: TECHNICAL STANDARDS .....................................................................114
APPENDIX B: ATEP SURVEY .......................................................................................116
APPENDIX C: SDS SURVEY .........................................................................................121
APPENDIX D: HUMAN SUBJECTS REVIEW BOARD APPROVAL .........................125
APPENDIX E: ATEP CONTACT LETTER .......................................................................127
APPENDIX F: SDS CONTACT LETTER .........................................................................129
APPENDIX G: SUPPLEMENTAL TABLES ......................................................................131

REFERENCES ..................................................................................................................136
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Characteristics of Respondents</td>
<td>51</td>
</tr>
<tr>
<td>2.</td>
<td>ATEP Directors’ Professional Role</td>
<td>52</td>
</tr>
<tr>
<td>3.</td>
<td>Institutional Characteristics</td>
<td>52</td>
</tr>
<tr>
<td>4.</td>
<td>Inter Item Reliability Coefficients for Accommodation Indices by Type of</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Disability</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Inter Item Reliability Coefficients for Accommodation Indices by Nature of</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Accommodation</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>ATEP Directors’ Level of Agreement With Competence Statements◊</td>
<td>57</td>
</tr>
<tr>
<td>7.</td>
<td>ATEP Directors’ Level of Agreement With General Disability Statements-------</td>
<td>59</td>
</tr>
<tr>
<td>8.</td>
<td>Estimates of Proportion of Athletic Training Students With Disabilities-----</td>
<td>61</td>
</tr>
<tr>
<td>9.</td>
<td>Accommodations for Mobility Related Disabilities◊</td>
<td>63</td>
</tr>
<tr>
<td>10.</td>
<td>Accommodation Index by Nature of Disability</td>
<td>65</td>
</tr>
<tr>
<td>11.</td>
<td>Accommodation Index by Nature of Disability for Clinical Education</td>
<td>66</td>
</tr>
<tr>
<td>12.</td>
<td>Comparison of ATEP and SDS Directors’ by Nature of Disability</td>
<td>67</td>
</tr>
<tr>
<td>13.</td>
<td>Comparison of ATEP and SDS Directors’ by Nature of Disability for</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Clinical Education Experiences</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Accommodations for Vision Related Disabilities◊</td>
<td>70</td>
</tr>
<tr>
<td>15.</td>
<td>Accommodations for Auditory Related Disabilities◊</td>
<td>72</td>
</tr>
</tbody>
</table>
16. Accommodations for Motor Skill Related Disabilities........................................ 73
17. Accommodations for Health Related Disabilities............................................ 75
18. Comparison of ATEP and SDS Directors’ by Nature of Accommodation ........ 76
19. Regression Model Summary............................................................................. 79
20. Regression ANOVA ....................................................................................... 79
21. Perceived Importance of Student Autonomy and Acceptance of

   Intermediaries in Clinical Education ................................................................. 81
Athletic Training Education Programs (ATEP) have considerable common ground with other health care education programs including selective admission, curricular issues related to clinical education, and technical standards established to delineate the cognitive and physical attributes considered central to health care education. The purpose of this study was to gain an understanding of ATEP directors’ perceptions of selected issues related to athletic training students with disabilities, emphasizing reasonable accommodations for students with physical disabilities, and to compare these perceptions to those of Student Disability Service (SDS) directors.

In this exploratory study, questionnaires were sent to ATEP and SDS directors at 325 institutions with accredited ATEPs. Of 650 surveys, 33.5% (n = 212) were returned with usable data (41% among ATEP directors). A Kudner-Richardson 20 indicated moderate to high inter-item reliability (.44 - .85) for dichotomous variables associated with the instrument. Differences between groups were identified through t tests, chi-square and phi coefficients. A standard multiple regression analysis identified a statistically significant relationship between demographic variables and the intermediary index. The professional role of the respondent was the only demographic factor to demonstrate a significant effect for this index.
Overall, ATEP directors were more likely to agree to accommodations for sensory organ impairments than for mobility, motor skill, or health related impairments. Significant differences were identified between ATEP and SDS respondents for disability specific accommodation when these were limited to clinical education experiences ($p < .05$). ATEP and SDS directors were equally likely to approve accommodations for clinical education assignments; however, SDS directors were more likely to provide accommodations for clinical skills ($p = .03$), and intermediaries ($p < .001$) than ATEP directors were.

ATEP directors differ from SDS directors regarding perceptions of reasonable accommodations, yet the two groups must work closely together to develop reasonable accommodations for students with disabilities. Therefore, ATEP directors would be well served by carefully considering the essential requirements of their respective programs and improving their knowledge of ADA requirements to arrive at reasonable accommodations that neither violate ADA nor compromise the integrity of their academic programs.
CHAPTER I

INTRODUCTION

Athletic training is recognized by the American Medical Association as an allied health care profession. With national certification, and licensing or registration in 43 states, certified athletic trainers (ATCs) are recognized as health care providers for the physically active (BOC, 2004a). Once employed primarily with organized athletics (interscholastic, intercollegiate, and professional), the National Athletic Trainers’ Association (NATA) reports that ATCs are currently employed by the military, industry, nontraditional athletic groups (i.e., rodeo, X-Games), sports medicine and rehabilitation clinics, and medical facilities as physician extenders (NATA, 2004). These health care providers have extensive training in the prevention, evaluation and diagnoses, immediate care, and treatment and rehabilitation of injuries associated with physical activity and sport participation.

The Joint Review Committee on Athletic Training Education (JRC-AT) closely monitors the curriculum for entry-level athletic training practitioners and encourages individual educational programs to distinguish themselves through institutional mission (JRC-AT, 2004). The education programs, accredited through the Commission for Accreditation of Allied Health Education Programs (CAAHEP, 2005), must address the six major practice domains of athletic training as identified by the Board of Certification (BOC). An ongoing role delineation study, conducted for the BOC, serves to guide certification examination preparation as well as to define the essential requirements of the
profession (BOC, 2004b). Upon completion of an accredited curriculum program (baccalaureate or master’s degree) in Athletic Training, the candidate is eligible to sit for the national certification exam that is comprised of three sections (analytical and application skills; critical decision making; and performance of specific skills) intended to assess the candidate’s readiness for entry-level employment and independent practice (BOC, 2004a).

Athletic training education programs (ATEPs), like other academic programs in higher education, are expected to comply with the Rehabilitation Act of 1973 (RA, 1973) and the Americans with Disabilities Act of 1990 (ADA, 1990) in regard to accommodating students with disabilities. However, ATEPs differ from many other academic programs, in that they have a strong clinical education requirement for which accommodations may not be readily apparent or available.

Little is known regarding the incidence of disabilities among athletic training students. One might expect that the demographics of ATEPs would be similar to that of the general student population where up to 9% of students registered some type of disability (Horn, Peter, & Rooney, 2003). Within this (general student) population, learning disabilities are reported at a higher rate than any other type of disability (Horn & Berktold, 1999). If this demographic is consistent within healthcare education programs, learning disabilities will be encountered more frequently than specific physical disabilities. Physical disabilities, however, have the potential to have a significant impact on a student’s ability to satisfy clinical education requirements considering the motor skill requirements associated with clinical proficiency. When one considers that health
care education programs have selective admission policies, and cognitive and physical attribute requirements, it may not be surprising that the incidence of students with disabilities enrolled in these programs is lower than that of the general student body (Wu, Tsang, & Wainapel, 1996).

In discussions of physical disabilities, three terms are often used interchangeably, though they have distinct meaning in health care language. *Impairment* indicates the absence of normal function; *disability* refers to a physical disadvantage resulting from impairment; and *handicap* is a social disadvantage resulting from an impairment (Wainapel, 2000). The ADA clearly defines disability for the purposes of identifying and accommodating students with disabilities. Physical disabilities must substantially limit a major life activity, and may be related to mobility, manual dexterity, information retrieval (including visual and hearing deficits), communication, and/or endurance (ADA, 1990).

**Statement of the Problem**

Athletic training educators can expect to face the same issues other health care education programs have regarding students with disabilities. The role delineation study conducted through the BOC has helped to establish the essential functions of the ATC (BOC, 2004b). This information should help to guide the ATEP administrator in decisions regarding accommodation for various disabilities. However, other health care education programs (e.g., medicine, nursing, occupational therapy), armed with essential functions of the respective disciplines, have continued to struggle with appropriate accommodations for students with disabilities. The line between reasonable accommodation and fundamental alteration of an academic program is fluid and may
appear to be arbitrary at times; yet the need to balance compliance with the law and safe practice is critical. Policy development becomes increasingly difficult when administrators lack familiarity with the problem and possible solutions to that problem. The literature indicates that prior experience with accommodating students with disabilities may increase confidence levels of individuals faced with these types of decisions (Magilvy & Mitchell, 1995). Athletic training educators who are not prepared to recommend appropriate accommodations may find themselves at the mercy of the judicial system in these matters of education.

The Purpose

The ATEPs have been proactive in role delineation and delineation of essential skills required for participation in their clinical education programs. However, there has been little discussion regarding appropriate accommodations for students with physical disabilities. Given the similarities among various clinical education programs in health care professions, it is expected that the literature from those programs will yield valuable information for this study.

The literature is rich with litigation regarding disability discrimination in related health care disciplines (Hartman & Hartman, 1981; Helms & Helms, 1994; Helms, Helms, & Biggs, 1995; Helms & Weiler, 1993; Reichgott, 1996; Rothstein, 2004). In addition, there have been reports on specific cases of disabled students who have successfully completed clinical education programs with appropriate accommodations (Magilvy & Mitchell, 1995; Maheady, 1999; Marks, 2000; Olkin, 2002; Rhodes, Davis, & Odom, 1999). A review of the literature identified no prior studies of accommodations
for physical disabilities in ATEPs. With this obvious void in the athletic training literature, there is a need to address both the probability and the possibility of accommodation for various physical disabilities.

The purpose of this research was to evaluate the perceptions among program directors of ATEPs and Student Disability Services (SDS) directors in regard to reasonable accommodations for athletic training students with physical disabilities. In addition, this study sought to establish the ATEP director’s level of awareness regarding the incidence of physical disability among athletic training students as well as the director’s knowledge of the requirements for compliance with the ADA.

Research Questions

This study addressed the following questions:

1. What is the level of awareness of ATEP and SDS directors regarding the prevalence of physical disability among athletic training students?

2. What are the perceptions of ATEP directors and SDS directors regarding the physical disabilities that may be reasonably accommodated in the ATEPs?

3. What are the perceptions of ATEP directors and SDS directors regarding actions that would constitute reasonable accommodation for various physical disabilities?

4. How are demographic factors related to perceptions of reasonable accommodations?
5. What are the ATEP directors’ and the SDS directors’ level of acceptance of intermediaries for students with disabilities during clinical education experiences?

6. What is the level of confidence among ATEP directors regarding knowledge and compliance with the directives of the ADA?

Summary

Athletic training is a unique health care profession, with practitioners providing preventive, immediate, and rehabilitative treatment to patients who are physically active. Education programs for this discipline of health care have curricular requirements that are similar to other disciplines of health care and, therefore, are likely to have similar curricular issues. Whereas other health care disciplines have faced litigation over admission and dismissal of students with disabilities, there is no evidence in the literature that ATEPs have faced these issues to this point. ATEPs appear to have clearly defined technical standards and essential functions from which to formulate policies regarding students with disabilities. However, there is a void in the athletic training literature regarding educational issues associated with students with disabilities. The purpose of this study was to investigate ATEP directors’ perceptions of reasonable accommodations for students with physical disabilities, as well as their positions regarding clinical competency and legal issues related to students with disabilities. In addition, ATEP directors’ perceptions of reasonable accommodation were compared to those of SDS directors.
CHAPTER II

REVIEW OF LITERATURE

The purpose of this chapter is to present the context for this research. A thorough review of pertinent and current literature is intended to provide a description of athletic training education as it relates to other health care education programs. Furthermore, this review focuses on the common issues related to accommodations for students with disabilities in education programs with clinical education requirements.

Athletic training education programs (ATEPs) demonstrate a strong influence from medical education. These programs (ATEPs) are uniquely structured to meet the educational needs of the athletic trainer. However, as the current education model was developed with input from the American Medical Association Council on Medical Education, similarities with other clinical education programs are not surprising (Delforge & Behnke, 1999). ATEPs utilize clinical education as well as didactic instruction to maximize student learning (Weidner & Henning, 2002). The clinical education requirement provides experiential learning in which the student works closely with credentialed professionals in authentic work environments involving direct patient care. This combination of clinical and didactic education experiences is common to medicine, nursing, dentistry, and occupational (OT) and physical therapy (PT).

Historically, health care education was based on an apprenticeship model, in which students worked closely with one practitioner gleaning knowledge of the practice from being immersed in it over a long period of time (Baum & Axtell, 2005). This
progressed toward a more formalized didactic model that continued to rely heavily on lengthy clinical experiences offering students an opportunity to see and do the skills and techniques discussed in classes. With rapid advancements in the medical profession, the breadth and depth of information needing to be disseminated grew too quickly to be addressed by this model, resulting in many poorly qualified entry-level practitioners (Baum & Axtell). In addition, advancements in licensing and accreditation standards lead many healthcare professions to seek an education model that would promote both content knowledge and clinical skills of the entry-level practitioner. Many disciplines turned toward a competency based education model (Harden, Crosby, Davis, & Friedman, 1999; King & Erickson, 2006; Plasschaert et al., 2002; Strohschein, Hagler, & May, 2002; Weidner & Henning, 2002), which combines didactic and clinical education with attention to demonstration of proficiency in specific skills or behaviors associated with essential functions of the discipline, rather than on time dependent clerkships (Baum & Axtell, 2005). Athletic training is one of the health care disciplines to adopt this model of education that goes beyond a theoretical framework and assesses a student’s readiness to practice. In this model, competence is not considered a set of rote actions, rather it facilitates a move from dependence to independence as students demonstrate “progressive mastery” of skills (Amato, Konin, Brader, 2002; Strohschein et al, 2002), and development of critical thinking skills (King & Erickson, 2006).

Athletic training education has identified more than 500 clinical competencies and almost 750 clinical proficiencies (clinical skills) for entry-level education programs (NATA, 1999). These competencies address technical and non-technical skills with
cognitive, psychomotor, and affective components, and are drawn from the 12 domains of educational competency. They have been developed to address the multifaceted nature of athletic training which includes (a) risk management and injury prevention; (b) pathology of injuries and illnesses; (c) (injury) assessment and evaluation; (d) acute care of injuries and illnesses; (e) pharmacology; (f) selection and application of therapeutic modalities; (g) selection, instruction, and progression of therapeutic exercise; (h) general medical conditions and disabilities; (i) nutritional aspects of injury and illness; (j) psychosocial intervention and referral; (k) health care administration, and (l) professional development and responsibilities (NATA, 1999). Athletic training students must demonstrate competency in each of these areas and successfully complete an entry-level education program to be eligible for the BOC exam (BOC, 2004a).

Comparisons of competency based education programs in health care disciplines of nursing, medicine, and dentistry have identified 25-38% overlap of core competencies (Spielman, Fulmer, Eisenberg, & Alfano, 2005). Comparisons of OT and PT clinical education programs have also identified common ground (Strohschein et al., 2002). Furthermore, each of these disciplines combines didactic and clinical education experiences with attention to attainment of clinical competence. ATEPs, utilizing a similar educational model, should expect to experience some of the educational issues that have been described in the literature related to these other disciplines of health care.

One area that has presented difficulty for health care education programs is the issue of accommodation for students with disabilities. The clinical education requirement for respective health care disciplines presents issues relative to accommodation that may
not be encountered by other academic disciplines (Hirneth & Mackenzie, 2004). A review of the literature related to health care education has identified several areas that have proven to be problematic in regard to students with disabilities. These areas include (a) defining and identifying disabilities, (b) delineating essential functions required in the academic program, (c) establishing reasonable accommodations, (d) clarifying the importance of the undifferentiated degree, and (e) negotiating the professional licensing process (Rothstein, 2004). Most of the current literature related to students with physical disabilities comes from the disciplines of medicine and nursing. This issue was unreported in athletic training literature.

Defining and Identifying Disabilities

The language regarding impairments and disabilities is clear in legal documents such as the Rehabilitation Act of 1973 (RA, 1973) and the Americans with Disabilities Act of 1990 (ADA, 1990). To be considered disabled under Sections 503 and 504 of the Rehabilitation Act, a person must have a physical or mental impairment that substantially limits one or more major life activities; have a (written) record of such an impairment; or be regarded as having such an impairment (RA, 1973). The list of qualifying impairments includes physiological disorders and conditions, cosmetic disfigurement, or anatomical loss affecting any of the body systems. This list includes specific learning disabilities; physical disabilities such as visual, speech, and hearing impairments; orthopedic and related mobility impairments; and emotional illness (RA, 1973). Other conditions, such as episodal depression and posttraumatic stress disorder, are not protected under Section 504 (Crancer v. Board of Regents of University of Michigan, 1986; Pressman v.
University of North Carolina at Charlotte, 1985). The intermittent nature of occasional depression, stress, and exhaustion prevents these from being considered disabilities under North Carolina law, resulting in a rejection of a claim of disability discrimination when a college professor who was denied tenure filed charges against the university (Pressman v. University of North Carolina at Charlotte, 1985). Similarly, a graduate student’s claim that her poor academic performance within a doctoral program was secondary to the stress she experienced during her master’s course work while applying to the doctoral program was rejected by the courts (Crancer v. Board of Regents of University of Michigan, 1986). Likewise, temporary injuries and illnesses, from which a normal recovery is expected, are not covered by the RA and need not be accommodated. In Grimard v. Carlston (1978), a nursing student with a fractured ankle was not granted accommodations during a clinical course and had to re-enroll in that course in a subsequent semester.

A Supreme Court ruling in 1999, known as the Sutton Trilogy (there were three cases; Sutton was one of three), has further narrowed the current definition of impaired (Rothstein, 2004). Specifically, the Court ruled that individuals with impairments that may be mitigated through intervention measures (e.g., eyeglasses or medication) do not qualify as disabled under federal law (Sutton v. United Air Lines, 1999). In Sutton (1999), the plaintiffs (twin sisters) had visual impairments (20/200 and 20/400) that were mitigated (corrected) with eye glasses; however, the employer had a minimal (uncorrected) vision requirement for the position of global airline pilot, for which the plaintiffs had applied. The plaintiffs could not meet the employer’s standard, but, as the
impairment could be corrected with glasses, it did not reach the level of disability in the
eyes of the court. Furthermore, the plaintiffs were not excluded from every airline pilot
position, only that of global airline pilot. Thus, the plaintiffs were not protected by ADA.

The extent to which medications may be viewed as mitigating measures does vary
with specific conditions. Hypertension is often not considered to be a disabling condition
when it is mitigated by medication if it does not limit a major life activity. However, it
may prevent a candidate from being otherwise qualified, as was the case in Murphy v.
UPS (1996) when the candidate failed to qualify for a Department of Transportation
(DOT) license (an essential requirement) due to blood pressure levels. The plaintiff’s
blood pressure was within employer limits while on medication; however the DOT
regulations prevented him from qualifying for a commercial motor vehicle license
secondary to his condition. The defendant’s employment decision, then, hinged on the
lack of a DOT license (not otherwise qualified), not on the diagnosis of hypertension.
Conversely, a condition such as diabetes or epilepsy may be considered a disability even
if the symptoms are well controlled through medication, as removal of a mitigating
medication would cause significant medical problems (Sutton v. United Airlines, 1999).
However, a person with a mild form of epilepsy, who cannot substantiate claims of
limitations of major life activities, may not be considered to be a person with disability
under the ADA (EEOC v. Sara Lee, 2001). Thus, a diagnosis alone is not sufficient to
determine if an individual is identified as an individual with a disability.

Individuals with conditions that can be mitigated face an interesting dilemma
(Burke & Abel, 2001). Without ameliorating medications or devices, the individual
qualifies as disabled. However, with medications or devices, the effect of the impairment is diminished to the point that it no longer *substantially limits* a major life activity.

Interpretation of the statute hinges on the language that requires individuals be evaluated in their present state, not in light of what could or might be in an unmitigated state (*Sutton v. United Air Lines*, 1999). The Court presumed that Congress did not intend to provide protection to the estimated 43 million individuals with controllable impairments. Individuals who are *regarded* as disabled in spite of mitigating measures may still be able to gain relief under these statutes (Burke & Abel, 2001).

Consideration of disability as an impairment, or different from normal, is to view disability from a medical model (Olkin, 2002). In this model, the disabled person is considered as a patient who can be “cured” or have the effects of the disability lessened through medical intervention. An example of this would be cochlear implants for a deaf patient; the medical intervention *alleviates* the disability and allows the individual to *function more freely* in society. In contrast to this model is the social construct model, in which the problem is not with the disabled person, but with society’s failure to accommodate and include those with different abilities (Marks, 2000; Olkin, 2002). The argument has been presented that the medical model seeks to limit disabled students instead of identifying means by which these students can be empowered to demonstrate skills and intellect through alternative means (Marks, 2000). This argument certainly has a place in the discussion of students with disabilities; however, deviations from the standard curricula will be required for some of these students. For example, students with visual impairments may need assistance or accommodations for tasks related to
observation, students with hearing impairments may require alternative equipment or
techniques in order to perform selected clinical skills, and students with mobility
impairments may not be able to negotiate small spaces, or position themselves to assist in
emergency care in life threatening situations.

Therefore, to enable institutions to evaluate the merit of requests for deviations
from the prescribed course of study, they must be able to define what will and will not be
considered as a reasonable request. Health care education programs must abide by legal
standards for accommodating disabilities, yet must maintain academic integrity within
programs of study. The importance of legal standards cannot be ignored. The courts have
historically and consistently identified with the medical model of disability (Rovner,
2004), and this approach may provide institutions of higher education greater confidence
in accommodation decisions. Certainly, a philosophical approach that includes
consideration of possibilities rather than limitations may provide a more comfortable
environment for students with disabilities. At this time, however, the more objective
measures appear to provide a more defensible legal position.

Responsibility for identifying disabilities in higher education falls to the student,
as it is the student who must provide documentation that supports the fact that he or she is
disabled (Salvador v. Bell, 1986). A college student reporting a learning disability
supplied documentation that was not specific as to the nature of the disability, nor to the
accommodations that would be appropriate for him. This delayed the provision of
academic adjustments, as the institution had to make repeated requests for information
from the evaluating physician. The university (defendant) was not found to be in
violation of Section 504 due to insufficient documentation (*Salvador v. Bell*, 1986). In a more recent case (*Brettler v. Purdue University*, 2006 [*Bartlett v. New York State Board of Law Examiners*, 1998]), a graduate student failed to state a case when he claimed disability discrimination against the university for failing to provide accommodations for a sleep disorder for which the student never supplied supporting medical documentation. Merely claiming the presence of a disability is not sufficient to command accommodations.

In addition, institutions are not expected to assess the individual suspected of having a disability, or provide accommodations for disabling conditions of which they are not aware. The legal precedent for this lies in *Rossamando v. Board of Regents of University of Nebraska* (1998). An orthodontics student failed to disclose a visual disability (alternating strabismus) and a need for accommodations after admission to the program. Upon dismissal from the program, the student had no legal claim of discrimination, as the institution was unaware of the disability. However, *Nathanson v. Medical College of Pennsylvania* (1991) provided that the institution, with knowledge of a disabling condition, has a duty to investigate the need for accommodations. This decision involved a student who had chronic back pain after a motor vehicle accident. During the interview process, the student advised the admission board of her ongoing physical therapy. The court ruled that the institution, once aware of the condition, was responsible for investigating the need for accommodations for this student. The institution is not, however, required to investigate every means of accommodation (*Ohio Civil Rights Commission v. Case Western Reserve University*, 1996).
The delineation of responsibility for identifying students with disabilities in higher education is a shift from the primary and secondary school (K-12) disability law (Individuals with Disabilities Education Act, 1975). States seeking federal funding for K-12 special education must identify students eligible for individualized programs that include special education and then develop and implement appropriate special education and related services. This shift in responsibility may not be fully understood by incoming postsecondary students, leaving them without appropriate accommodations during the initial transition to higher education (McGuire, 2002). Institutions are encouraged to routinely advise all students that those seeking accommodations for any disability should report to the campus office for student disability services (Rothstein, 2004).

In a study of nursing students with disabilities, Maheady (1999) found that some nursing students with disabilities elected not to disclose disabilities in an effort to avoid the stigma associated with being “disabled.” Students have no legal obligation to report disabilities and may avoid disclosure because they desire no accommodation or because they anticipate negative repercussions from faculty and classmates (Hirneth & Mackenzie, 2004; Maheady, 1999). This behavior may limit the accuracy of demographics of professional schools, as students with disabilities could be under identified. Few studies have attempted to quantify the rate of health care students with disabilities (Moore-West & Heath, 1982; Van Slyke, 1998; Wu et al., 1996).

These limited studies have identified a degree of disparity between the proportion of students with disabilities enrolled in undergraduate education and the proportion of students with disabilities enrolled in health care education programs. At 9%, the
proportion of students with disabilities in the general student population is greater than the 2.4% reported OT education programs (Van Slyke, 1998), and the 3% reported for medical education programs (Rosebraugh, 2000). Similarly, a 3.3% rate for physical disability among the general student population (Horn & Berktold, 1999) is greater than the 0.2% reported among medical students (Moore-West & Heath, 1982; Wu et al., 1996). The rate of medical students with physical disabilities remained consistent from the early 1980s to the early 1990s (Wu et al., 1996); however, the rate of medical students with learning disabilities increased 100% in a 5-year period (Rosebraugh, 2000).

Learning disabilities have been identified as the most common disability among college students. In 1995-96, 29% of all students with disabilities reported a learning disability; 23% reported a musculoskeletal disability; 16% reported visual impairment (uncorrectable), and 16% reported hearing impairment (Horn & Berktold, 1999). This is contrasted by more recent data which identified the proportion of all undergraduate students with disabilities who report a specific learning disability at 5% (U.S. Department of Education, 2002). This inconsistency has been attributed to a change in data collection methods as the number of disability categories increased from 6 (in 1995) to 11 (in 2000), and to a lack of data aggregation of secondary conditions into main categories (HEATH, n.d.). That is, students with more than one disability were not counted in each category.

Therefore, whereas 29% of undergraduate students registered an orthopedic disability, 9% of those students also reported a learning disability; 5% of undergraduate students registered a visual disability, and 17% of those also reported a learning disability; 6.7% of undergraduate students registered a hearing disability, and 37% of those also reported
a learning disability; finally, 6.4% of undergraduate students reported attention deficit disorder, and 63% of those also reported a learning disability (HEATH, n.d.). Data comparisons are difficult in light of the change in methodology, yet it appears that learning disabilities continue to account for a large percentage of disabilities reported on campus. These findings appear to be consistent with a 1992 survey of nursing programs that reported the most prevalent disability as dyslexia/learning disability, with physical mobility impairments rated second (Watson, 1995). The data reported by Wu et al. (1996) did not clearly identify learning disabilities, but did include dyslexia among reported neurologic disabilities.

Learning disabilities are, at times, referred to as “silent disabilities” due to the lack of physical indicators (Johnson, 2003). Physical disabilities, in contrast, often present obvious signs and symptoms and may be more difficult to disguise or conceal. These disabilities are also at the center of a number of arguments regarding accommodation in health care education. Reichgott (1996) suggested that students with physical disabilities are likely to be denied admission to medical schools at a higher rate than students without physical disabilities. The percentage of medical students considered disabled was less than one half of the rate for the general student population within the same time period (Reichgott). This seems to imply discriminatory practice in admittance policies for medical schools. Others argue that this apparent discrimination is not illegal discrimination, rather it reflects the physical demands of the profession (Pounds, 1996).
Essential Requirements

The disability discrepancy that exists between the general student body and those studying in the health care professions may be related to the technical standards associated with those curricula. Technical standards identify the cognitive, sensory, affective and psychomotor skills necessary within an academic program (Davidson, 1994). Most academic programs associated with health care professions have outlined, not only academic requirements for admission, but also psychomotor skills that are prerequisites for admission. The physical attribute requirements are second only to standardized testing requirements in regard to complaints forwarded to the Office of Civil Rights (OCR; Rothstein, 2004). Complainants are rarely successful in court cases involving physical attributes. In a highly publicized case of a blind applicant to the medical school at Case Western Reserve University, the Ohio Supreme Court held that admission of this student (and subsequent accommodation) would require a fundamental alteration of the academic program (Ohio Civil Rights Commission v. Case Western Reserve University, 1996).

The plaintiff in that case argued that a blind student had completed medical school at Temple University (20 years earlier) and that accommodations provided for that student should be available from Case Western Reserve University. The plaintiff further argued that she was provided with accommodations (at Case Western Reserve University) in order to complete her undergraduate studies in chemistry after losing her vision during her junior year. The defendant countered that a blind student would not be able to complete clinical courses which required technical skills such as inserting an
intravenous tube, drawing blood, reading an EKG or x-ray, and reacting appropriately in an emergency. An intermediary was not considered a reasonable accommodation for a medical student in these instances, especially with regard to the delay that could be encountered in emergency situations. The original decision to admit this student was reversed based upon an institution’s right to determine its essential requirements without having to rely on a medical program from a different institution, and upon the right of a medical school to determine its essential requirements independent of other programs within the institution (Ohio Civil Rights Commission v. Case Western Reserve University, 1996).

The Association of American Medical Colleges (AAMC) identified five categories of skills and abilities deemed central to performance as a medical student. The essential categories included (a) observation skills; (b) communication skills; (c) motor skills; (d) the ability to conceptualize, integrate, and quantify information; and (e) appropriate behavioral and social skills (Hafferty & Gibson, 2003). These, or similar, standards have been adopted by a variety of health care education programs from dental education to nursing education to athletic trainers and therapists. Accredited ATEPs are required to distribute technical standards (Appendix A), to students early in (and at times prior to) the admission process to the academic programs (NATA-EC, 2004). Pre-admission queries regarding disabilities are prohibited by law (Helms & Weiler, 1993); however, pre-enrollment questioning for the purpose of accommodation is permitted (Wood, 1999). Questions relative to a candidate’s ability to complete a required task would be appropriate, whereas questions regarding a disability would not (Cook & Laski,
1980). ATEP directors should be prudent regarding the use of technical standards prior to admission to ATEPs to avoid violating the prospective student’s rights. There are no provisions that prohibit a prospective student from initiating discussions regarding her or his disability with a program director.

Technical standards and essential functions are two pillars for developing accommodations for students with disabilities (Wood, 1999). Technical standards are often referred to as essential requirements, though these terms are not synonymous. Technical standards may be most appropriate for admission decisions, in that they reflect skills and abilities that are pre-existing and not influenced by instruction (Scott, 1990). These may include (a) the ability to analyze, synthesize, and integrate information quickly and independently; (b) the ability to identify deviations from the norm; (c) the ability to communicate clearly; (d) sufficient postural and neuromuscular control and sensory function to effectively evaluate and treat a patient; and (e) the ability to maintain composure in periods of high stress (NATA-EC, 2004). Skills and abilities which are developed and demonstrated during a student’s course of study may be better described as essential requirements for matriculation. Essential requirements are those academic and clinical requirements that cannot be substantially modified to accommodate students (AAMC, 1979). Some of these requirements may be related to patient safety, whereas others arise from the philosophical orientation of the individual institution. For example, a student may require accommodation to evaluate accurately the ligamentous stability of the ankle. One academic program may consider this skill to be an essential requirement (thus not reasonably accommodated) whereas another would allow the student to
progress utilizing accommodations the program regards as reasonable. Either position is
defensible if it is consistent with the essential requirements that had been previously
established for that program or institution (Helms & Helms, 1994). Essential
requirements established prior to any encounters with applicants with disabilities would
strengthen the institution’s position in the eyes of the court. Thus, technical standards are
discipline specific whereas essential requirements are institution specific, with each
program determining specific outcomes, rather than processes, that are relatively non-
negotiable for successful completion of a curriculum (Scott, 1990).

Conversely, essential functions are those functions associated with the
professional practice of the specific discipline and are discipline specific. Essential
functions are determined through the amount of time a professional spends on a particular
function, as well as the ability of other personnel to perform that function (Tucker, 1989).
Denial of admission to an educational program based solely on the applicant’s potential
for employment after graduation may be permitted if the candidate lacks a physical
attribute that is critical to performance of essential functions (Cook & Laski, 1980). In
Southeastern Community College vs. Davis (1979), the court ruled that understanding
speech without relying on lip reading was an essential function of nurses, thus the
plaintiff was not otherwise qualified for enrollment in a nursing education program.
Furthermore, the court ruled that mere presence of a disability would not be sufficient to
deny admission, but the institution would need to prove that a particular student would
not be able to meet the essential functions.
Some health care disciplines do not have clearly developed lists of essential functions, however. As recently as 1997, research demonstrated a need for the development of essential functions in PT for use in PT education programs (Ingram, 1997). Likewise, there have been calls to update technical standards and essential functions in nursing education (Magilvy & Mitchell, 1995). In contrast, ATEPs have benefited from regular surveys of practitioners regarding the essential functions of ATCs in the Role Delineation Study (RDS) conducted for the BOC since 1992 (BOC, 2004b). The RDS, in its fifth edition, is conducted with practitioners from all areas of practice, and is intended to define the essential functions of the profession. The findings of the RDS are also critical to ensuring that the certification examination is a valid test of the knowledge and skill required to practice competently as an entry-level athletic trainer (BOC, 2004b). To this end, the athletic training educational competencies, designed to measure students’ mastery of cognitive and psychomotor skills required for successful completion of an ATEP, are developed with careful consideration of the established essential functions.

The RDS quantifies the importance and criticality of specific skills and procedures essential to the practice of athletic training (BOC, 2004b). Importance is an indication of the degree to which the task is considered essential (i.e., of little importance, moderately important, very important, extremely important). Criticality is an indication the consequences of inappropriate care (i.e., minimal harm, moderate harm, substantial harm, and extreme harm). Additionally, respondents indicated the frequency with which they performed these skills in the context of their current employment and the point at
which a professional must be competent in the particular skill. The content of the RDS addresses the six practice domains of athletic training, injury prevention, evaluation and diagnosis, immediate care, treatment and rehabilitation, organization and administration, and professional responsibility (BOC, 2004b).

The findings of the most recent RDS indicate that practitioners find each of the domains to be very important and that moderate to substantial harm could result if a practitioner lacks competence in a skill or task. Respondents also indicated that competence is required within the first year of practice, and they rated the domains of evaluation and diagnosis and immediate care highest among importance and criticality (BOC, 2004b). Tasks associated with evaluation and diagnosis stress communication and fine motor skills; the level of importance of each task was rated very- to extremely important. Likewise, the tasks associated with providing immediate care to a patient were each rated very- to extremely important. Lack of competence in either of these domains was considered likely to cause substantial- to extreme harm to the public. Protection of the public is a significant measure, as the mission of the BOC is to certify athletic trainers and to ensure safe and competent practice in this unique field of health care (BOC, 2006).

The skills and tasks addressed by the RDS have been identified as essential skills of an athletic trainer, regardless of employment settings. These skills are considered essential for ATCs in professional, intercollegiate, and interscholastic athletics, as well as in industrial, rehabilitative, and medical practice settings. Thus, the competencies derived from the RDS should be appropriate for every ATC and athletic training student, regardless of practice settings or career goals. Laurent and Weidner (2002) found clinical
education standards, developed to ensure quality of clinical educational experiences of athletic training students, to be appropriate across practice settings. Similarly, a program developed to assess competency among nurses regardless of practice specialization illustrated that discipline specific competencies can be appropriately and consistently applied across the spectrum of care provided within the discipline (Arcand & Neumann, 2005).

The RDS has permitted Athletic Training to refine the essential functions of the profession. This has facilitated appropriate academic preparation for the entry-level practitioner and the development of technical standards for these education programs (BOC, 2004b). With this information available, ATEPs are responsible for developing essential requirements for their particular academic programs. These three components are central to the development of reasonable accommodations for students with disabilities.

Reasonable Accommodations

The purpose of accommodations is to minimize or eliminate the effect of impairment on a particular activity (Keiser, 2002). Academic institutions and programs are seldom required to waive course work, and are not mandated to substantially alter academic programs to accommodate students with disabilities (Rothstein, 2004). The 1979 Davis decision (Southeastern Community College v. Davis) affirmed the unequivocal requirement for clinical education that is common to health care education programs. A more recent decision denied a student’s application to have a math course requirement waived as an accommodation for his documented learning disability
(Guckenberger v. Boston University, 1998). Institutions are, however, required to make themselves aware of the nature of a student’s disability and consider alternative means for meeting academic requirements, as well as cost and feasibility of such alternatives, before concluding whether an accommodation is reasonable and appropriate (Branfield, 1990; Wong v. Regents of University of California, 1999; Wynne v. Tufts University School of Medicine, 1991). Failure to consider alternatives prior to ruling on accommodation requests will lengthen legal proceedings, and may allow the court to find for the complainant (student; Nathanson v. Medical College of Pennsylvania, 1991). In addition, once an accommodation has been identified as being reasonable, it is unlikely that the institution will have the option of withdrawing the accommodation without proof that it has created a substantial modification or fundamental change in an academic program (Wong v. Regents of University of California, 1999). Thus, institutions should consider the benefits and implications of providing or refusing accommodations carefully prior to any decision.

There have been three arguments allowed in response to requests for accommodations in health care education programs. The first is the fundamental alteration of the academic program. The courts have consistently ruled in favor of health care education programs in such cases as they do not wish to substitute judicial judgments in academic matters. Courts generally will not reverse academic decisions unless there has been a procedural violation such as due process (Rothstein, 2004). Southeastern Community College v. Davis (1978) remains a landmark case in this regard, and is often contrasted with more recent cases in which defendants where charged with
demonstrating the plaintiff was not otherwise qualified in spite of reasonable accommodations (Doherty v. Southern College of Optometry, 1987; Ohio Civil Rights Commission v. Case Western Reserve University, 1996). In Zukle v. Regents of the University of California (1999), a student requesting to split an 8-week clinical rotation during medical school was denied accommodations as that accommodation would fundamentally alter the stated academic goals associated with clinical education. The institution had allowed the student to complete a decelerated curriculum that allowed extended reading periods between clerkships, but did not consent to the interruption of a clinical rotation for reasons of academic integrity.

Institutions are not shown such deference when nonessential skills or functions are in question (Helms & Helms, 1994). Two cases in the 1980s resulted in admission being granted for students with disabilities when the institutions could not prove that the essential requirements of the academic program could not be met with reasonable accommodation. In Kling v. County of Los Angeles (1985), a student with Crohn’s disease was denied admission though she was academically qualified. The court ruled that the institution erred in anticipating that the student would miss too many classes as a result of her condition. A second case involved a licensed physician who was wrongfully denied admission to a psychiatric residency program based on the assumption that he would likely be unable to respond appropriately to patients’ reactions to his use of a wheelchair (Pushkin v Regents of the University of Colorado, 1981). When the Supreme Court ruled in favor of Casey Martin in PGA Tour, Inc. v. Martin (2001), some anticipated an increase in disability court cases. The likelihood of this was limited by the
court’s unambiguous position that Martin’s use of a golf cart would not fundamentally alter the game, as the essential aspect of fatigue was not eliminated in this case (Rothstein, 2004).

The second permissible argument against accommodation is that of economic hardship. Institutions should be aware that any program or service offered to students may require accommodations to allow students with disabilities to access that program or service (Helms & Helms, 1994). The institution is obligated to fund such (reasonable) accommodations, unless the accommodation would fundamentally alter the nature of the service (ADA, 1990; Zukle v. Regents of the University of California, 1999). Moreover, the institution is required to fund accommodations and auxiliary aids without regard for the student’s ability to pay for such services (Camenisch v. University of Texas, 1980; United States v. Board of Trustees for University of Alabama, 1990). In addition, if vocational rehabilitation centers are able to provide assistance, the institution, not the student, bears the responsibility of requesting these services. Should the institution offer special programs for students with disabilities that are not part of the regular curriculum, the financial responsibility is shifted to the student (Halasz v. University of New England, 1993).

Institutions arguing that accommodations create an undue financial hardship bear the burden of proof in such cases (Helms & Helms, 1994). Educational institutions may be less successful than private employers in regard to claims of financial hardship. Education is not a fundamental right, but does play an important role in the development of an educated society and should be treated with appropriate deference (Branfield,
In Alexander v. Choate (1985), the court emphasized meaningful access to programs and services for individuals with disabilities and this extends to higher education. Reliance on traditional practices or a refusal to employ technology as a means of accommodation may be viewed as unlawful discrimination (Leonard, 1996). An institution claiming that such accommodations would create a substantial financial hardship must present objective data that illustrate the prohibitive costs of the accommodation previously deemed reasonable (Branfield, 1990).

The final argument entertained by the courts is the risk to health and safety of others (ADA, 1990; Wood, 1999). The health and safety issue pertains not only to faculty and other students, but also to patients for whom the student with disabilities may provide care. At no time are institutions required to provide accommodations that interfere with the health and safety of students and patients (ADA, 1990). A dental student who was HIV positive was found to pose a substantial risk to patients and no reasonable accommodation existed to reduce this risk (Doe v. Washington University, 1991). In Doe v. New York University (1981), an emotionally unstable applicant was denied readmission, when it was determined that she posed a significant threat of violence to herself and others. However, if there is no significant risk of harm to the patient or self, the candidate may not be denied admission on the basis of the disability (Bobinski, 1994; Doe v. University of Maryland, 1995).

Additionally, the institution is charged with identifying and developing reasonable accommodations (Hoffman v. Contra Costa College, 2001; Wynne v. Tufts University School of Medicine, 1991). A student may request specific accommodations, but the
institution is not obligated to provide any and all accommodations requested by such a student. The law requires appropriate accommodation; the manner in which a disability is effectively accommodated is left to the discretion of the institution (Thomas, 2002). In Hartnett v. Fielding Graduate Institute (2006), a graduate student appealed to be reassigned to a different discussion group. The second group met in a location more accessible to the plaintiff’s home and the reduced travel would be beneficial in light of the plaintiff’s medical condition (lupus). The university denied the request and the court supported that decision, ruling that the request was more personal preference rather than medical necessity or disability accommodation.

Case law is rich with rulings on accommodations and modifications for students with learning disabilities (Bartlett v. New York State Board of Law Examiners, 1998; Doe v. Harvard University, 1994; Guckenberger v. Boston University, 1998; Herdman v. University of Illinois, 1998; Rothman v. Emory University, 1994; Wynne v. Tufts University School of Medicine, 1992; Zukle v. Regents of University of California, 1999). There is a growing body of literature regarding accommodations and modifications for students with physical disabilities. Accommodations for physical disabilities vary greatly, depending on the particular disability (Helms & Helms, 1994; Helms & Weiler, 1993; Maheady, 1999; Reichgott, 1996; Rothstein, 1997; Thomas, 2002). Candidates with visual impairment (resulting in disability) may require enlarged text, a reader, or other intermediary. Candidates with auditory impairment (resulting in disability) may require sign-language interpreters and special equipment that utilizes visual indicators rather than auditory. Musculoskeletal and neurologic impairments may create problems with
mobility, endurance, or dexterity that may be addressed through altered time schedules, 
adapted equipment, or assistance of intermediaries (Meier, 1993).

The intermediary is a source of contention for health care educators and 
practitioners. Reichgott (1996) raised the issue of the negative effect the intermediary 
may have on the patient-provider relationship. More noteworthy in the argument 
regarding intermediaries is the level of training that the intermediary must possess to 
accurately identify and relay information to the health care student so that the student, not 
the intermediary, integrates and synthesizes the information to arrive at a sound medical 
decision (Hafferty & Gibson, 2003; Pounds, 1996). The appropriate use of intermediaries 
is determined on a case-by-case basis and what is deemed a “reasonable accommodation” 
in one program may not be considered reasonable in a different program at the same 
university, or in the same program at a different university.

The preponderance of evidence regarding successful matriculation through health 
care education programs for students with disabilities lies in nursing education literature 
(Magilvy & Mitchell, 1995; Maheady, 1999, 2003), though there are well publicized 
cases in medical education (Dannis, 2004). The most famous of these is the matriculation 
of a quadriplegic medical student who went on to practice as an internist (Dannis). It is 
likely that more cases of health care students with disabilities exist than are reported in 
the literature (Maheady, 1999). The cases that are reported, however, should serve to 
represent the potential for accommodation for a variety of disabilities. The aspect of 
accommodation that remains to be challenged, then, is the importance of the health care
student’s ability to perform specific essential professional skills independently (Hafferty & Gibson, 2003).

Undifferentiated Degree

Health care education programs provide a broad academic preparation for students, enabling them to pursue virtually any postgraduate specialization. In 1979, the AAMC called on medical education programs to prepare “undifferentiated graduates” who could perform examinations and diagnostic procedures without intermediaries (AAMC, 1979). Physicians, then, narrow the scope of their practice during residency, which occurs after professional licensing. The goal of medical education is to prepare graduates who are fully qualified and clinically competent to enter any medical specialty (Hartman & Hartman, 1981; Pounds, 1996). Nursing education also provides for an undifferentiated degree. With all candidates taking the same board examination, all candidates must be able to perform the essential functions required of practicing nurses (Helms & Weiler, 1993). Similarly, education programs for AT, OT, and PT are designed to prepare candidates for entry-level employment in all areas of professional practice. These healthcare providers may seek additional specialty certifications after completing a requisite period of professional practice and specific professional activities.

The undifferentiated degree has been challenged as having outlived its usefulness (Hafferty & Gibson, 2003). VanMatre, Nampiaparampil, Curry, and Kirschner (2004) reported that 70% of respondents in a recent survey disagreed or strongly disagreed with the idea of the undifferentiated candidate. Meier (1993) questioned the concept of the “pluripotential student” in the current climate of medicine. With so many options
available for specialty training for new physicians, many students select a specialty before completing medical school; therefore, the practice of eliminating students with disabilities based on limitations in psychomotor skills (that may not be required within their specialty field) may be outdated (Meier). The Association of Academic Physiatrists (AAP) supports this to some degree, arguing that not all students are pluripotential and that not all students (regardless of disability status) will possess all of the technical skills associated with medical education (AAP, 1993). However, the AAP Guidelines for Admission of Candidates with Disabilities to Medical School reflect the importance of competence in essential technical skills with or without accommodation (emphasis added; AAP).

Reichgott (1996) and Meier (1993) suggested that it may be more important that the candidate is able to interact and communicate effectively, possess a professional attitude, and have a high level of intelligence. In a survey of medical students and physicians, 96% of respondents identified communication skills as “very important” and “more important” in regard to admission to medical school (VanMatre et al., 2004). Still, certain technical skills were rated as either “very-” or “more-important” for graduating medical students: (a) auscultation, 75%; (b) percussion/palpation, 64%; and (c) evaluation of a patient’s general appearance, 90% of those surveyed (VanMatre et al.). These skills require a level of motor skill and dexterity, in addition to specific sensory function such as vision.

The use of a trained intermediary to assist in the performance of selected evaluation skills may be considered acceptable for a number of tasks (AAP, 1993;
VanMatre et al., 2004); but the training, the role, and the financing of intermediaries are all contentious points in pre-certification education (Hafferty & Gibson, 2003; Pounds, 1996). Certainly, the role of an intermediary for a practicing physician is different from that of a medical student. Healthcare professionals who become disabled after certification (licensure) face different issues than healthcare students do, as it is the pre-certification student who must possess pluripotential (Pushkin v. Regents of the University of Colorado, 1981).

In regard to intermediaries in the professional setting, employers must clearly identify essential and non-essential functions of the job. Essential functions of the job should be included in written job descriptions with specific attention given to duties that require the specialized training for which the applicant is hired (Thomas, 2002). Employers are not required to hire two people to perform a single job in the event a candidate cannot perform essential functions (Merrell v. ICEE-USA Corp, 2000), though intermediaries would likely be considered a reasonable accommodation for non-essential functions. As in higher education admission procedures, queries regarding a candidate’s ability to perform essential duties are appropriate during the interview process, though questions as to the nature of a candidate’s disability are not (Helms & Weiler, 1993; Wood, 1999). The focus of this research, however, is pre-certification education; the issues of post-certification accommodation have not been addressed further.

In athletic training, the undifferentiated degree appears to have a high level of support. The role delineation study (BOC, 2004b) illustrates the perceived importance, criticality, and frequency of use of selected skills in every area of professional practice
including emergency care, injury evaluation and diagnosis, rehabilitation, and communication. These essential skills define an athletic trainer. Essential skills, by nature, cannot be substantially modified to accommodate students, including those with disabilities. A prospective student who is unable to perform these tasks without accommodation may need to explore alternative career plans.

Professional Licensing Process

Additional problems may arise when the healthcare student applies for professional licensing or certification examinations. Initially, educational institutions are often queried regarding character and fitness for professional practice of candidates. Rothstein (2004) suggested that educators carefully consider responses to these questions as some disabilities related to mental health or substance abuse may adversely affect applicants and may create a breach of confidentiality and privacy. This appears to be unrelated to a discussion of physical disability, however it does relate to the student’s right to privacy. Educators and administrators should avoid any comments regarding a student’s disabilities without written consent from that student (Rothstein). It may be permissible, however, to discuss behaviors of students without risking violating the Family Education Rights and Privacy Act (FERPA, 1974), so long as the comments do not concern an underlying medical condition which may be a violation of the Health Insurance Portability and Privacy Act (HIPAA, 1996).

Licensing and certifying boards must be able to acquire candid appraisals of a candidate’s fitness to practice (Rothman v. Emory University, 1997). To facilitate this, board examination applications often contain a waiver of liability for anyone who
provides documents or information to the licensing agency. The BOC exam application contains such a waiver (BOC, 2004a). An applicant’s signature is not considered to be coerced in these instances as the process of application is completely voluntary (Rothman v. Emory University, 1997).

In addition, educators may be asked to provide guidance in regard to previous accommodations provided for students with disabilities to ascertain the appropriate accommodations for the same students sitting for licensing exams (Rothstein, 2004). As licensing and certification examinations are controlled by an external body (for athletic training this is the BOC and state licensing boards), students who fail to produce appropriate documentation for disabilities may not receive accommodations regardless of the accommodations provided during their academic program (BOC, 2004a; Hafferty & Gibson, 2003).

The issues raised relative to licensing and certification exams strike at the heart of the argument raised by Hafferty and Gibson (2003) regarding two frameworks for understanding health care education programs. These types of programs can be viewed as a process through which future professionals are trained and acculturated; or as an academic endeavor culminating in degree attainment. Referencing the 98.5% matriculation rate of medical students, Hafferty and Gibson (2003) suggested that medical schools no longer allow students the right to fail. Healthcare education programs must honestly assess their position relative to the purpose of education. This philosophical discussion may assist in establishing consistent and appropriate accommodations for students with a variety of disabling conditions.
Current Practice

Currently, most ATEPs rely on student disability services officers and legal counsel to assist in identifying and accommodating students with disabilities in accordance with the ADA (AT-Educators’ electronic discussion board, 2004). Similarly, the BOC offers accommodations for certification candidates who have documented disabilities in order to provide a “fair and equal opportunity” for the candidates to demonstrate their knowledge and skills (BOC, 2004a). A recent topic on the Athletic Training Educators’ electronic discussion board focused on accommodations for students with learning disabilities, prompting questions regarding accommodations for a deaf student (AT-Educators’ electronic discussion board, 2004).

There has been no formal communication among athletic training educators regarding disability among athletic training students. There is nothing in the literature regarding disability among athletic training students. Anecdotal accounts suggest that athletic training students with disabilities are steered toward restricted practice in the absence of restrictive licensing (AT-Educators’ electronic discussion board, 2004). Athletic training educators and program administrators are making decisions regarding appropriate accommodations for disabled students with little to no guidance from legal precedent, but are instead relying on the expertise of individuals unfamiliar with essential requirements of athletic training education. Each case of disability, then, presents new challenges for educators and administrators.

It appears that athletic training educators could learn a great deal from the experiences of medical and nursing education programs. A proactive manner of
addressing students with disabilities is more likely to result in policies that are congruent with the goals and objectives of athletic training education. However, it is critical that ATEP directors understand the legal issues related to higher education, including the rights and responsibilities of students with disabilities, the implications of the ADA, and the importance of an intimate understanding of the essential requirements of their respective programs. These appear to be central to the development of reasonable accommodations that will not compromise the academic integrity of ATEPs.

Summary

This chapter summarizes the current literature regarding students with physical disabilities in health care education programs with attention to the implications for clinical education and ATEPs. The similarities among health care education programs are apparent, with many disciplines using a competency-based education model that combines didactic and clinical education. It will be important, however, for ATEP directors to also recognize the differences between ATEPs and other health care disciplines as ATEPs must address a broad spectrum of injuries, illnesses, and conditions in diverse populations of physically active individuals.

Though limited data are available, it appears that students with disabilities enroll in health care education programs with less frequency than in other academic programs in higher education, though the proportion of students with disabilities does appear to be consistent across the health care disciplines. The incidence of litigation regarding admission to, and dismissal from, health care education programs has increased in recent past, though there is no evidence in the literature that ATEPs have encountered the legal
challenges from students with disabilities that have been reported in nursing and medical education. Many of the legal challenges have focused on a lack of attention to (a) the requirements of the ADA, (b) the essential requirements of the academic program, or (c) consistency among accommodation decisions within an academic program. With well developed essential functions and technical standards ATEPs appear to be reasonably well positioned to create sound discipline specific policies for students with disabilities. Yet, ATEPs can expect to encounter some of the issues facing all health care education programs including (a) identification of qualifying disabilities, (b) development of reasonable accommodations, and (c) resolution of questions related to the undifferentiated degree.
CHAPTER III

METHODS

The purpose of this chapter is to describe the research design and methodology employed in this study. Descriptions of the participants, instrument, procedures, and the methods of data analyses are included.

This study utilized a comparative design. The participants were recruited from the available pool of entry-level ATEP directors (undergraduate and graduate level) and the SDS directors at those institutions. At the time of this study, there were 325 accredited entry level programs within the United States (CAAHEP, 2005). Of these institutions, 43% had enrollments of less than 5,000; 31% had enrollments of 5,000 - 15,000; 12% had enrollments of 15,000 - 25,000, and 14% had enrollments greater than 25,000 (United States Department of Education, n.d.). Forty-one percent of these institutions participated in NCAA Division I athletic; 22% participated in NCAA Division II athletics; 28% participated in Division III athletics; and 8% participated in NAIA athletics (National Directory of Collegiate Athletics, 2005). Program directors at each of these institutions were recruited to participate in this study. Contact with potential participants was made through the United States Postal Service (USPS). Any subject who met the criteria was eligible for participation in this study.

To be eligible for participation, the participant must have been a program director in a CAAHEP accredited ATEP or a director of Students Disability Services at an institution with an accredited ATEP. Directors of academic programs not accredited by
CAAHEP, and educators who were not program directors were not eligible for participation. The pool of potential participants was limited in this way because all CAAHEP accredited ATEPs must meet the same standards regarding program administration, and program directors who are responsible for assuring compliance with those standards are more likely to be intimately familiar with them than educators who do not have this administrative role.

**Instrument**

The instrument utilized in this study was a survey (Appendices B & C). The survey was comprised of statements to which the respondents were asked to rate their level of agreement with statements related to athletic training student competence and personal knowledge of disability related legal requirements. A six point Likert type scale (strongly agree to strongly disagree) was used. In addition, participants were asked to provide their position (Yes or No) regarding the appropriateness of proposed accommodations for different types of disabilities. The participants were encouraged to provide additional comments in relative to the statements and accommodations.

*Validity and Reliability of the Instrument*

The content validity of the survey was achieved through careful consideration of the current literature related to healthcare education and disability law. Expert opinions from 5 ATCs, including AT-Educators and clinical practice ATCs, and 3 SDS officers were sought relative to the representativeness of the questions. The survey was piloted with the ATEPs in northeast Ohio (Kent State University, Mount Union College, and The University of Akron), with subsequent minor alterations to two items to reduce
ambiguity. Construct validity was evaluated through convergent and factorial evidence (Gliner & Morgan, 2000). Moderate to high external validity was anticipated in this study as the accessible population was also the theoretical population and the survey was administered as a “hard copy” survey and could be completed at the participants’ convenience.

The investigator acknowledged that participants’ history or prior experience with students with disabilities could potentially pose a threat to internal validity. To control this threat, prior experience was considered an independent variable.

Procedures

This study was reviewed and approved by the Human Subjects Review Board at Kent State University (Appendix D) prior to contact with participants. Each potential participant was initially contacted via USPS and provided with background information regarding the nature of the survey (Appendices E & F), a hard copy of the survey, and a preaddressed, postage-paid envelope. Participants were advised that an electronic version of the survey would be made available upon request. Informed consent was granted by returning the completed survey. Participants were asked to provide demographic information, as well as information related to their perceptions regarding student competence and personal knowledge of disability law. In addition, participants were asked to identify whether proposed accommodations for specific types of disability would be considered to be reasonable at their institution, within the context of their academic program. Questions related to perceptions of student competence required a response on a six point Likert scale ranging from “Strongly Agree” to “Strongly
Disagree.” Questions related to reasonable accommodation were answered on a dichotomous scale. Participants were encouraged to share experiences, or provide explanations for answers to survey questions.

Two prompts, or reminders, for non respondents were distributed electronically to potential participants three and six weeks after the initial notification. Participants were free to withdraw from this study at any time. Participant anonymity was maintained through an intentional lack of identifiable data gathered through the survey. At no time was a participant asked to provide information that would identify him or her (or the respective institution). Confidentiality was maintained through data aggregation. No individuals or institutions were identified in any reports, nor have the data been presented in a manner other than summative. Participants were advised that results of this study would be available upon request at the conclusion of the study.

Data Analysis

This study utilized both quantitative and qualitative data, requiring a mixed method approach. Data analysis was conducted utilizing a statistical software program (SPSS 14.0, SPSS, Inc., Chicago, IL). Demographic data were analyzed with descriptive statistics. Quantitative data associated with the Likert scale survey were analyzed to determine the perceptions through frequency counts. The percentage of respondents for particular levels of agreement was reported. Data associated with differences between groups of respondents (i.e., ATEP directors vs. SDS directors) were analyzed through t tests, chi-square, or phi coefficients. A multiple regression analysis was utilized to determine the extent to which demographic variables contributed to a willingness to
accommodate among respondents. Ordinal and nominal variables were “dummy coded” to facilitate this analysis. Qualitative data were coded to allow identification of categories, themes and patterns.

Independent variables in this study included demographics such as: participant sex; years of experience; prior experience with students with disabilities; and institutional characteristics. The dependent variables were the respondents’ level of agreement with survey statements.

*Research Question 1*

What is the level of awareness of ATEP and SDS directors regarding the prevalence of physical disability among athletic training students?

This question was answered with data provided by survey question 43. The accuracy of responses was measured against the actual proportion established through a study conducted in the spring of 2005 (Newsham, unpublished data). A one sample t test was utilized to determine if a statistically significant difference existed between ATEP directors’ perception and enrollment statistics. An alpha level of .05 was used for statistical significance.

*Research Question 2*

What are the perceptions of ATEP directors and SDS directors regarding the physical disabilities that may be reasonably accommodated in the ATEPs?

This question was answered through survey items 14-41. A frequency count was utilized to identify the rates of response from ATEP directors and SDS directors. A Chi-square was utilized to determine if statistically significant differences existed between the
differences groups for each of the types of disability explored in this study. Indices were
developed to express the overall likelihood of accommodation by the nature of the
disability. The indices for ATEP directors and SDS directors were compared through an
independent sample t test. An alpha level of .05 was used for statistical significance.

Research Question 3

What are the perceptions of ATEP directors and SDS directors regarding actions
that would constitute reasonable accommodation for various physical disabilities?

Survey items 14-41 addressed perceptions of reasonable accommodations. A
frequency count was utilized to identify the rates of response for each item. Careful
consideration of the nature of the accommodations allowed the specific actions to be
grouped with similar types of accommodations. Accommodation indices were developed
to facilitate independent sample t test to determine if statistically significant differences
existed between the different groups. An alpha level of .05 was used for statistical
significance. Responses to the open-ended request for comments were coded to allow
identification of categories, themes, and patterns.

Research Question 4

How are demographic descriptors related to perceptions of reasonable
accommodations?

A multiple regression analysis was conducted to determine the extent to which
demographic identifiers contributed to the variance of responses relative to
accommodation indices. Demographic data included (a) program level, (b) size of
institution, (c) athletic program affiliation, (d) years of teaching experience, (e) years at
current institution, (f) current employment responsibilities, (g) sex, and (h) prior experience with students with disability. These data were generated from part A of the survey and from survey item 42. An alpha level of .05 for was used statistical significance.

Demographic variables were “dummy coded” to facilitate a regression analysis of these factors relative to accommodation indices. Demographic variables included institutional variables related to the institution size and level of athletic participation. Additional variables regarding personal information included (a) sex, (b) prior experience with athletic training students with disabilities, (c) professional responsibilities, (d) highest degree conferred, (e) years teaching in higher education, and (f) years at current institution. A multiple regression analysis was conducted to determine the extent to which demographic identifiers contributed to the variance of responses relative to accommodation indices.

**Research Question 5**

What is the level of acceptance of intermediaries for students with disabilities during clinical education in ATEPs?

This question was addressed by survey items 12, 20, 23, 27, 29, 32, 36, 37, and 40. Item 2 addressed the importance of students acting independently without the services of an intermediary. The remaining items addressed specific roles of an intermediary in the clinical education of an entry-level athletic trainer. A Spearman Rho ($r_s$) correlation coefficient was calculated to evaluate the relationship between responses to item 2 and responses to the other nine items (12, 20, 23, 27, 29, 32, 36, 37, and 40).
Research Question 6

What is the level of confidence among ATEP directors regarding knowledge and compliance with the directives of the ADA?

This question was addressed through survey item 12. A frequency count was utilized to identify the rates of response for this item. This response was compared to responses relative to accommodations that are clearly specified in disability related law as reasonable accommodations within education programs regardless of the setting.

Limitations

The limitations of this research include the potential for survey fatigue on the part of ATEP directors. This group is targeted by many researchers interested in topics related to athletic training education and may discard surveys for which they have limited initial interest. This survey was distributed in a hard copy form, and if lost or damaged could not have been replaced without contacting the investigator. Additional limitations were related to the dichotomous nature of the response choices. Respondents were offered rather limited information regarding the nature of the disabilities and the context in which an accommodation could be provided. The respondents could answer yes or no and, while comments were encouraged, there was no middle ground as far as accommodations were considered. Similar to practice settings, the accommodation must be considered reasonable or not. Additional limitations included the potential of limited knowledge of athletic training education on the part of SDS directors, and the potential of limited knowledge of disability law on the part of ATEP directors. Finally, the investigator must assume that the respondents provided accurate information regarding their positions.
relative to reasonable accommodations. These limitations were accepted in light of the exploratory nature of this research.

Summary

This study assessed ATEP directors’ level of agreement with statements concerning athletic training student competence and selected issues related to students with disabilities. The study also compared ATEP directors’ and SDS directors’ perceptions of reasonable accommodations for students with physical disabilities in ATEPs. Statistical analysis included frequency counts, t tests, chi square with phi coefficients, Spearman’s rho coefficient, and regression analysis. Instrument reliability was evaluated with a K-R 20. Alpha level for statistical significance was set as .05 for all analyses.
CHAPTER IV

RESULTS

The purpose of this chapter is to describe the results of this study. The response rate achieved in this study is reported and the demographic profile of the respondents is described. Additional analysis includes reliability measures of the instrument, frequency counts relative to perceptions of critical skills in athletic training education, comparisons of respondents’ perceptions of reasonable accommodations by type of disability and by type of accommodation, and accuracy of estimation of the proportion of students with disabilities.

Demographics

Three hundred and twenty five institutions, identified as having CAAHEP accredited entry-level ATEPs when this research was initiated, were selected for participation in this study. Surveys were sent to the ATEP program directors and SDS directors at each of these institutions. One ATEP survey and two SDS surveys were returned by the USPS as undeliverable. Three weeks after the initial mailing, a reminder notice was sent to all participants electronically (e-mail). One hundred thirty-three ATEP surveys were returned, 132 of these were complete with usable data. Eighty-four SDS surveys were returned, 80 of these were complete with usable data. Return rates were calculated at 41% for ATEPs (133/324), 26% for SDS (84/323), and 33.5% overall (217/647).
Of the ATEP directors, 96% \((n = 127)\) reported having an undergraduate program; 45.5% \((n = 60)\) identified as female; 49.6% \((n = 65)\) had a doctoral degree (Table 1). All ATEP directors identified their role as an educator, 55% \((n = 72)\) further identified their role as an administrator, and 32% \((n = 42)\) identified their role as a clinician (Table 2). Thirty-eight percent \((n = 50)\) limited their role to educator.

ATEP directors had an average of 14 years’ \((SD = 7.79)\) experience in higher education and average 9.53 years’ \((SD = 7.34)\) experience at their respective institutions. The years of experience ranged from 2-39 years and 1-39 years respectively. The median value for experience in higher education was 12 years and for tenure at current institution was 7 years. Whereas male respondents tended to have more experience in higher education and longer tenure at current institutions, these differences were not statistically significant \((p = .356; p = .054,\) respectively).

Institutional characteristics included enrollment and athletic program designation. A majority (47.7%, \(n = 63\)) reported having enrollments of less than 5,000 students; 28% \((n = 37)\) had enrollments of 5,000 - 15,000; 11.4% \((n = 15)\) had enrollments of 15,000 - 25,000; and 12.7% \((n = 17)\) had enrollments of greater than 25,000 (Table 3). Athletic program designations for responding institutions indicated that 38.6% \((n = 51)\) institutions participated in NCAA Division I athletics; 18.9% \((n = 25)\) in NCAA Division II; 29.5% \((n = 39)\) in NCAA Division III; and 12.1% \((n = 16)\) in NAIA athletics. It appears that NAIA institutions may be slightly overrepresented in the respondents; however, the difference between respondents and the population is not statistically significant \((\chi^2 (3, N = 132) = 2.76, p > .05)\).
Table 1

**Characteristics of Respondents**

<table>
<thead>
<tr>
<th>Sex**</th>
<th>Female</th>
<th>Male</th>
<th>Years in Higher Education</th>
<th>Mean (sd)</th>
<th>Total</th>
<th>Years at Institution</th>
<th>Mean (sd)</th>
<th>Total</th>
<th>Highest Degree Conferred*</th>
<th>F</th>
<th>M</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>F</td>
<td>M</td>
<td>Total</td>
<td>F</td>
<td>M</td>
<td>Total</td>
<td>Masters</td>
<td>53.3%</td>
<td>47.9%</td>
</tr>
<tr>
<td>ATEP</td>
<td>45.5%</td>
<td>54.5%</td>
<td>13.3</td>
<td>14.6</td>
<td>13.99</td>
<td>8.23</td>
<td>10.65</td>
<td>9.53</td>
<td>n = 32</td>
<td>n = 34</td>
<td>n = 65</td>
<td></td>
</tr>
<tr>
<td>n = 132</td>
<td>60</td>
<td>72</td>
<td>(7.62)</td>
<td>(7.95) †</td>
<td>(7.79)</td>
<td>(5.47)</td>
<td>(8.51)</td>
<td>(7.34) ‡</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDS</td>
<td>77.5%</td>
<td>22.5%</td>
<td>13.3</td>
<td>16.7</td>
<td>13.87</td>
<td>8.39</td>
<td>13.17</td>
<td>9.47</td>
<td>n = 28</td>
<td>n = 37</td>
<td>n = 66</td>
<td></td>
</tr>
<tr>
<td>(n = 80)</td>
<td>62</td>
<td>18</td>
<td>(7.15)</td>
<td>(10.74) †</td>
<td>(8.18)</td>
<td>(6.98)</td>
<td>(11.32) ◊</td>
<td>(8.34)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctorate</td>
<td>47.7%</td>
<td>52.1%</td>
<td>50.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 44</td>
<td>n = 9</td>
<td>n = 53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doctorate</td>
<td>27.4%</td>
<td>50%</td>
<td>32.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 17</td>
<td>n = 9</td>
<td>n = 26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant difference between ATEP and SDS $p = .042$  ** Significant difference between ATEP and SDS ($p < .001$)

† No significant difference between female and male respondents (ATEP $p = .356$; SDS $p = .093$)

‡ No significant difference between female and male respondents (ATEP $p = .054$)

◊ Significant difference between male and female respondents ($p = .032$)
Table 2

**ATEP Directors’ Professional Role**

<table>
<thead>
<tr>
<th>ATEP Position (check all that apply)</th>
<th>Educator ◊</th>
<th>Administrator</th>
<th>Clinician</th>
</tr>
</thead>
</table>
| 100%  
N = 132 | 55%  
N = 72 | 32%  
N = 42 |
| Female | 100%  
(60) | 55%  
(33) | 25%  
(15) |
| Male | 100%  
(71) | 55%  
(39) | 38.1%  
(27) |

◊ Indicating Educator only: overall 38% (n = 50); female 40% (n = 24); male 36.6%
(n = 26); Φ = 1.48, p = .413

Table 3

**Institutional Characteristics**

<table>
<thead>
<tr>
<th>Enrollment</th>
<th>Population</th>
<th>Respondents</th>
<th>ATEP†</th>
<th>SDS‡</th>
<th>Athletics</th>
<th>Population</th>
<th>Respondents◊</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5000</td>
<td>43%</td>
<td>47.7%</td>
<td>46.7%</td>
<td>NCAA I</td>
<td>41%</td>
<td>38.6%</td>
<td></td>
</tr>
<tr>
<td>5-15,000</td>
<td>31%</td>
<td>28%</td>
<td>29.3%</td>
<td>NCAA II</td>
<td>22%</td>
<td>18.9%</td>
<td></td>
</tr>
<tr>
<td>15-25,000</td>
<td>12%</td>
<td>11.4%</td>
<td>10.7%</td>
<td>NCAA III</td>
<td>28%</td>
<td>29.5%</td>
<td></td>
</tr>
<tr>
<td>&gt;25,000</td>
<td>14%</td>
<td>12.7%</td>
<td>13.3%</td>
<td>NAIA</td>
<td>8%</td>
<td>12.1%</td>
<td></td>
</tr>
</tbody>
</table>

Columns may not total 100% due to rounding errors.

† Distribution of respondents not significantly different from population χ² (3, N = 132) = 0.82 (p > .05)
‡ Distribution of respondents not significantly different from population χ² (3, N = 80) = 0.59 (p > .05)
◊ Distribution of respondents not significantly different from population χ² (3, N = 132) = 2.76 (p > .05)
Of the SDS directors who responded to this survey, 33% \((n = 26)\) reported having a doctoral degree and 77.5% \((n = 62)\) identified as female. The average years of experience in higher education for SDS directors was 13.87 \((SD = 8.18)\), whereas average years at current institution was 9.47 \((SD = 8.34)\). The range of responses was 2-46 years and 1-44 years respectively. An ANOVA indicated that statistically significant differences exist between ATEP directors and SDS directors in regard to degrees conferred and sex \((p = .042, p < .001,\) respectively). No difference between ATEP and SDS respondents was identified regarding the size of the institution for the respondents or years of experience (Table 1).

Reliability of the Instrument

Content validity of this instrument was achieved through consultation of current literature regarding accommodations in health care education and athletic training competencies, and through consultation of expert athletic training educators. The instrument was minimally modified after a pilot study identified ambiguity within two of the items. Inter item reliability for accommodations by type of disability was analyzed through a Kudner-Richardson 20 (K-R 20) with listwise exclusions (Table 4). The K-R 20 analysis was selected secondary to the dichotomous nature of the data (Gliner & Morgan, 2000). The combined samples had moderate reliability for items grouped by type of disability: Mobility \(\alpha = .44\); Visual \(\alpha = .61\); Auditory \(\alpha = .49\); Motor Skill \(\alpha = .70\); and Health \(\alpha = .59\). K-R 20 alpha differed slightly when responses were analyzed by type of respondent (ATEP or SDS). For ATEP only, KR-20 alpha were calculated as: Mobility \(\alpha = .49\); Visual \(\alpha = .65\); Auditory \(\alpha = .55\); Motor Skill \(\alpha = .71\); and Health \(\alpha = .64\).
Conversely, the inter item reliability was slightly decreased for SDS only compared to the combined responses (Mobility $\alpha = .36$; Visual $\alpha = .53$; Auditory $\alpha = .40$; Motor Skill $\alpha = .67$; and Health $\alpha = .49$). These findings indicate that the items in each subscale were not clearly related to one another, with the exception of Motor Skill disabilities. This may suggest that accommodation decisions are not primarily based on the nature of the disability, or that the accommodations suggested in this survey were not clearly linked to a specific type of disability.

Cross tabulations were obtained to determine frequency counts of responses to specific actions proposed as accommodations for all types of disability. A correlation

Table 4

*Inter Item Reliability Coefficients for Accommodation Indices by Type of Disability.*

<table>
<thead>
<tr>
<th>Disability by Type</th>
<th>Mean</th>
<th>SD</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEP</td>
<td>1.62</td>
<td>.20</td>
<td>.49</td>
</tr>
<tr>
<td>SDS</td>
<td>1.62</td>
<td>.20</td>
<td>.36</td>
</tr>
<tr>
<td>Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEP</td>
<td>1.41</td>
<td>.31</td>
<td>.65</td>
</tr>
<tr>
<td>SDS</td>
<td>1.39</td>
<td>.26</td>
<td>.53</td>
</tr>
<tr>
<td>Auditory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEP</td>
<td>1.37</td>
<td>.26</td>
<td>.55</td>
</tr>
<tr>
<td>SDS</td>
<td>1.33</td>
<td>.25</td>
<td>.40</td>
</tr>
<tr>
<td>Motor Skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEP</td>
<td>1.60</td>
<td>.28</td>
<td>.71</td>
</tr>
<tr>
<td>SDS</td>
<td>1.48</td>
<td>.28</td>
<td>.67</td>
</tr>
<tr>
<td>Health Impairment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEP</td>
<td>1.55</td>
<td>.36</td>
<td>.64</td>
</tr>
<tr>
<td>SDS</td>
<td>1.50</td>
<td>.35</td>
<td>.49</td>
</tr>
</tbody>
</table>
matrix identified responses with moderate to high correlations. These data and the nature of the proposed accommodations were considered in the context of athletic training education to identify related items. These items were then selected for inclusion on an accommodation index specific to one of three constructs: Clinical Assignment (4 items); Clinical Skill (4 items); or Intermediary (8 items). A K-R 20 analysis indicated moderate to high inter item correlation for each of these indices (.79, .64, and .85 respectively). When compared by group, SDS K-R 20 \( \alpha \) levels were slightly lower (.70, .54, and .81 respectively; Table 5) and ATEP \( \alpha \) levels were slightly higher (.83, .70, and .85 respectively). These findings suggest that accommodation decisions may be more closely associated to the nature of the accommodation than to other factors, such as the nature of the disability. The moderate correlation demonstrated by responses from SDS directors relative to Clinical Skills may indicate a lack of understanding of the importance of clinical skills in health care education programs.

Convergent evidence of construct validity is demonstrated by the associations between accommodation indices. The survey data demonstrate higher inter correlations between related factors, but lower inter correlations between dissimilar items. Thus, the convergent and discriminant evidence suggest that this survey has sufficient construct validity for an exploratory study of this nature.

ATS Competence and ATEP Director Perceptions

ATEP directors (only) were asked to provide their level of agreement to various statements regarding ATS competence and attitudes relative to accommodations for students with disabilities. A Likert type scale was used to represent the level of
Table 5

*Inter Item Reliability Coefficients for Accommodation Indices by Nature of Accommodation*

<table>
<thead>
<tr>
<th>Accommodation Subscale</th>
<th>Mean</th>
<th>SD</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Assignment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEP</td>
<td>1.56</td>
<td>.36</td>
<td>.83</td>
</tr>
<tr>
<td>SDS</td>
<td>1.52</td>
<td>.34</td>
<td>.70</td>
</tr>
<tr>
<td><strong>Clinical Skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEP</td>
<td>1.87</td>
<td>.21</td>
<td>.70</td>
</tr>
<tr>
<td>SDS</td>
<td>1.81</td>
<td>.22</td>
<td>.54</td>
</tr>
<tr>
<td><strong>Intermediary</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATEP</td>
<td>1.50</td>
<td>.33</td>
<td>.85</td>
</tr>
<tr>
<td>SDS</td>
<td>1.34</td>
<td>.28</td>
<td>.81</td>
</tr>
</tbody>
</table>

agreement whereas “strongly agree” was represented by a response of 1 and “strongly disagree” was represented by a response of 6. In response to statements regarding ATS competence (Table 6), a majority of ATEP directors (96%) agreed or strongly agreed that ATSs need to be proficient in taping ($M = 1.33, SD = 0.66$); perform evaluations independently (81%; $M = 1.76, SD = 0.99$); be able to manipulate patients during orthopedic special tests (92%; $M = 1.49, SD = 0.69$); integrate, analyze, and synthesize information quickly, accurately, and independently (91%; $M = 1.58, SD = .73$); communicate effectively with patients (99%; $M = 1.16, SD = 0.39$), health care providers (95%; $M = 1.35, SD = 0.63$), and educators (97%; $M = 1.33, SD = 0.53$). Only 54% of ATEP directors agreed or strongly agreed that ATSs need to be proficient in auscultations of the thorax ($M = 2.68, SD = 1.27$). Auscultations represented the highest mean score
### Table 6

**ATEP Directors’ Level of Agreement With Competence Statements**

<table>
<thead>
<tr>
<th>Competence Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Mean (SD)</th>
<th>Variance</th>
<th>Kurtosis (Std Error)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATS must be proficient in taping skills</td>
<td>72.2% (n = 93)</td>
<td>23.4% (n = 30)</td>
<td>3.1% (n = 4)</td>
<td>—</td>
<td>0.8% (n = 1)</td>
<td>1.3 (0.66)</td>
<td>0.44</td>
<td>18.31</td>
<td></td>
</tr>
<tr>
<td>ATS must perform independent evaluations</td>
<td>53.9% (n = 69)</td>
<td>27.3% (n = 35)</td>
<td>10.9% (n = 14)</td>
<td>6.3% (n = 8)</td>
<td>1.6% (n = 2)</td>
<td>—</td>
<td>1.76 (0.99)</td>
<td>0.98</td>
<td>0.97 (0.42)</td>
</tr>
<tr>
<td>ATS must perform and interpret auscultations</td>
<td>15.6% (n = 20)</td>
<td>38.5% (n = 49)</td>
<td>24.2% (n = 31)</td>
<td>7.8% (n = 10)</td>
<td>12.5% (n = 16)</td>
<td>1.6% (n = 2)</td>
<td>2.68 (1.27)</td>
<td>1.61</td>
<td>-.26 (0.42)</td>
</tr>
<tr>
<td>ATS must communicate effectively w/ patients</td>
<td>61.7% (n = 79)</td>
<td>30.5% (n = 39)</td>
<td>7.0% (n = 9)</td>
<td>—</td>
<td>0.8% (n = 1)</td>
<td>—</td>
<td>1.46 (0.69)</td>
<td>0.48</td>
<td>4.11 (0.42)</td>
</tr>
<tr>
<td>ATS must physically manipulate patient for orthopedic special tests</td>
<td>85.2% (n = 109)</td>
<td>14.1% (n = 18)</td>
<td>0.8% (n = 1)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1.16 (0.39)</td>
<td>0.15</td>
<td>4.40 (0.42)</td>
</tr>
<tr>
<td>ATS must communicate effectively w/ other health care professionals</td>
<td>71.1% (n = 91)</td>
<td>24.2% (n = 31)</td>
<td>3.9% (n = 5)</td>
<td>—</td>
<td>0.8% (n = 1)</td>
<td>—</td>
<td>1.35 (0.63)</td>
<td>0.40</td>
<td>8.21 (0.42)</td>
</tr>
<tr>
<td>ATS must communicate effectively w/ instructors</td>
<td>70.3% (n = 90)</td>
<td>26.6% (n = 34)</td>
<td>3.1% (n = 4)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>1.33 (0.53)</td>
<td>0.28</td>
<td>0.91 (0.42)</td>
</tr>
<tr>
<td>ATS must interpret, analyze and synthesize information quickly, accurately, and independently</td>
<td>52.3% (n = 67)</td>
<td>38.3% (n = 49)</td>
<td>7.8% (n = 10)</td>
<td>0.8% (n = 1)</td>
<td>0.8% (n = 1)</td>
<td>—</td>
<td>1.58 (0.73)</td>
<td>0.54</td>
<td>3.08 (0.42)</td>
</tr>
</tbody>
</table>

◊ Strongly agree = 1; Strongly disagree = 6
for items related to the competence of the ATS. It also represented the greatest variance (1.61) of all items in this section, indicating a lack of agreement among respondents.

The remaining items were not directly related to the domains of athletic training, but addressed ATEP directors’ perceptions of personal knowledge and general disability issues (Table 7). Seventy percent of ATEP directors agreed or strongly agreed that athletic training students with disabilities would require accommodations ($M = 2.40$, $SD = 0.93$). Respondents’ comments associated with this item indicate that the nature of the disability would be a critical factor in regard to need for accommodation. Fifty-six percent agreed or strongly agreed that technological advances increased the potential for students with disabilities to succeed in ATEPs ($M = 2.53$, $SD = 1.04$). In addition, 86% of ATEP directors agreed or strongly agreed that their institutions were in compliance with ADA directives ($M = 1.78$, $SD = 0.91$), whereas 76% agreed or strongly agreed that they were knowledgeable of the legal rights of students with disabilities and legal requirements regarding accommodation ($M = 2.02$, $SD = 0.83$). Sixty-two percent of ATEP directors agreed or strongly agreed that the JRC-AT should provide guidance regarding students with disabilities, whereas 11% disagreed or strongly disagreed with this statement. Seventeen percent slightly agreed or slightly disagreed with this statement ($M = 2.45$, $SD = 1.37$). This item (JRC involvement) represented the greatest amount of variance of all items, indicating a lack of agreement among respondents. Comments associated with this item indicate very strong feelings of some respondents on both ends of this scale.
Table 7

*ATEP Directors’ Level of Agreement With General Disability Statements*

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Mean (SD)</th>
<th>Variance</th>
<th>Kurtosis (Std Er)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATSs with disabilities will require accommodation</td>
<td>10.2% (n = 13)</td>
<td>55.5% (n = 71)</td>
<td>18% (n = 23)</td>
<td>9.4% (n = 12)</td>
<td>4.7% (n = 6)</td>
<td>2.40 (0.96)</td>
<td>0.93</td>
<td>0.81</td>
<td></td>
</tr>
<tr>
<td>Technological advances benefit students with disabilities</td>
<td>10.9% (n = 14)</td>
<td>45.3% (n = 58)</td>
<td>30.5% (n = 39)</td>
<td>5.5% (n = 7)</td>
<td>7% (n = 9)</td>
<td>0.8% (n = 1)</td>
<td>2.53 (1.04)</td>
<td>1.06</td>
<td>1.05</td>
</tr>
<tr>
<td>Institution is compliant with ADA</td>
<td>43.8% (n = 56)</td>
<td>42.2% (n = 54)</td>
<td>7.8% (n = 10)</td>
<td>3.9% (n = 5)</td>
<td>2.3% (n = 3)</td>
<td>1.78 (0.91)</td>
<td>0.83</td>
<td>2.60</td>
<td></td>
</tr>
<tr>
<td>I am knowledgeable of legal requirements regarding students with disabilities</td>
<td>27.3% (n = 35)</td>
<td>48.4% (n = 62)</td>
<td>21.2% (n = 27)</td>
<td>1.6% (n = 2)</td>
<td>1.6% (n = 2)</td>
<td>2.02 (0.83)</td>
<td>0.69</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>JRC-AT should provide guidance for ATEPs</td>
<td>28.1% (n = 36)</td>
<td>33.6% (n = 43)</td>
<td>18.8% (n = 24)</td>
<td>7.8% (n = 10)</td>
<td>7.8% (n = 10)</td>
<td>3.9% (n = 5)</td>
<td>2.45 (1.37)</td>
<td>1.88</td>
<td>0.19</td>
</tr>
</tbody>
</table>

◊ Strongly agree = 1; Strongly disagree = 6
Research Questions

Research Question 1

What is the level of awareness of ATEP and SDS directors regarding the prevalence of physical disability among athletic training students?

This question was addressed by survey question 43. The responses were compared to ATEP enrollment data collected 6 months prior to this study (Newsham, unpublished data).

The ATEP directors estimated the proportion of athletic training students with disability to be 4.69% ($SD = 4.53$; Table 8). The estimates ranged from 0-30%. Approximately 23% estimated the incidence at 1% or less, whereas 25% of respondents estimated the proportion at 5%, and another 18.8% had estimates higher than 5%. The prevalence of students with disabilities in athletic training programs has been reported to be 0.34% (Newsham, unpublished data). A one sample t test indicated a significant difference between the estimates of ATEP directors and the previously reported statistic ($t[127] = 10.85, p < .001$). An ANOVA indicated no difference in the accuracy of estimations between ATEP directors who had students with disabilities enrolled in their programs compared to the estimations of ATEP directors who did not have students with disabilities enrolled in their programs ($F[2, 122] = .336, p = .563$).

The SDS directors estimated the proportion of athletic training students with disability at 3.70% ($SD = 5.48$). The estimates ranged from 0-38%. Approximately 38% estimated the incidence at 1% or less. Ten of the respondents did not provide an estimate. A one sample t test indicated a significant difference between the estimates of SDS
Table 8

*Estimates of Proportion of Athletic Training Students With Disabilities*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDS</td>
<td>3.70**</td>
<td>5.48</td>
<td>0-38%</td>
<td>5.13</td>
<td>69</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>ATEP</td>
<td>4.69**</td>
<td>4.54</td>
<td>0-30%</td>
<td>10.85</td>
<td>127</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>With students with disability</td>
<td>4.90‡</td>
<td>4.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without students with disability</td>
<td>4.43</td>
<td>4.58</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Statistically significant difference between estimate and reported value of 0.34%
‡ Difference between estimates of ATEP with students with disabilities and without students with disabilities was not statistically significant (F(1,123) = .336, p = .56)

directors and the previously reported statistic (t[69] = 5.13, p < .001). An ANOVA between SDS directors and ATEP directors estimating the proportion of students with disabilities at 1% or less indicated that SDS directors were better able to estimate this proportion than were ATEP directors (F[1, 54] = 5.055, p = .029).

Research Question 2

What are the perceptions of ATEP directors and SDS directors regarding the physical disabilities that may be reasonably accommodated in the ATEPs?

ATEP directors and SDS directors were asked to provide their perception of whether specific actions would be reasonable accommodations for specific physical disabilities. The accommodation was either reasonable or not reasonable. In addition,
ATEP respondents were asked to identify if they had previously provided this type of accommodation. Comments regarding specific accommodations were encouraged. A chi-square utilizing phi coefficients ($\phi$) was utilized to identify any statistically significant differences between the groups. Alpha was set at .05.

*Accommodation for Mobility Related Disabilities*

ATEP directors were more likely to allow time for students to get to classes and clinical assignments than were SDS directors (90.2% and 72.5% respectively; $\phi = 0.230$, $p = .001$; Table 9). SDS directors’ comments indicated that preferential or priority class scheduling could address any problems related to getting to class and clinical experiences in a timely manner. Neither group had a majority that perceived providing transportation as a reasonable accommodation, though ATEP directors were more likely than SDS directors to allow this accommodation (37.1% and 21.3% respectively; $\phi = .166$, $p = .016$). SDS directors were more likely than ATEP directors to provide intermediaries to assist in special tests (51.9% and 26.5% respectively; $\phi = -0.256$, $p < .001$). A statistically significant difference was identified between ATEP directors and SDS directors perception of altering the physical environment (91.6% and 98.8% respectively; $\phi = -0.150$, $p = .03$), however, the practical significance of this finding is questionable as both groups demonstrate greater than 90% agreement on this item. The effect sizes observed with the correlations regarding suggested accommodations for mobility impairments are small ($\phi = .04$) to medium ($\phi = .230$). These levels are considered to be acceptable in exploratory research (Cohen, 1988).
Table 9

*Accommodations for Mobility Related Disabilities*

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>ATEP</th>
<th>SDS</th>
<th>Φ</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow time</td>
<td>90.2%</td>
<td>72.5%</td>
<td>.230**</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>(119)</td>
<td>(58)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide transportation</td>
<td>37.1%</td>
<td>21/3%</td>
<td>.166*</td>
<td>.016</td>
</tr>
<tr>
<td></td>
<td>(49)</td>
<td>(17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoid inclement weather</td>
<td>38.6%</td>
<td>34.6%</td>
<td>.040</td>
<td>.56</td>
</tr>
<tr>
<td></td>
<td>(51)</td>
<td>(27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alter taping and treatment tables</td>
<td>91.6%</td>
<td>98.8%</td>
<td>-.150*</td>
<td>.030</td>
</tr>
<tr>
<td></td>
<td>(120)</td>
<td>(79)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce or avoid taping skills</td>
<td>8.3%</td>
<td>13.5%</td>
<td>-.082</td>
<td>.238</td>
</tr>
<tr>
<td></td>
<td>(11)</td>
<td>(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce or avoid evaluations</td>
<td>1.5%</td>
<td>2.6%</td>
<td>-.037</td>
<td>.597</td>
</tr>
<tr>
<td></td>
<td>(2)</td>
<td>(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Utilize intermediary for special</td>
<td>26.5%</td>
<td>51.9%</td>
<td>-.256**</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>tests</td>
<td>(35)</td>
<td>(40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limit consecutive hours</td>
<td>58.8%</td>
<td>65.8%</td>
<td>-.069</td>
<td>.318</td>
</tr>
<tr>
<td></td>
<td>(77)</td>
<td>(50)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

◊ “Yes” responses reported
* p < .05   ** p < .01

An accommodation index was created by computing a mean score for each of the items included for specific disability categories. These indices indicated the likelihood of a respondent concluding that a proposed accommodation would be reasonable for a particular disability, where 1 represents a respondent’s inclination to consider the proposed accommodations to be reasonable and 2 represents a respondent’s inclination to consider proposed accommodations not reasonable. The mobility index was 1.62 (SD =
.20) for ATEP directors and 1.62 (SD = .20) for SDS directors (Table 10). In contrast, if accommodations typically provided in didactic class settings were eliminated from the indices, differences between ATEP and SDS directors’ perceptions become more apparent (Table 11).

The effect size associated with clinical education differences is greater than that observed in the overall index. Effect sizes included in tables 11(η²) represent small to medium effect sizes. These are considered to be acceptable in new areas of research (Cohen, 1988). It is important to consider accommodations for didactic and clinical education experiences separately as it is the clinical component of health care education that creates the greatest contrast between these and other fields of study in higher education.

An independent samples t test was used to compare the accommodation indices between the two groups (ATEP and SDS directors). Levene’s test for homogeneity of variance indicated that some, but not all, of the indices demonstrated sufficient variance for parametric tests (Table 12, Table 13). No statistically significant difference between these groups (t[192.32] = .753, p = .453) in regard to accommodations for students with mobility impairments with classroom accommodations included. When only clinical educational experiences are considered, a significant difference between the groups relative to accommodations for mobility impairments is identified (t[210] = 2.72, p = .007). Post-hoc power calculations associated with accommodations by for clinical education range from .70 - .97. This does not include the power for comparisons for
Table 10

*Accommodation Index by Nature of Disability*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Type</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>ATEP</td>
<td>132</td>
<td>1.626</td>
<td>.2049</td>
<td>.0178</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>SDS</td>
<td>80</td>
<td>1.625</td>
<td>.2050</td>
<td>.0229</td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td>ATEP</td>
<td>132</td>
<td>1.413</td>
<td>.3123</td>
<td>.0271</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>SDS</td>
<td>80</td>
<td>1.393</td>
<td>.2574</td>
<td>.0287</td>
<td></td>
</tr>
<tr>
<td>Auditory</td>
<td>ATEP</td>
<td>132</td>
<td>1.369</td>
<td>.2665</td>
<td>.0232</td>
<td>.005</td>
</tr>
<tr>
<td></td>
<td>SDS</td>
<td>80</td>
<td>1.330</td>
<td>.2460</td>
<td>.0275</td>
<td></td>
</tr>
<tr>
<td>Motor Skill</td>
<td>ATEP</td>
<td>131</td>
<td>1.596</td>
<td>.2844</td>
<td>.0248</td>
<td>.035</td>
</tr>
<tr>
<td></td>
<td>SDS</td>
<td>80</td>
<td>1.482</td>
<td>.2824</td>
<td>.0315</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>ATEP</td>
<td>131</td>
<td>1.550</td>
<td>.3645</td>
<td>.0318</td>
<td>.006</td>
</tr>
<tr>
<td>Impairment</td>
<td>SDS</td>
<td>80</td>
<td>1.500</td>
<td>.3518</td>
<td>.0393</td>
<td></td>
</tr>
</tbody>
</table>
Table 11

Accommodation Index by Nature of Disability for Clinical Education Experiences

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Type</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility – Clinical</td>
<td>ATEP</td>
<td>132</td>
<td>1.624</td>
<td>.1928</td>
<td>.0167</td>
<td>.038</td>
</tr>
<tr>
<td></td>
<td>SDS</td>
<td>80</td>
<td>1.550</td>
<td>.1922</td>
<td>.0214</td>
<td></td>
</tr>
<tr>
<td>Visual – Clinical</td>
<td>ATEP</td>
<td>132</td>
<td>1.274</td>
<td>.2839</td>
<td>.0247</td>
<td>.025</td>
</tr>
<tr>
<td></td>
<td>SDS</td>
<td>80</td>
<td>1.185</td>
<td>.2437</td>
<td>.0272</td>
<td></td>
</tr>
<tr>
<td>Auditory – Clinical</td>
<td>ATEP</td>
<td>132</td>
<td>1.339</td>
<td>.2415</td>
<td>.0210</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>SDS</td>
<td>80</td>
<td>1.228</td>
<td>.1974</td>
<td>.0220</td>
<td></td>
</tr>
<tr>
<td>Motor Skill – Clinical</td>
<td>ATEP</td>
<td>131</td>
<td>1.596</td>
<td>.2844</td>
<td>.0248</td>
<td>.035</td>
</tr>
<tr>
<td></td>
<td>SDS</td>
<td>80</td>
<td>1.482</td>
<td>.2824</td>
<td>.0315</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>ATEP</td>
<td>131</td>
<td>1.550</td>
<td>.3645</td>
<td>.0318</td>
<td>.006</td>
</tr>
<tr>
<td>Impairment – Clinical</td>
<td>SDS</td>
<td>80</td>
<td>1.500</td>
<td>.3518</td>
<td>.0393</td>
<td></td>
</tr>
</tbody>
</table>
Table 12

Comparison of ATEP and SDS Directors’ by Nature of Disability

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>T</td>
</tr>
<tr>
<td>Mobility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.298</td>
<td>.586</td>
<td>.048</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>6.984</td>
<td>.009</td>
<td>.476</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auditory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.067</td>
<td>.795</td>
<td>1.066</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Skill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.099</td>
<td>.753</td>
<td>2.844</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Impairment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>.342</td>
<td>.559</td>
<td>.997</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 13

Comparison of ATEP and SDS Directors’ by Nature of Disability for Clinical Education Experiences

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td><strong>Mobility – Clinical</strong></td>
<td>Equal variances assumed</td>
<td>.000</td>
<td>.984</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Visual – Clinical</strong></td>
<td>Equal variances assumed</td>
<td>1.707</td>
<td>.193</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Auditory – Clinical</strong></td>
<td>Equal variances assumed</td>
<td>7.688</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motor Skill – Clinical</strong></td>
<td>Equal variances assumed</td>
<td>.099</td>
<td>.753</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Health Impairment – Clinical</strong></td>
<td>Equal variances assumed</td>
<td>.342</td>
<td>.559</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
health impairments (.17) or for motor skill impairments (.85) as these indices did not include accommodations for didactic classes.

*Accommodations for Vision Related Disabilities*

ATEP directors and SDS directors were equally likely to allow a reader for written exams (93.9% and 98.7% respectively; $\varphi = -0.115, p = .095$; Table 14). ATEP directors were less likely than SDS directors to allow a student with a visual impairment to utilize an intermediary for practical exams (62.6% and 79.5% respectively; $\varphi = -0.176, p = .011$), and both groups were less likely to allow an intermediary to perform a visual inspection during a physical exam (46.9% and 54.7% respectively; $\varphi = -0.075, p = .285$). Conversely, ATEP directors were more likely than SDS directors to provide transportation for students with vision related disabilities (37.9% and 17.5% respectively; $\varphi = -0.215, p = .002$). Both groups indicated that an intermediary, or recording device, would be acceptable for recordkeeping related tasks (ATEP 87.1%; SDS 92.4%; $\varphi = -0.082, p = .233$), and that diagnostic equipment with audible indicators would be acceptable (ATEP 93.2%; SDS 100%; $\varphi = -0.161, p = .020$). Again, the small difference between these groups (less than 7%) is statistically significant, though likely not of practical significance as greater than 90% of respondents from each group agreed on the accommodation. The effect sizes observed with the correlations regarding suggested accommodations for visual impairments are small ($\varphi = .08$) to medium ($\varphi = .230$). These levels are considered to be acceptable in exploratory research (Cohen, 1988).

The accommodation index for visual disabilities was 1.41 ($SD = .31$) for ATEP directors and 1.39 ($SD = .26$) for SDS directors for overall visual impairment.
Table 14

*Accommodations for Vision Related Disabilities◊*

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>ATEP</th>
<th>SDS</th>
<th>Φ</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow reader for written exam</td>
<td>93.9%</td>
<td>98.7%</td>
<td>-.115</td>
<td>.095</td>
</tr>
<tr>
<td></td>
<td>(124)</td>
<td>(78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allow intermediary for practical exams</td>
<td>62.6%</td>
<td>79.5%</td>
<td>-.176*</td>
<td>.011</td>
</tr>
<tr>
<td></td>
<td>(82)</td>
<td>(62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allow intermediary for record keeping in</td>
<td>87.1%</td>
<td>92.4%</td>
<td>-.082</td>
<td>.233</td>
</tr>
<tr>
<td>clinical education</td>
<td>(115)</td>
<td>(73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allow use of diagnostic instruments with</td>
<td>93.2%</td>
<td>100%</td>
<td>-.161*</td>
<td>.020</td>
</tr>
<tr>
<td>audible indicators</td>
<td>(123)</td>
<td>(76)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide transportation</td>
<td>37.9%</td>
<td>17.5%</td>
<td>.215**</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>(50)</td>
<td>(14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allow intermediary to assist in visual</td>
<td>46.9%</td>
<td>54.7%</td>
<td>-.075</td>
<td>.285</td>
</tr>
<tr>
<td>inspection of patients</td>
<td>(61)</td>
<td>(41)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

◊ “Yes” responses reported

* p < .05  ** p < .01

accommodations (t[188.80] = .129, p = .898). For accommodations in clinical education settings, ATEP directors’ index was 1.27 (SD = .28) compared to SDS directors’ 1.18 (SD = .24; t(210) = 2.32, p = .021). The effect size observed for overall visual accommodations is quite small (η² = .001), when only clinical education accommodations are considered the effect size increases slightly (η² = .025). Small effect sizes are considered to be acceptable in new areas of research (Cohen, 1988).
Accommodations for Auditory Related Disabilities

ATEP directors were more likely than SDS directors to provide readers for written exams (81.8%, 56.3% respectively; $\varphi = 0.277$, $p < .001$; Table 15), yet were less likely to approve of intermediaries for practical exams (69.7%, 83.3% respectively; $\varphi = -0.152$, $p = .028$). ATEP directors were as likely as SDS directors to approve of intermediaries in a classroom setting (90.9%, 97.5% respectively; $\varphi = -0.129$, $p = .061$). This was not true in a clinical setting where 76.3% of ATEP directors approved of the use of intermediaries and 94.9% of SDS directors approved ($\varphi = -0.242$, $p < .001$). Less than one-third of respondents in either group supported altering clinical assignments to avoid multiple performer activities (ATEP 23.7%, SDS 30.7%; $\varphi = -0.077$, $p = .272$). A statistically significant difference was noted between ATEP directors’ and SDS directors’ position on diagnostic equipment with visual indicators, but this difference does not appear to be clinically significant (ATEP 93.9%, SDS 100%; $\varphi = -0.153$, $p = .027$). Both groups of respondents demonstrated greater than 90% agreement on this item. Comments associated with this accommodation focused on the cost of equipment and upon who would bear the financial responsibility for these items. The effect sizes observed with the correlations regarding suggested accommodations for auditory impairments are small ($\varphi = .077$) to medium ($\varphi = .242$). These levels are considered to be acceptable in exploratory research (Cohen, 1988).

The overall accommodation index for auditory disabilities was 1.37 ($SD = .26$) for ATEP directors and 1.33 ($SD = .24$) for SDS directors ($t[192.23] = 3.55$, $p < .001$; Table 12). A statistically significant difference was identified between the two groups.
Table 15

*Accommodations for Auditory Related Disabilities*

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>ATEP</th>
<th>SDS</th>
<th>Φ</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow reader for written exam</td>
<td>81.8%</td>
<td>56.3%</td>
<td>.277**</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Allow intermediary for practical exams</td>
<td>69.7%</td>
<td>83.3%</td>
<td>-.152*</td>
<td>.028</td>
</tr>
<tr>
<td>Allow use of diagnostic instruments with visual indicators</td>
<td>93.9%</td>
<td>100%</td>
<td>-.153*</td>
<td>.027</td>
</tr>
<tr>
<td>Allow intermediary in class</td>
<td>90.9%</td>
<td>97.5%</td>
<td>-.129</td>
<td>.061</td>
</tr>
<tr>
<td>Allow intermediary in clinical setting</td>
<td>76.3%</td>
<td>94.9%</td>
<td>-.242**</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Avoid multiple performer activities in clinical assignment</td>
<td>23.7%</td>
<td>30.7%</td>
<td>-.077</td>
<td>.272</td>
</tr>
</tbody>
</table>

◊ “Yes” responses reported
*
 p < .05  ** p < .01

when only accommodations relative to clinical educational experiences were considered (t[192.02] = 3.64, p < .001, Table 13). The effect size observed for overall auditory accommodations is small (η² = .005), when only clinical education accommodations are considered the effect size increases to a medium effect (η² = .054).

*Accommodations for Motor Skill Related Disabilities*

Neither ATEP directors nor SDS directors supported the elimination of demonstrating competency with diagnostic equipment for ATSS with motor skill related disabilities (15%, 30.7% respectively; φ = 0.027, p = 0.696; Table 16). The only
Table 16

*Accommodations for Motor Skill Related Disabilities*

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>ATEP</th>
<th>SDS</th>
<th>φ</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eliminate requirement to demonstrate competency with diagnostic equipment</td>
<td>15.0% (19)</td>
<td>30.7% (10)</td>
<td>.027</td>
<td>.696</td>
</tr>
<tr>
<td>Eliminate or reduce taping skills</td>
<td>16.8% (22)</td>
<td>27.3% (21)</td>
<td>-.125</td>
<td>.072</td>
</tr>
<tr>
<td>Allow intermediary to assist with physical exam</td>
<td>48.1% (63)</td>
<td>73.1% (57)</td>
<td>-.244**</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Allow student to direct, but not demonstrate, emergency care procedures</td>
<td>34.4% (45)</td>
<td>48.7% (37)</td>
<td>-.141*</td>
<td>.042</td>
</tr>
<tr>
<td>Allow alternative methods of skill performance if outcome is the same</td>
<td>86.9% (113)</td>
<td>89.9% (71)</td>
<td>-.044</td>
<td>.524</td>
</tr>
</tbody>
</table>

◊ “Yes” responses reported

* p < .05  ** p < .01

Accommodations in which statistically significant differences were noted were those involving a third party performing all, or part of, the skills. ATEP directors were less likely to approve the use of an intermediary to assist in a physical exam (ATEP 48.1%, SDS 73.1%; φ = -0.244, p < .001), and less likely to allow students to direct, but not demonstrate emergency procedures (ATEP 34.4%, SDS 48.7%; φ = -0.141, p = .042). The effect sizes observed with the correlations regarding suggested accommodations for motor skill impairments are small (φ = .027) to medium (φ = .244). These levels are considered to be acceptable in exploratory research (Cohen, 1988).

The overall accommodation index for motor skill disabilities was 1.59 (SD = .28) for ATEP directors and 1.48 (SD = .28) for SDS directors (t[208] = 3.59, p < .001; Table
The accommodations suggested for motor skill impairment subscale were all related to clinical educational experiences, no clinical education subscale was needed. The effect size observed for overall motor skill accommodations is small ($\eta^2 = .035$).

**Accommodations for Health Related Disabilities**

No significant differences were identified between ATEP directors and SDS directors regarding health related disabilities. Limiting consecutive hours for students with endurance limitations was approved by 63.1% of ATEP directors and 71.4% of SDS directors ($\phi = -0.085, p = .220$; Table 17). Allowing students with health related disabilities to direct, but not demonstrate, emergency procedures was approved by 32.1% of ATEP directors and 38.5% of SDS directors ($\phi = -0.065, p = .346$). Similarly, 39.7% of ATEP directors approved of altering clinical assignments to avoid inclement weather for these students, whereas 41.8% of SDS directors approved of this accommodation ($\phi = -0.021, p = .766$). The overall accommodation index for health related disabilities was 1.55 ($SD = .36$) for ATEP directors and 1.50 ($SD = .35$) for SDS directors ($t[209] = .997, p = .320$; Table 12). All accommodations suggested for this subscale were related to clinical educational experiences. The effect size associated with these differences is small ($\eta^2 = .01$).
Table 17

Accommodations for Health Related Disabilities

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>ATEP</th>
<th>SDS</th>
<th>ϕ</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit consecutive hours for clinical education</td>
<td>63.1% (82)</td>
<td>71.4% (55)</td>
<td>-0.085</td>
<td>.220</td>
</tr>
<tr>
<td>Allow student to direct, but not demonstrate, emergency care procedures</td>
<td>32.1% (42)</td>
<td>38.5% (30)</td>
<td>-0.065</td>
<td>.345</td>
</tr>
<tr>
<td>Alter clinical assignment to avoid inclement weather</td>
<td>39.7% (52)</td>
<td>41.8% (33)</td>
<td>-0.021</td>
<td>.766</td>
</tr>
</tbody>
</table>

◊ “Yes” responses reported

Research Question 3

What are the perceptions of ATEP directors and SDS directors regarding actions that would constitute reasonable accommodation for various physical disabilities?

Survey items 14-41 addressed perceptions of reasonable accommodations. In addition to the dichotomous response choices, responses to the open-ended request for comments were coded to allow identification of categories, themes, and patterns. Further, indices were created (described above) to allow comparison between the two groups regarding the types of accommodations (Clinical Assignment, Clinical Skills, Intermediaries) proposed for athletic training students with physical disabilities.

An independent sample t test for types of accommodations perceived to be reasonable within ATEPs demonstrated differences between ATEP and SDS directors for two of the three indices developed (Table 18; Levene’s test for equality of variance
Table 18

*Comparison of ATEP and SDS Directors’ by Nature of Accommodation*

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Clinical Assignment</td>
<td>Equal variances assumed</td>
<td>1.595</td>
<td>.208</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>.774</td>
<td>175.899</td>
</tr>
<tr>
<td>Clinical Skills</td>
<td>Equal variances assumed</td>
<td>.900</td>
<td>.344</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>2.101</td>
<td>157.823</td>
</tr>
<tr>
<td>Intermediary</td>
<td>Equal variances assumed</td>
<td>3.458</td>
<td>.064</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>3.827</td>
<td>186.861</td>
</tr>
</tbody>
</table>
In regard to accommodations relative to clinical assignment, no significant difference was identified ($t[210] = .761; p = .448; \eta^2 = .003$). ATEP directors were less likely to approve accommodations for performance of clinical skills ($M = 1.87, SD = .21$) than were SDS directors ($M = 1.81, SD = .22; t[210] = 2.14, p = .034; \eta^2 = .021$). In fact, accommodations for clinical skills were least likely to gain approval by either group. Perceptions regarding the reasonableness of intermediaries provided the greatest contrast, with ATEP directors less likely ($M = 1.5, SD = .33$) than SDS directors ($M = 1.3, SD = .28$) to approve the use of intermediaries for clinical skills ($F[1, 211] = 13.563, p < .001; \eta^2 = .061$). Post-hoc power calculations for differences in accommodation by nature of the accommodation were .173 for clinical assignment, .50 for clinical skills, and .96 for intermediaries.

**Research Question 4**

How are demographic descriptors related to perceptions of reasonable accommodations?

A standard multiple regression analysis was conducted to determine the extent to which demographic identifiers contributed to the variance of responses relative to accommodation indices. Demographic data included (a) program level, (b) size of institution, (c) athletic program affiliation, (d) teaching experience, (e) years at current institution, (f) current employment responsibilities, (g) sex, and (h) prior experience with students with disabilities. These data were generated from part A of the survey and from survey item 42.
Demographic variables were “dummy coded” to facilitate a regression analysis of these factors relative to accommodation indices. Demographic variables included institutional variables related to the institution size and level of athletic participation. Additional variables regarding personal information included (a) sex, (b) prior experience with athletic training students with disabilities, (c) professional responsibilities, (d) highest degree conferred, (e) years teaching in higher education, and (f) years at current institution. A standard multiple regression analysis was conducted to determine the extent to which demographic identifiers contributed to the variance of responses relative to accommodation indices. Alpha was set at .05.

A regression analysis of the relationship between demographic variables and the Clinical Assignment accommodation index indicated a very poor fit ($R^2 = .048$, $R^2_{\text{adj}} = 1.7\%$) and this was not statistically significant ($F[17, 187] = .741, p = .758$; Tables 19 and 20). Likewise, no statistically significant relationship was identified among demographic variables and the accommodation index for Clinical Skills ($R^2 = .079$, $R^2_{\text{adj}} = .1\%$; $F[17, 187] = 1.01, p = .449$). A weak, though statistically significant relationship was demonstrated between demographic variables and the Intermediary accommodation index ($R^2 = .174$, $R^2_{\text{adj}} = 9.9\%$; $F[17, 187] = 2.118, p = .003$). Overall, only one variable, ATEP respondent’s professional responsibilities, demonstrated as significant effect on the Intermediary index ($t = 2.155, p = .032$). The effect size observed for the regression analyses ranged from medium to large. A post-hoc power calculation for regression on intermediaries was .97.
Table 19

Regression Model Summary

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>R^2</th>
<th>Adjusted R^2</th>
<th>Std Error of Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediary</td>
<td>.417</td>
<td>.174</td>
<td>.099</td>
<td>.305</td>
</tr>
<tr>
<td>Clinical Skills</td>
<td>.282</td>
<td>.079</td>
<td>.001</td>
<td>.217</td>
</tr>
<tr>
<td>Clinical Assignment</td>
<td>.219</td>
<td>.048</td>
<td>.017</td>
<td>.354</td>
</tr>
</tbody>
</table>

Predictors: Type, degree, sex, had students, professional role, experience in higher education, experience at current institution, institution size, and athletic program affiliation.

Table 20

Regression ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermediary</td>
<td>Regression</td>
<td>3.419</td>
<td>17</td>
<td>.201</td>
<td>2.118</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>18.423</td>
<td>187</td>
<td>.095</td>
<td></td>
</tr>
<tr>
<td>Clinical Skills</td>
<td>Regression</td>
<td>.814</td>
<td>17</td>
<td>.048</td>
<td>1.010</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>8.864</td>
<td>187</td>
<td>.047</td>
<td></td>
</tr>
<tr>
<td>Clinical Assignment</td>
<td>Regression</td>
<td>1.587</td>
<td>17</td>
<td>.093</td>
<td>.741</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>23.560</td>
<td>187</td>
<td>.126</td>
<td></td>
</tr>
</tbody>
</table>
Research Question 5

What is the level of acceptance of intermediaries for students with disabilities during clinical education in ATEPs?

The concept of intermediaries was addressed by survey items 12, 20, 23, 27, 29, 32, 36, 37, and 40. Item 2 asked respondents to rate their level of agreement (strongly agree to strongly disagree) with a statement regarding the importance of students acting independently without the services of an intermediary. These values were then recoded to categorize responses as agree (strongly agree and agree), neutral (slightly agree and slightly disagree), and disagree (disagree and strongly disagree). The remaining items addressed specific roles of an intermediary in the education of an entry-level athletic trainer. A Spearman rho (rs) correlation coefficient (Table 21) was calculated to evaluate the level of agreement between responses to item 2 and responses to the other eight items (20, 23, 27, 29, 32, 36, 37, and 40).

The correlation coefficients between the respondents’ position regarding the importance of students acting independently and the acceptance of accommodations with utilizing intermediaries were small to moderate. A moderate, statistically significant relationship was identified between item 2 and the use of an intermediary during special tests for individuals with mobility impairments (rs = -.563, p = < .001), indicating that the stronger the agreement that ATSs must be able to perform injury evaluations independently the less likely the ATEP director was to agree that using intermediaries to perform special tests would be a reasonable accommodation. Similar negative correlations were found for intermediaries during practical exams for visual impairments.
Table 21

Perceived Importance of Student Autonomy and Acceptance of Intermediaries in Clinical Education

<table>
<thead>
<tr>
<th>Spearman rho correlation (2-tailed)</th>
<th>Independ. Evaluation</th>
<th>Special Tests Mobility</th>
<th>Practical Exams Vision</th>
<th>Visual Inspection</th>
<th>Practical Exams Auditory</th>
<th>Interpreter in Clinic Auditory</th>
<th>Physical Exam Motor Skill</th>
<th>Emergency Care Motor Skill</th>
<th>Emergency Care Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Evaluations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_s$</td>
<td>1</td>
<td>-.569(**)</td>
<td>-.267(**)</td>
<td>-.326(**)</td>
<td>-.285(**)</td>
<td>-.225(**)</td>
<td>-.351(**)</td>
<td>-.228(**)</td>
<td>-.256(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.010</td>
<td>.000</td>
<td>.009</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>132</td>
<td>132</td>
<td>131</td>
<td>130</td>
<td>132</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
</tr>
<tr>
<td>Special Tests Mobility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_s$</td>
<td>-</td>
<td>1</td>
<td>.356(**)</td>
<td>.458(**)</td>
<td>.321(**)</td>
<td>.289(**)</td>
<td>.580(**)</td>
<td>.268(**)</td>
<td>.302(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.002</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>209</td>
<td>206</td>
<td>130</td>
<td>132</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
</tr>
<tr>
<td>Practical Exams Vision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>.504(**)</td>
<td>.755(**)</td>
<td>.384(**)</td>
<td>.487(**)</td>
<td>.289(**)</td>
<td>.324(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>209</td>
<td>129</td>
<td>131</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Visual Inspection of Patient</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>.527(**)</td>
<td>.415(**)</td>
<td>.550(**)</td>
<td>.382(**)</td>
<td>.369(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>130</td>
<td>130</td>
<td>129</td>
<td>129</td>
<td>129</td>
<td>129</td>
</tr>
<tr>
<td>Practical Exams Auditory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>.450(**)</td>
<td>.460(**)</td>
<td>.295(**)</td>
<td>.304(**)</td>
<td>.304(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.001</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>132</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
</tr>
<tr>
<td>Interpreter in Clinic Auditory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>.486(**)</td>
<td>.199(*)</td>
<td>.254(**)</td>
<td>.254(**)</td>
<td>.254(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.023</td>
<td>.004</td>
<td>.004</td>
<td>.004</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>131</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Physical Exam Motor Skill</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>.430(**)</td>
<td>.419(**)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
</tr>
</tbody>
</table>

(table continues)
Table 21 (continued)

*Perceived Importance of Student Autonomy and Acceptance of Intermediaries in Clinical Education*

<table>
<thead>
<tr>
<th>Spearman rho correlation (2-tailed)</th>
<th>Independ. Evaluation</th>
<th>Special Tests Mobility</th>
<th>Practical Exams Vision</th>
<th>Visual Inspection</th>
<th>Practical Exams Auditory</th>
<th>Interpreter in Clinic Auditory</th>
<th>Physical Exam Motor Skill</th>
<th>Emergency Care Motor Skill</th>
<th>Emergency Care Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Care Motor Skill</td>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>131</td>
</tr>
<tr>
<td>Emergency Care Health</td>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
The correlation coefficients between the ATEPs level of agreement with the need for athletic training students to integrate, analyze, and synthesize information quickly, accurately, and independently and the accommodations relative to the use of intermediaries were generally weak and not statistically significant (Appendix G, Table G1) statements and the intermediary accommodation index, in that as the level of agreement decreased, the likelihood of finding an intermediary to be a reasonable accommodation increased (Appendix G, Tables G2 & G3).

ATEP directors demonstrated less agreement regarding the use of intermediaries than for other types of accommodations ($M = 1.50, SD = .33$). In consideration of intermediaries performing special tests for students with mobility impairment, 26.5% consented to this accommodation. For students with visual impairments, 62.6% of ATEP directors consented to intermediaries during practical exams and 46.9% consented to intermediaries performing visual inspection of injured patients. Intermediaries for hearing impaired students were approved by 69.7% of ATEP directors during practical exams and
by 76.3% during clinical education. Intermediaries during physical examination of patients for students with motor skill impairments were approved by 48.1% of ATEP directors. Finally, intermediaries for emergency procedures were approved by 34.4% of ATEP directors for motor skill impairments and by 32.1% for health impairments (Figure 1).

* $p < .05$, ** $p < .01$

Figure 1. Perceptions of intermediaries as reasonable accommodation
Research Question 6

What is the level of confidence among ATEP directors regarding knowledge and compliance with the directives of the ADA?

This question is addressed through survey item 12. A frequency count indicates that 97% \((n = 124)\) of ATEP directors agreed on some level that they were knowledgeable of the rights of students with disabilities and the legal requirements regarding accommodations. In contrast, 3% \((n = 4)\) disagreed with this statement. In addition, 94% \((n = 120)\) agreed that their respective institutions were compliant with the directives of the ADA. Disagreement with the statement regarding compliance was accompanied by statements regarding a lack of accessibility of buildings.

Although the level of confidence in knowledge of legal rights of students with disabilities and requirements associated reasonable accommodations was quite high, some of the respondents indicate positions that appear to be in conflict with the directives of the ADA and prior legal decisions. For example, 9% \((n = 12)\) of ATEP directors did not feel that intermediaries for hearing impaired students during class was a reasonable accommodation, and approximately 6% of ATEP directors indicated that diagnostic instruments with alternative indicators were not considered to be reasonable accommodations for students with visual and/or hearing impairments \((n = 9, n = 8)\) respectively. In contrast, 100% of SDS directors agreed that alternate indicators would be reasonable and 97.5% agreed that an intermediary for hearing impaired students during class was a reasonable accommodation. In addition, 13% \((n = 27)\) of ATEP directors, and 10% \((n = 8)\) of SDS directors, did not find that alternative methods of
performing a skill would be a reasonable accommodation regardless of the outcome achieved by the student.

**Summary**

The respondents appear to be representative of the population in regard to institutional variables (institution size and athletic program affiliation). The instrument demonstrated moderate to high inter item reliability through a K-R 20 analysis.

Overall, SDS directors were more likely to approve of accommodations that ATEP directors were. When accommodations were considered for clinical education experiences only, the differences between the groups reached statistical significance for all types of disabilities except health related disabilities. Statistically significant differences were identified between groups for accommodations relative to clinical skills and intermediaries, but not for clinical assignments, an area for which both groups were agreeable to accommodations. Demographic variables did not demonstrate an effect on accommodation indices for clinical assignments or clinical skills, though the professional role of the respondent (clinical responsibilities) did have a significant effect on the intermediary accommodation index.

ATEP directors indicated high levels of agreement with statements regarding athletic training student competence in technical skills, independent evaluations, information integration, and communication. There were lower levels of agreement for the item related to auscultations and for items related to general disability issues.

ATEP directors who had higher levels of agreement with statements regarding independent evaluation by athletic training students were less likely to approve of
intermediaries in clinical education. The correlation coefficients obtained in this analysis were weak to moderate ($r_s = .228, -.563$). ATEP directors demonstrated less agreement regarding intermediaries than for other types of accommodations. The exception to this trend was the use of intermediaries for emergency care where approximately 66% found this to be an unreasonable accommodation.

Overall, the statistical analyses employed in this study demonstrated small to moderate effect sizes. Effect size has been identified as the “degree to which the null hypothesis is false” (Cohen, 1988, p. 10). The effect size observed for correlations of perceptions of student independence and use of an intermediary in this study ranged from moderate to large, indicating a likelihood that these findings are consistent with the population. Post-hoc power calculations for these analyses ranged from rather low to rather high (.16 to .97). Power is influenced by effect size, sample size, and significance criterion, and the risks associated with lower levels of power include an increased risk of failing to detect a false null hypothesis (Cohen). The low levels of variance observed in this study may have been attributed to a small sample size, the nature of dichotomous variables, or homogeneous groups. The exploratory nature of this study, however, increases tolerance for lower levels of power than would normally be acceptable (Cohen).
CHAPTER V

DISCUSSION

The purpose of this chapter is to discuss the findings of this study and the implications these may have on ATEPs. This chapter addresses the results associated with the research questions as well as issues that were raised by respondent comments.

The institutional demographic profiles of the ATEP respondents in this research mirrored the profiles of population of ATEPs and were believed to be adequately representative of the population. The institutional data collected for SDS directors were not significantly different from the ATEP respondents, thus the SDS sample was believed to be representative of the population as well. The surveys used in this research were not coded or tracked; therefore it was not possible to determine if SDS respondents and ATEP respondents were from the same institutions or merely from similar institutions. The primary focus of this research was to gain insight to the perceptions of ATEP directors regarding reasonable accommodations for athletic training students with disabilities. The similarities between the ATEP respondents and the population increased the confidence with which these finding may be considered.

Awareness of Disability Among Students in ATEPs

Both groups of respondents (ATEP and SDS) overestimated the proportion of athletic training students with physical disabilities. Although SDS directors were slightly more accurate in their estimation, their estimates were still significantly higher than the reported proportion (Newsham, unpublished data). ATEP directors were less accurate
overall, and ATEP directors who had students with physical disabilities enrolled in their programs tended to have higher estimates than those who did not. This phenomenon of overestimation of minority groups has been identified in estimations of racial minorities (Hollander & Scarpa, 1971). This may be an indication of a lack of awareness, not only of the minority presence, but also of the struggles the minority members may face (Hurtado, Milem, Clayton-Pederson, & Allen, 1998). Disability previously has been discussed in terms of a medical model or a social construct model. Hahn (2000) extended the social construct model to address minority/civil rights model, and asserted that people with disabilities are often overlooked by the non-disabled majority. The societal advantages enjoyed by the non-disabled are also underappreciated by the majority, a phenomenon previously recognized in racial and ethnic cultural studies (Olkin, 2002). More accurate knowledge of the proportion of students with physical disabilities may increase ATEP directors’ awareness of the isolation and other issues these students may face. This awareness may, in turn, promote a better learning environment for athletic training students with physical disabilities.

Perceptions Regarding Reasonable Accommodation

Considerable variability was observed among proposed accommodations relative to the nature of disability. This may be an indication that ATEP directors and SDS directors considered each accommodation separately and did not consider blanket accommodation for a specific disability. This individualized approach is consistent with the legal directives to evaluate each student’s abilities and challenges in light of the
essential requirements of a particular course or task (ADA, 1990; *Kling v. County of Los Angeles*, 1980; *Southeastern Community College v. Davis*, 1979).

Overall, SDS directors tended to consider accommodations to be reasonable more frequently than ATEP directors did. As a group, ATEP directors were more likely to approve accommodations for visual ($M = 1.41$) and auditory ($M = 1.37$) impairments than for other types of impairments, and were increasingly likely to approve accommodations for students with visual impairments in clinical education experiences ($M = 1.27$). Accommodations suggested for visual impairments included the use of alternative diagnostic equipment, and allowing an intermediary to assist in practical examinations, record keeping activities, and visual inspection of patients. ATEP directors were least likely to approve accommodations for mobility ($M = 1.63$) and motor skill ($M = 1.60$) impairments. This seems to indicate the importance of performance of technical skills associated with competency based athletic training education, yet it minimizes the importance of observational skills.

In consideration of the ATEP directors’ perceived importance of communication skills and independent function of the athletic training student, it is interesting that the two sensory organ impairments gain the greatest favor regarding accommodation. In contrast, Sowers and Smith (2004a) reported that nursing educators identified low vision as a primary obstacle to successful completion of a nursing education curriculum. Visual impairments were, however, considered to be less impeding to successful practice in nursing than they were for participation in a nursing education program. Thus, the
expectations for the pre-credentialed individual are slightly different from credentialed practitioner.

In regard to physical disabilities in medical education, it has been suggested that physicians (ergo medical students) need a “professional attitude,” “intelligence,” and “the ability to communicate and interact effectively” to a greater extent than any particular physical skills (Reichgott, 1996). This philosophy is articulated in nursing education literature, but is not reflected in perceptions of presumed difficulty for students with disability in nursing education programs (Sowers & Smith, 2004a). The apparent disconnect between the level of technical skill required of entry-level health care professionals and the espoused value of interpersonal skills is central to the discussions concerning an undifferentiated degree. It is not clear from the literature if entry-level health care practitioners expected to demonstrate technical competence in all areas of practice, or if it is sufficient that they are able to think critically and communicate effectively with patients. Whereas this discussion would be valuable to all health care disciplines, it is becoming increasingly important that athletic training, as a discipline, come to terms with the appropriateness of the undifferentiated degree in light of the variety of employment opportunities available to credential holders.

Athletic training practitioners with high levels of acute clinical care responsibility, such as those working in competitive athletics, have greater potential to provide emergency care for victims of traumatic and catastrophic injury than practitioners who work in medical offices or rehabilitation clinics. It is unlikely that an ATC in a medical office or rehabilitation clinic will be called to provide in-line traction for a suspected
cervical spine injury or to remove protective equipment to apply a splint to an injured limb. Similarly, AT educators who do not have clinical responsibilities are less likely to be called upon to provide emergency care, though they have sufficient skill and knowledge to teach these skills to athletic training students. Typically, practitioners whose focus is in one of these “lower risk settings” emphasize different skill sets that may be utilized less frequently in what was once considered the “traditional” setting. However, the undifferentiated degree requires that every healthcare professional with the ATC credential possess the same minimal level of competency in basic skill associated with the profession, regardless of the employment setting. Therefore, the ATC must possess not only the intelligence and interpersonal skills identified by Reichgott (1996), but also the important technical skills identified through the RDS (BOC, 2004).

ATEP directors were somewhat indifferent regarding accommodations relative to clinical assignment. Their perception of reasonable accommodations relative to clinical assignments (avoidance of inclement weather or consecutive hours) were not significantly different from SDS directors ($M = 1.56$ and 1.52, respectively). These findings may be slightly inaccurate, however, as some ATEP directors commented that clinical hours are already limited by CAAHEP accreditation standards, a perception not shared by all respondents. Respondents from both groups indicated that variables included in this index (duration and weather) should not be accommodated if these are considered to be essential functions. ATEP directors must be cognizant of the difference between essential functions and essential requirements to strengthen their position toward providing or refusing these types of accommodations.
ATEP directors were much less likely to provide accommodations relative to clinical skills ($M = 1.87$) compared to clinical assignment. The variables on this index (prophylactic and restorative taping and injury evaluation) are apparently considered to be integral to athletic training education. This is evidenced by the ATEPs level of agreement with statements regarding athletic training student competence where 97% agreed or strongly agreed that athletic training students must be proficient in prophylactic and restorative taping and 80% agreed or strongly agreed that athletic training students must perform independent evaluation. These skills have been identified as essential functions in athletic training through the RDS (BOC, 2004b); therefore, ATEP directors should approach accommodation for these skills with caution. Prospective athletic training students who cannot perform these essential skills should be counseled to seek alternative education programs that may not require mastery of technical skills such as these.

A statistically significant difference was identified between ATEP directors and SDS directors concerning accommodation for clinical skills ($M = 1.87$, $M = 1.81$ respectively, $p = .034$). On the scale utilized in this research (where 1 indicates a positive response and 2 indicates a negative response to the reasonableness of accommodation), the difference between 1.87 and 1.81 may appear to be negligible. However, regarding this difference as practically insignificant may or may not be appropriate as SDS directors’ comments regarding clinical skills demonstrate a lack of understanding of the essence of athletic training. Several comments reflected a lack of appreciation of essential requirements and two offered that “taping” could take place in the SDS offices to
accommodate students, suggesting some confusion between audio- or video-taping, and prophylactic or restorative taping. Perhaps more careful wording of the survey items would have reduced this problem.

The greatest difference identified between ATEP and SDS officers concerned the use of intermediaries in athletic training education ($M = 1.50$, $M = 1.34$, respectively, $p < .001$). SDS directors were much more likely to approve of intermediaries in clinical education. However, ATEP directors did not reject this type of accommodation outright. The ATEP respondents in this survey expressed concern over the training of any intermediaries as well as the source of funding for these positions. These concerns were apparently not great enough to dissuade a majority of respondents from approving this type of accommodation, as evidenced by the index score of 1.5. It appears intermediaries are generally accepted by ATEP directors for auditory impairments and for visual impairments (for practical exams more than clinical rotations). ATEP directors were less likely to approve intermediaries for physical examination, especially for skills that require physical manipulation of a patient. The use of intermediaries had the least support in the area of providing, versus directing, emergency care. Less that 35% of respondents approved of an accommodation that would allow athletic training students with disabilities to direct, but not demonstrate, emergency care procedures. This indicates a high degree of emphasis on emergency care responsibilities of an athletic training student and is consistent with the BOC Standards of Practice which require an athletic trainer to provide care in emergency situations regardless of the professional setting (BOC, 2006).
The perceptions of the importance of emergency care do not seem to correspond with the perceptions of accommodations for visual disabilities in the clinical setting. Observational skills are critical to appropriate care in emergency situations. The athletic trainer must be able to rapidly assess emergency situations and identify life-threatening conditions including shock. Many of the signs and symptoms associated with shock are appreciated through visual inspection. The value of visual inspection has been recognized in medicine, where 90% of those surveyed considered the ability to evaluate a patient’s appearance a critical skill for physicians (VanMatre et al., 2004). In addition, management of an emergency in athletics requires that the ATC be able to react quickly and any delay caused by the exchange of information with an intermediary may have critical implications.

Overall, the perception of the use of intermediaries in clinical education of an athletic training student was ambiguous with an index of 1.50. This is not consistent with the ATEP directors’ level of agreement with the need for athletic training students to perform evaluations independently. Ninety-three percent of ATEP directors agree on some level that students must perform evaluations independently, without the use of an intermediary, yet 20% of respondents’ scores on this index clearly indicated that they considered intermediaries to be a reasonable accommodation during clinical education. Only those respondents who agreed or strongly agreed with the independent evaluation statement had an index score indicating they were less likely to approve that type of accommodation (1.59 and 1.57, respectively). However, this index score also represents that 41-43% of those respondents (agree or strongly agree with the importance of
independent evaluations) approved intermediaries in clinical education. The lack of
congruency between professed agreement and perceptions of accommodation for injury
evaluation is an area that deserves additional investigation.

Intermediaries have been a source of disagreement within other health care
education programs (Hafferty & Gibson, 2003; Pounds, 1996; Reichgott, 1996).
Intermediaries have been discussed as facilitators, who merely allow the student to
demonstrate his or her knowledge without the obstacles presented by a particular physical
disability (Reichgott, 1996), and as filters, who may potentially mediate a student’s
judgment through selective observation and communication (Hafferty & Gibson, 2003).
Respondents’ comments indicated concerns over the training and qualifications of an
intermediary as well as the availability of intermediaries in professional settings.
Although the availability of intermediaries in professional settings may be an
inappropriate concern in an education program, the qualifications of an intermediary
would be critical to the success of the student utilizing these services. Any intermediary
would require a significant level of healthcare knowledge and a specialized skill set to
provide appropriate intervention for a student. Intermediaries may also be subjected to
additional qualifying procedures such as infectious disease testing and training or
criminal background checks prior to being permitted to attend a clinical site.

ATEP directors would likely benefit from exploring the role of intermediaries in
clinical education, especially with consideration of the role of an intermediary in a
competency based education program. Intermediaries are often provided in didactic class
settings (e.g., sign language interpreters, readers for students with visual impairments),
yet are not provided for personal study or other personal services (RA, 1973). The nature of clinical experiences associated with athletic training education requires a flexible personal schedule and athletic training students who require an intermediary during clinical education experiences may encounter scheduling difficulties that are not common to traditional, didactic classes. Athletic training students are required to have clinical experiences in several professional practice settings that may include intercollegiate athletics, interscholastic athletics, university health centers, rehabilitation clinics, industrial settings, and physicians’ offices. Obviously, the use of intermediaries in clinical education for athletic training students with disabilities will require significant schedule coordination. It would not be permissible to deny a student access to an intermediary during clinical education secondary to scheduling inconveniences (Milani, 1996). This is discussed in greater detail later in this section.

The use of intermediaries in ATEPs must also be considered relative to the requirement that students demonstrate competence in a variety of skills and tasks. Students must possess not only cognitive competence, but also physical competence to meet the education standards required by CAAHEP. The technical standards document (Appendix A) states that a student must be physically able to “perform appropriate physical examinations using accepted techniques; and accurately, safely and efficiently use equipment and materials during the assessment and treatment of patients” (NATA-EC, 2004). Interpretation of this standard would be critical to evaluation of a student who is unable to demonstrate technical competence without utilizing an intermediary. For example, a student may demonstrate cognitive competence with a therapeutic modality
such as ultrasound, yet may need to direct an intermediary in the technical application of the modality. Therapeutic ultrasound is a deep heating modality, capable of intense tissue temperature elevation, and if applied inappropriately, can burn the patient at the bone and soft tissue interface. Patient safety in this example is paramount and the ability of the student to control the outcome of this type of treatment may be limited relative to the nature of the student’s disability.

Additional concerns may be associated with the inherent subjective properties of clinical examination techniques associated with orthopedic evaluations. A study of influences of clinical technique on performance and interpretation of the Lachman’s test, a highly regarded clinical test of the integrity of the anterior cruciate ligament, identified variations among both technique and interpretation of the test among experienced clinicians (Hurley & McGuire, 2003). Clinician hand placement and force application technique influenced the performance and accuracy of the interpretation of the exam. The athletic training student who utilizes an intermediary during physical examinations may fail to make a proper diagnosis secondary to inaccurate information relayed by the intermediary. Not every athletic training student will experience a positive ligamentous instability test during clinical education; however, appreciation for the subtleties associated with a normal or abnormal end-feel is important to an accurate diagnosis. Students who have experienced repeated negative tests become quite familiar with normal or firm end-feels and are likely to be acutely aware of laxity when it is present.

Intermediaries in a clinical setting must also be considered in light of BOC requirements for safe and competent practice and the standards of professional practice.
These standards and requirements are intended for the credentialed practitioner, but should be considered within educational programs that seek to qualify students to be able to perform essential functions as professionals after graduation. Requirements for safe and competent practice are addressed in the BOC Code of Professional Responsibility and include a responsibility to provide quality health care, to protect the patient from harm, and to protect the patient from practitioners who are incompetent or impaired (BOC, 2006). Additionally, the BOC Standards of Professional Practice indicate that the athletic trainer must render emergency care and that the “athletic trainer assess a patient’s level of function” prior to treatment (BOC, 2006). The standards do not indicate that an agent of the athletic trainer may provide services or render care. Therefore, a student, unable to meet these requirements, does not appear to be well positioned to meet essential functions of the job as a certified athletic trainer.

ATEP directors are charged with assuring that all students applying for the BOC exam have successfully completed the clinical competencies and proficiencies associated with an academic program (CAAHEP, 2005). Therefore, the burden of defining satisfactory performance appears to fall to the ATEP director. Crebbin (2005) discussed the ambiguity associated with satisfactory performance in regard to medical education. Whereas evaluation descriptors such as “unsatisfactory” and “outstanding” are understood, satisfactory could be understood to be “adequate” or “without room for improvement” (Crebbin, 2005, p. 473). This range of interpretation will take on greater significance in the near future of athletic training education as the physical skills portion
of the BOC exam is phased out. The ATEP directors will assume a greater degree of responsibility for assuring the level of technical skill of entry-level practitioners.

Decisions Regarding Accommodation

This research was focused on whether a proposed accommodation would be considered to be reasonable, thus was limited and did not provide an understanding of why such decisions were made. Respondents indicated some of their strategies relative to their decisions including the likelihood of such accommodations being available in a professional setting, the importance of a particular skill in essential functions, the directives of SDS officers, and the costs associated with a particular accommodation. Certainly, the qualitative data provided in this study relative to why decisions were made are not generalizable. However, there is some consistency with findings of an earlier study that suggests that faculty perceptions of reasonable accommodation are influenced by factors such as information (regarding the disability and legal requirements), ethics (obligation to the student versus obligation to the class as a whole), and attitudes (faculty behavior toward students with disabilities; Bento, 1996).

In the current study, there was clearly a lack of consensus among ATEP directors regarding the reasonableness of some of the suggested accommodations. This may stem from ATEP directors’ lack of familiarity in dealing with issues related to students with disabilities. Bento (1996) identified a lack of information as a primary barrier to developing reasonable accommodations. Faculty members who are unfamiliar with intricacies of a particular disability may not be in a position to develop reasonable and appropriate accommodations. However, faculty members are familiar with the intricacies
of the courses they teach and, therefore, should play a critical role in determining which accommodations are reasonable in a particular case. Unfortunately, this does not happen in every case. In a study of accommodations in law schools, professors made the final decision regarding accommodations in only 3% of the cases, and they had no input in almost 70% of the cases (Stone, 1996). In other instances, faculty members reported that the decisions regarding accommodation were made by higher-ranking administrators seemingly motivated by a desire to avoid legal challenges (Bento, 1996).

The avoidance of legal challenges, however, may serve to further confuse the issues. If administrators alter policies to placate students with disabilities, they run the risk of minimizing essential requirements of an academic program and alienating faculty. A well-reasoned policy should stand up to any legal challenge; if it does not, the policy should be reconsidered. Legal challenges may be intimidating to many faculty members; however a legal decision has greater potential to settle these issues and allow parties to move forward with confidence regarding future accommodation decisions (Bento, 1996).

Well-reasoned policies will require a substantial knowledge of disability law. Sowers and Smith (2004a) reported a lack of confidence among nursing educators relative to their knowledge of legal obligations of programs and faculty for students with disabilities. Conversely, ATEP directors were quite confident in their knowledge of the directives of the ADA (76% strongly agreed or agreed; 21% slightly agreed). In spite of this, some of the ATEP directors’ responses to questions indicated that their confidence belies their knowledge base. A clear majority of ATEP directors (93%) approved the use of alternative diagnostic equipment for students with sensory organ impairment. It is not
clear why the remaining 7% did not also approve this accommodation. It is also not clear why 9% of respondents would not approve of an intermediary for a student with an auditory disability in a classroom setting. Finally, 13% of ATEP directors did not approve of allowing alternative methods of skill performance if the outcome was the same. The failure to approve these types of accommodations does not appear to be defensible, though the prescriptive nature of current clinical proficiencies may provide some insight to the process versus outcomes dichotomy. Program and institution officials are responsible for demonstrating that they have investigated alternatives, the cost associated with such alternatives and the impact these alternatives will have on the academic program (Wynne v. Tufts University School of Medicine, 1991). Consideration of outcomes rather than technical procedures may benefit ATEP directors as they deliberate reasonable accommodations.

Nursing faculty identified a significant benefit from inservice training on legal obligations and clinical instruction strategies for students with disabilities (Sowers & Smith, 2004b). This inservice training was developed by a single institution, and was not directed by a governing agency. The role of governing agencies in this type of training has not been investigated. The results of this study indicate a lack of agreement among ATEP directors regarding the role of the JRC-AT in providing guidance for ATEPs relative to students with disabilities. Although 61% agreed or strongly agreed that the JRC-AT should provide guidance, 26% gave moderate responses, and 11% disagreed or strongly disagreed with this statement. It was not clear from respondents’ comments whether their positions were influenced by the prospect of yet another layer to the already
cumbersome accreditation process, or by their desire to promote program autonomy. Regardless, this question promoted the greatest number of comments that clearly represented both ends of the spectrum. Perhaps the JRC-AT could best serve the membership by providing informational communications to ATEP directors without developing a position statement or organizational directive.

In health care education programs decisions regarding reasonable accommodation are often made in light of patient safety and competency standards (Sowers & Smith, 2004a). It may be concerning that accommodation decisions are made by individuals (administrators) who are not intimately knowledgeable of the essential requirements and essential functions relative to the particular discipline. The burden of educating those who may try to supersede decisions relative to accommodation in health care education lies with the program directors. In ATEPs, the directors must be confident in the essential requirements that have been developed for their respective academic programs if they are to deny accommodations that serve to fundamentally alter the academic program. It has been suggested that essential requirements be considered carefully, as too narrow a view may serve to produce skilled technicians rather than professionals capable of directing others in autonomous practice (Sowers & Smith, 2004a).

Accommodations and Undue Hardship

After a prospective student has been satisfactorily identified as a student with disabilities who is otherwise qualified to participate in an academic program, attention turns to the accommodations that would be required to provide meaningful access for that student. Proposed accommodations must also be considered reasonable, in that they do
not require fundamental alteration of an academic program or create an undue financial
or administrative hardship.

ATEP directors’ position relative to accommodation for clinical skills indicates
that accommodation for those skills would likely create a fundamental alteration of the
academic program, and therefore, would not be considered reasonable. This position
appears to be supported by the role delineation study that articulates the importance and
criticality of clinical skills of a certified athletic trainer (BOC, 2004b). Nothing in the
literature suggests that ATEPs would not be successful in defending legal challenges
relative to clinical skills. The findings in Ohio Civil Rights Commission v. Case Western
Reserve University (1996) should provide a measure of confidence for ATEP directors
regarding refusal of accommodations for clinical skills.

The financial implications of accommodations were identified by some of the
respondents, especially in regard to diagnostic equipment with alternative indicators.
ATEP directors may consider the costs of this equipment to be so high as to create a
financial hardship. This argument, however, is not likely to be successful in defending
decisions to disallow the accommodation as financial hardship requires demonstration of
a loss of profitability, a burden that few institutions of higher education can meet
(Branfield, 1990). Financial hardship claims are difficult to support considering that
approximately half of accommodations may be provided at no cost, another 30% cost less
than $500, and less than 15% of accommodations cost $2000 or more (Branfield). Some
examples of accommodations relative to diagnostic equipment common to athletic
training education would include stethoscopes with alternative indicators,
sphygmomanometers with audible output, and thermometers with audible output.

Stethoscopes with tactile or auditory indicators, or stethoscopes for use with hearing aids and cochlear implants cost $250-500 (Miami Medical, 2005; Rennert, Morris, & Barrere, 2004), audible syhgmomanometers are approximately $150-200, and audible thermometers are less than $50 (Assistech, Inc., 2005). It is important to note that if diagnostic equipment is provided for all students, programs must make alternative equipment available to students with disabilities and must absorb the cost of such equipment. However, if students are required to purchase their own equipment, the student would be responsible for the cost of the equipment. It is recommended that vocational programs and other sources of funding be identified to assist students with disabilities in financing such equipment.

Additional concerns were raised relative to the payment for intermediaries for students with sensory impairments. The responsibility for the financing of these accommodations is quite clear for traditional, didactic class settings (Camenisch v. University of Texas, 1980). Universities are obligated to pay for the services of an intermediary for classes, independent of the student’s ability to pay for these services (RA, 1973). Issues related to non-traditional academic work, are not as clear. In Southeastern Community College v. Davis (1979), the institution was not required to provide the type of individual attention that Davis would require to complete a program with requirements beyond simple academic training. However, institutions must provide meaningful access to all aspects of an academic program which would include internships and other experiential learning activities (Alexander v. Choate, 1985). An institution was
found to be in violation of Section 504 when it failed to provide an interpreter or other auxiliary aid for a student during a field trip that was a voluntary, but academically beneficial, activity (Milani, 1996). Similar rulings have been made for academic programs held outside of the United States. A student reliant on a wheelchair for transportation claimed discrimination when she was denied accommodations that had been promised during a study abroad program (Bird v. Lewis and Clark College, 1996). The court, citing that this was an American student, enrolled in an American university program held overseas, taught by American faculty, found that the student was entitled to protection under American law even though the particular academic program was conducted in Australia. However, the financial responsibility for auxiliary aids for study abroad programs sponsored by foreign institutions has not been clearly decided by the courts or the Office of Civil Rights (Kanter, 2003).

These rulings seem to indicate provision of accommodations during internship rotations are likely to be required as part of a reasonable accommodation to ensure meaningful access to an education program, absent undue administrative or financial burden (ADA, 1990). However, the opportunity for the courts to address the issue of financial burden relative to auxiliary aids or intermediaries in clinical education passed without comment (Doe v. New York University, 1981). As a result, the decisions relative to intermediaries in clinical education setting will likely focus on the status of otherwise qualified (Leonard, 1996). ATEP program directors who have clearly articulated essential requirements will be better positioned to defend their decisions regarding reasonable accommodations involving intermediaries in clinical education.
Conclusions

The proportion of athletic training students with physical disabilities was grossly overestimated by ATEP and SDS directors. This illustrates a potential lack of awareness of the issues faced by athletic training students with disabilities. ATEP directors were generally less likely to approve accommodations for students with disabilities than SDS directors, though these differences were not as great as anticipated. The differences were magnified when accommodations are limited to clinical education experiences, however. This may have been due, in part, to SDS directors’ limited understanding of essential requirements of athletic training education and, in part, to ATEP directors’ limited understanding of disability law.

ATEP directors were more likely to make accommodations for sensory organ impairment (vision and hearing) than they are for mobility and motor skill impairments. Accommodations requiring an intermediary were also approved more often for sensory organ impairment than for motor skill impairments, and accommodations requiring an intermediary were approved more often than accommodations that would reduce or eliminate the need to demonstrate discipline specific technical skills. ATEP directors who had clinical responsibilities were less likely than those without clinical responsibilities to approve accommodations involving intermediaries during clinical education. Overall, ATEP positions relative to accommodations were not strongly correlated with their stated positions relative to competency requirements for athletic training students. This disconnect may be a source of inconsistency observed in accommodation decisions in this research.
The issues related to athletic training students with disabilities have not previously been explored. The findings of this study may appreciate their greatest impact if they initiate discussions among ATEP directors, educators, and clinicians regarding essential requirements and appropriate and reasonable accommodations for students with disabilities. This research should also initiate discussions with disability practitioners. Dialogue between ATEP personnel and disability personnel may serve to increase awareness of the essential requirements for ATEPs as well as provide greater insight to the processes and possibilities associated with accommodations for students with disabilities.

Future Research

Several findings in this study encourage further research. This study was limited to perceptions of reasonable accommodation for athletic training students with physical disabilities, and additional study of other types of disability, specifically learning disabilities and emotional disabilities, is warranted. In addition, the inconsistencies identified between the espoused value of independent evaluation and acceptance of intermediaries in physical examinations suggests that ATEP directors may have varying interpretations of essential functions of an ATC. Further research is needed to gain a better understanding of the perceptions of the essential functions and the undifferentiated degree in athletic training and how those perceptions contribute to accommodation decisions. Exploration of the various factors that contribute to the decision making processes involved in determining reasonable accommodation could provide a framework that may benefit all practitioners. As we gain an understanding of how decisions are
made, we can provide more appropriate information to those who will be making the decisions. The critical component in this regard is *appropriate* information, as too much information can limit decision making as easily as too little information can.

The influence of professional role in decisions relative to intermediaries suggests that clinicians should be surveyed regarding their perceptions of intermediaries in clinical education for the athletic trainer. Clinicians serve as clinical instructors for athletic training students, have intimate knowledge of the essential functions of the profession, and ultimately make the hiring decisions for many position vacancies in the discipline.

There is tremendous potential for research regarding practitioners with disabilities, which has not been explored to date. This research may be related to professional practice standards, as well as the perceptions of current practitioners functioning as athletic trainers with disabilities. The literature suggests that the issues facing credentialed practitioners are quite different from those faced by undergraduate students. In this regard, ATCs with disabilities should be the focus of research on the issues they consider to be important, and the appropriateness of any accommodations provided for them.

Similarly, athletic training students with disabilities could offer valuable insight regarding the educational experiences of students with disabilities. These students are likely to be able to identify areas in which accommodations are helpful, unnecessary, or inappropriate, and help to identify and develop alternative reasonable accommodations. Athletic trainers and athletic training educators are often open to suggestions from patients and students regarding alternative approaches that may provide a more
satisfactory outcome. The suggestions from students with disabilities should not be considered any differently. Inclusion of qualified people with disabilities in ATEPs has the potential to positively impact the profession as we gain different perspectives regarding how we perform our duties given the physical skills that we have.

Finally, research of athletic trainers’ knowledge of disability law may help to identify areas for continuing education. Likewise, research of disability officers’ knowledge of health care professions and health care education programs may identify areas in which education or communication can be improved for that population. The topic of people with disabilities has not been studied within the profession of athletic training. It is likely that we will faces issues related to practitioners, students, and the ADA in the near future, and we can have more control over how these issues are settled if we develop strategies proactively instead of reactively.

Summary

Athletic training education has a great deal in common with other health care education programs, and could use these similarities to learn from the other disciplines experiences with students with disabilities. However, the unique nature of athletic training will require a lens to make appropriate applications of information from related disciplines. The diversity of employment settings for athletic trainers will continue to challenge educators as they refine clinical competencies associated with the education programs.

As a profession, athletic training must continually assess the essential functions of all practitioners and continue to support these within educational programs. ATEP
directors must identify and publicize the essential requirements for their respective programs and use those standards as a metric for establishing reasonable accommodations for students with disabilities. Whereas ATEP directors should remain open to the potential for students with disabilities within ATEPs, they should also be prepared and willing to make difficult decisions to maintain the academic integrity of their programs.

ATEP directors were more likely to approve accommodations for students with sensory organ impairments than for motor skill or mobility impairments in clinical education. SDS directors were more likely than ATEP directors to approve of these accommodations. Some of the ATEP accommodation decisions did not correspond with previously stated positions associated with athletic training student competencies or with BOC standards of practice. Conversely, ATEP directors did confirm the perceived importance of technical skills associated with the discipline by denying accommodations for those skills.

Further investigation of the role of intermediaries in the clinical education of athletic training students is required. While case law has established requirements for didactic courses, the requirements for clinical education in the health care disciplines have not been addressed. The administrative and financial burdens associated with this type of accommodation have not been quantified to this point. This information could be quite beneficial to ATEP and SDS directors attempting to qualify accommodations of this nature.
This research focused on an area of athletic training education that was previously unexplored in the literature. It is anticipated that subsequent research in this area will help to reinforce the essential functions of an athletic trainer and provide ATEP directors with greater confidence when addressing issues associated with the ADA. It also anticipated that SDS personnel will gain greater appreciation for the clinical requirements of health care education programs, particularly athletic training education.
APPENDIXES
APPENDIX A

TECHNICAL STANDARDS
The Athletic Training Educational Program at ____________________ is a rigorous and intense program that places specific requirements and demands on the students enrolled in the program. An objective of this program is to prepare graduates to enter a variety of employment settings and to render care to a wide spectrum of individuals engaged in physical activity. The technical standards set forth by the Athletic Training Educational Program establish the essential qualities considered necessary for students admitted to this program to achieve the knowledge, skills, and competencies of an entry-level athletic trainer, as well as meet the expectations of the program's accrediting agency (Commission on Accreditation of Allied Health Education Programs [CAAHEP]). The following abilities and expectations must be met by all students admitted to the Athletic Training Educational Program. In the event a student is unable to fulfill these technical standards, with or without reasonable accommodation, the student will not be admitted into the program.

Compliance with the program's technical standards does not guarantee a student's eligibility for the BOC certification exam.

Candidates for selection to the Athletic Training Educational Program must demonstrate:

1. the mental capacity to assimilate, analyze, synthesize, integrate concepts and problem solve to formulate assessment and therapeutic judgments and to be able to distinguish deviations from the norm;
2. sufficient postural and neuromuscular control, sensory function, and coordination to perform appropriate physical examinations using accepted techniques; and accurately, safely and efficiently use equipment and materials during the assessment and treatment of patients;
3. the ability to communicate effectively and sensitively with patients and colleagues, including individuals from different cultural and social backgrounds; this includes, but is not limited to, the ability to establish rapport with patients and communicate judgments and treatment information effectively. Students must be able to understand and speak the English language at a level consistent with competent professional practice;
4. the ability to record the physical examination results and a treatment plan clearly and accurately;
5. the capacity to maintain composure and continue to function well during periods of high stress;
6. the perseverance, diligence and commitment to complete the athletic training education program as outlined and sequenced;
7. flexibility and the ability to adjust to changing situations and uncertainty in clinical situations;
8. affective skills and appropriate demeanor and rapport that relate to professional education and quality patient care.

Candidates for selection to the athletic training educational program will be required to verify they understand and meet these technical standards or that they believe that, with certain accommodations, they can meet the technical standards.

The (insert name of institution's students with disabilities department) will evaluate a student who states he/she could meet the program's technical standards with accommodation and confirm that the stated condition qualifies as a disability under applicable laws.

If a student states he/she can meet the technical standards with accommodation, then the University will determine whether it agrees that the student can meet the technical standards with reasonable accommodation; this includes a review a whether the accommodations requested are reasonable, taking into account whether accommodation would jeopardize clinician/patient safety, or the educational process of the student or the institution, including all coursework, clinical experiences and internships deemed essential to graduation.

I certify that I have read and understand the technical standards for selection listed above, and I believe to the best of my knowledge that I meet each of these standards without accommodation. I understand that if I am unable to meet these standards I will not be admitted into the program.

Signature of Applicant ____________________ Date ______________

Alternative statement for students requesting accommodations.

I certify that I have read and understand the technical standards of selection listed above and I believe to the best of my knowledge that I can meet each of these standards with certain accommodations. I will contact the (insert name of institution's students with disabilities department) to determine what accommodations may be available. I understand that if I am unable to meet these standards with or without accommodations, I will not be admitted into the program.

Signature of Applicant ____________________ Date ______________


**PHYSICAL DISABILITIES IN ATHLETIC TRAINING EDUCATION**

**PART A**

**Institution**

<table>
<thead>
<tr>
<th>Program level</th>
<th>□ undergraduate</th>
<th>□ graduate</th>
<th>Geographic Location</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution size</td>
<td>□ &lt; 5,000 students</td>
<td>□ 5,000 – 15,000</td>
<td>□ 15,000 - 25,000</td>
<td>□ &gt;25,000</td>
</tr>
<tr>
<td>Athletic Program</td>
<td>□ NCAA I</td>
<td>□ NCAA II</td>
<td>□ NCAA III</td>
<td>□ NAIA</td>
</tr>
</tbody>
</table>

**Personal Information**

Position: (check all that apply)  □ Educator  □ Administrator  □ Practicing Clinician

Highest degree conferred: □ MS/MA  □ PhD/EdD  □ Other  □ Major

Years teaching in higher education:  
Yrs at current institution:  
Gender:  Male  Female

**PART B**

Please indicate your level of agreement with the following statements:  
(1 = strongly agree; 6 = strongly disagree)

1. Athletic training students must be proficient in the performance of prophylactic and restorative taping techniques.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

2. Athletic training students must be able to perform injury evaluations without the assistance of an intermediary*  
   (*assistant who performs specific tasks and relays information to athletic training student)

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

3. Athletic training students must be proficient in performance and interpretation of auscultations of the thorax and abdomen

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

4. Athletic training students must be able to physically manipulate a patient in order to perform orthopedic special tests

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

5. Athletic training students must be able to communicate effectively with patients

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:
6. Athletic training students must be able to communicate effectively with physicians and other health care professionals

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

7. Athletic training students must be able to communicate effectively with instructors and clinical educators

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

8. Athletic training students must interpret, analyze, and synthesize information quickly, accurately, and independently.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

9. Students with physical disabilities will require accommodations to complete an athletic training education program.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

10. Advances in technology have increased the potential for students with disabilities to succeed in ATEPs

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

11. The ATEP at this institution is in full compliance with the directives of the American with Disabilities Act of 1990.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

12. I am knowledgeable of the legal rights of students with disabilities and the legal requirements regarding accommodation.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:

13. The JRC-AT should provide guidance to ATEPs for students with physical disabilities.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Slightly Agree</th>
<th>Slightly Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Comment:
**Specific Accommodations:**

Please indicate your position regarding potential accommodations for specific disabilities within athletic training education. Indicate if you believe this type of accommodation is reasonable (Y) or not reasonable (N) in your ATEP. In addition, please indicate if you have previously, or are currently, providing such accommodations for athletic training students with disabilities. *Your comments are strongly encouraged.*

**Mobility impairments Qualifying as Disability**
Students utilizing wheelchairs or other assistive devices for ambulation (use of device is not a requirement to qualify as disability)

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>Y</th>
<th>N</th>
<th>Have provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Increased time to get to and from classes and clinical education assignments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Provide transportation to and from clinical assignments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Alter clinical assignments to limit exposure to inclement weather / field conditions</td>
<td>Y</td>
<td>N</td>
<td>Have provided</td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Alter physical environment to enhance physical assessment techniques</td>
<td>Y</td>
<td>N</td>
<td>Have provided</td>
</tr>
<tr>
<td>(eg. Lower tables to facilitate orthopedic special tests or taping)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Alter examination of clinical skills to eliminate evaluation skills or taping</td>
<td>Y</td>
<td>N</td>
<td>Have provided</td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Allow intermediary to perform special tests and relay information to student for interpretation</td>
<td>Y</td>
<td>N</td>
<td>Have provided</td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Alter clinical education requirements to limit consecutive hours for student with endurance limitations (Includes practice and game exposure)</td>
<td>Y</td>
<td>N</td>
<td>Have provided</td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Visual Impairments Qualifying as Disability**

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>Y</th>
<th>N</th>
<th>Have provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. Allow for reader to assist with written examinations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Allow for intermediary to assist* with practical examination</td>
<td>Y</td>
<td>N</td>
<td>Have provided</td>
</tr>
<tr>
<td>(*Relay information to student; student interprets, analyzes and synthesizes information)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Allow use of sphygmomanometers, goniometers, etc., with audible indicators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Provide transportation to and from clinical assignments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Allow for intermediary to assist in “visual inspection” of patient &amp; equipment</td>
<td>Y</td>
<td>N</td>
<td>Have provided</td>
</tr>
<tr>
<td>Including: BP; range of motion; skin color and condition; use of otoscope</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(*Relay information to student; student interprets, analyzes and synthesizes information)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Auditory Impairments Qualifying as Disability**

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>Y</th>
<th>N</th>
<th>Have provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>26. Allow for reader to assist with written examinations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comment:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Comment:*
27. Allow for intermediary to assist* with practical examination  
   (*Relay information to student; student interprets, analyzes and synthesizes information)  
   Y  N  Have provided  
   Comment:  
28. Allow use of equipment such as stethoscopes with visual indicators  
   Y  N  Have provided  
   Comment:  
29. Allow for intermediary to assist with communication in classroom  
   Y  N  Have provided  
   Comment:  
30. Allow for intermediary to assist with communication in clinical setting  
   Y  N  Have provided  
   Comment:  
31. Alter clinical assignments to avoid environments with concurrent events and multiple performers (i.e., football practices; track meets; gymnastics; wrestling)  
   Y  N  Have provided  
   Comment:  
32. Eliminate requirement to demonstrate competence with diagnostic equipment including operation and calibration of equipment  
   Y  N  Have provided  
   Comment:  
33. Eliminate demonstration of taping and wrapping skills  
   Y  N  Have provided  
   Comment:  
34. Allow for intermediary to assist with physical examination  
   Y  N  Have provided  
   Comment:  
35. Allow student to direct, but not demonstrate, emergency care procedures  
   Y  N  Have provided  
   Comment:  
36. Allow alternative methods of skill performance if outcome is the same  
   Y  N  Have provided  
   Comment:  

**Motor Skill Impairment Qualifying as Disability**  
May include: neuromuscular disorders (e.g., cerebral palsy, muscular dystrophy, epilepsy, ALS)  
37. Alter clinical education requirements to limit consecutive hours for student with endurance limitations (Includes practice and game exposure)  
   Y  N  Have provided  
   Comment:  
38. Allow student to direct, but not demonstrate, emergency care procedures  
   Y  N  Have provided  
   Comment:  
39. Alter clinical assignments to limit exposure to inclement weather / field conditions  
   Y  N  Have provided  
   Comment:  

**Health Impairment Qualifying as Disability**  
May include: Crohn’s disease; diabetes; rheumatoid arthritis, lupus, multiple sclerosis; chronic fatigue syndrome; HIV/AIDS  
40. Have you had students with physical disabilities enrolled in your program?  
   Y  N  
41. Please indicate number and type(s) of physical disability:  
42. What would you estimate the percentage of students with physical disabilities is in ATEPs? ________ %
APPENDIX C

SDS SURVEY
PHYSICAL DISABILITIES IN ATHLETIC TRAINING EDUCATION

PART A

Institution

Institution size □ < 5,000 students □ 5,000 – 15,000 □ 15,000 - 25,000 □ >25,000

Geographic Location State __________ SDS Staff size: Full time _______ Part time _______

Personal Information

Highest degree conferred: □ MS/MA □ PhD/EdD □ Other __________ Major __________

Prior experience: □ Teaching □ Student Affairs □ Administration □ Other ______________________

Years in higher education: _______ Yrs at current institution: _______ Gender: Male Female

PART B

Specific Accommodations:

Please indicate your position regarding potential accommodations for specific disabilities within athletic training education. Indicate if you believe this type of accommodation is reasonable (Y) or not reasonable (N) in the ATEP at your institution. Your comments are strongly encouraged.

Mobility impairments Qualifying as Disability

Students utilizing wheelchairs or other assistive devices for ambulation (use of device is not a requirement to qualify as disability)

1. Allow increased time to get to and from classes and clinical education assignments Y N
   Comment:

2. Provide transportation to and from clinical assignments Y N
   Comment:

3. Alter clinical assignments to limit exposure to inclement weather / field conditions Y N
   Comment:

4. Alter physical environment to enhance physical assessment techniques (eg. Lower tables to facilitate orthopedic special tests or taping) Y N
   Comment:

5. Alter examination of clinical skills to eliminate evaluation skills or taping Y N
   Comment:

6. Allow intermediary to perform special tests and relay information to student for interpretation Y N
   Comment:

7. Alter clinical education requirements to limit consecutive hours for student with endurance limitations (Includes practice and game exposure) Y N
   Comment:

Visual Impairments Qualifying as Disability

8. Allow for reader to assist with written examinations Y N
   Comment:

9. Allow for intermediary to assist* with practical examination Y N
   (*Relay information to student; student interprets, analyzes and synthesizes information)
   Comment:
10. Allow use of sphygmomanometers, goniometers, etc., with audible indicators  
Comment: Y N

11. Provide transportation to and from clinical assignments  
Comment: Y N

12. Allow for intermediary to assist in “visual inspection” of patient & equipment  
   Including: BP; range of motion; skin color and condition; use of otoscope  
   (*Relay information to student; student interprets, analyzes and synthesizes information)  
Comment: Y N

13. Allow for reader to assist with written examinations  
Comment: Y N

14. Allow for intermediary to assist* with practical examination  
   (*Relay information to student; student interprets, analyzes and synthesizes information)  
Comment: Y N

15. Allow use of equipment such as stethoscopes with visual indicators  
Comment: Y N

16. Allow for intermediary to assist with communication in classroom  
Comment: Y N

17. Allow for intermediary to assist with communication in clinical setting  
Comment: Y N

18. Alter clinical assignments to avoid environments with concurrent events and  
   multiple performers (i.e., football practices; track meets; gymnastics; wrestling)  
Comment: Y N

19. Eliminate requirement to demonstrate competence with diagnostic equipment  
   including operation and calibration of equipment  
Comment: Y N

20. Eliminate demonstration of taping and wrapping skills  
Comment: Y N

21. Allow for intermediary to assist with physical examination  
Comment: Y N

22. Allow student to direct, but not demonstrate, emergency care procedures  
Comment: Y N

23. Allow alternative methods of skill performance if outcome is the same  
Comment: Y N
**Health Impairment Qualifying as Disability**

May include: Crohn’s disease; diabetes; rheumatoid arthritis, lupus, multiple sclerosis; chronic fatigue syndrome; HIV/AIDS

24. Alter clinical education requirements to limit consecutive hours for student with endurance limitations (Includes practice and game exposure)  
   Comment:

25. Allow student to direct, but not demonstrate, emergency care procedures  
   Comment:

26. Alter clinical assignments to limit exposure to inclement weather / field conditions  
   Comment:

**General Information**

27. Have you had students with physical disabilities enrolled in your program?  
   28. Please indicate number and type(s) of physical disability:

29. What would you estimate the percentage of students with physical disabilities is in ATEPs? __________%
APPENDIX D

HUMAN SUBJECTS REVIEW BOARD APPROVAL
KENT STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD
APPLICATION FOR APPROVAL TO USE HUMAN RESEARCH PARTICIPANTS
Send completed forms to one of the reviewers designated for your Department or Katherine Licht, Research and Graduate Studies, 113 University Auditorium

LOG NUMBER: 06-205

Please type all information. HANDWRITTEN FORMS WILL NOT BE ACCEPTED. Move through the document using TAB or Mouse. Do not use the enter key. To mark a box, click with the mouse.

Name: Katherine Newsham
Telephone: 330-929-3483
Address: 2560 Berk St Cuyahoga Falls, OH 44221
Email: knewswham@kent.edu

Department: TLC
Faculty Rank/Student Status: Doctoral student

Project Title: Physical Disabilities in Athletic Training Education Programs

Type of Project: FACULTY RESEARCH External Funded (Agency: ) Include copy of proposal
STUDENT DIRECTED RESEARCH (Advisor: Dr Stephen Thomas, Dr. Mark Kretovich)
Thesis Dissertation Course Requirement (Course #: )
Other (Specify: )

Duration of Project: Starting Date: November 1, 2005
(But not before approval is obtained)
Ending Date: November 1, 2006

I certify that the research procedures for this project and the method of obtaining consent (if any), as approved by the Kent State University Institutional Review Board, will be followed during the period covered by this research project. Any future changes will be submitted for Board review and approval prior to implementation.

If this project involves approval/permission from other institutions, the principal investigator (and the faculty advisor if the PI is a student) must sign below to certify the following statement: "We will not begin research at other institutions before having obtained their permission to do so."

Principal Investigator

Date

Faculty Advisor (If PI is a student)

Date

Action Taken:
By REVIEWER:
Level I, Category: Study
Level II, Category: To Full Board
Level III, To Full Board
Project Involves:
Deception: Identifiable medical information: Waiver of Consent

Primary Reviewer

Date

Administrator, IRB

Date

Co-Reviewer (Level II)

Date

IRB Level III Action:
Approved Disapproved Contingent Approval (Comments or Contingencies):

Chairperson, IRB

Date

RECEIVED

KSO IRB

Copy

[Signature]

Date

[Signature]

Date

126
APPENDIX E

ATEP CONTACT LETTER
December 1, 2005

Dear Program Director,

I am writing to request your cooperation in a study regarding students with physical disabilities in athletic training education programs. The enclosed survey is a part of the data collection process for my doctoral dissertation at Kent State University. I appreciate your time and consideration of this project and would be happy to answer any questions you might have regarding it.

As you are aware, qualified students with disabilities are protected by the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. These students are entitled to reasonable accommodations that provide the student a fair opportunity to complete course and program requirements. Over the past 10 years, the percentage of students with disabilities has increased in the general student population and in healthcare education programs (including athletic training and medical education). Some healthcare education programs (i.e., nursing, occupational therapy, medicine) have addressed reasonable accommodations for students with disabilities in discipline specific literature. To date, athletic training has not.

It is likely that athletic training education will encounter the same legal and ethical issues experienced by the other healthcare disciplines regarding reasonable accommodations. The purpose of this study is to assess entry-level athletic training program directors’ perceptions of reasonable accommodations for athletic training students with physical disabilities. Additional data shall be collected from Student Disability Service directors’ regarding their perceptions of reasonable accommodations for healthcare students. This data may support future policy development regarding admission and accommodations for athletic training students with physical disabilities.

Please be advised that you will not be identified at any time during this study. No individual or institutional names shall be associated with data collection and no other identifying information shall be available except in aggregated data sets. The surveys will not be tracked. By completing and returning the enclosed survey, you will provide your consent to participate in this study. You are free to decline participation or to withdraw your participation at any time. Results of this research will be made available upon request.

This study, Physical Disabilities in Athletic Training Education, has been approved by the Human Subjects Review Board at Kent State University. If you require additional information, please contact me, Katherine Newsham (knewsham@kent.edu; 330-672-1221) or my dissertation advisors, Dr. Stephen Thomas or Dr. Mark Kretovics, at Kent State University College and Graduate School of Education, Health and Human Services (330-672-0654). If you have questions regarding Kent State University’s Institutional Review Board please contact Dr. John L. West, Vice President and Dean, Division of Research and Graduate Studies (330) 672-2851.

Again, I thank you for your time and attention toward this survey. Feel free to contact me at your convenience if you have further questions. I realize that you receive a great number of surveys weekly, and I hope you find this issue intriguing enough to warrant your participation.

Sincerely,

Katherine Newsham, MA, ATC
APPENDIX F

SDS CONTACT LETTER
December 1, 2005

Dear SDS Director

I am writing to request your participation in a study regarding students with physical disabilities in athletic training education programs. The enclosed survey is a part of the data collection process for my doctoral dissertation at Kent State University. I appreciate your time and consideration of this project and would be happy to answer any questions you might have regarding it.

You have been selected to participate in this study because your institution has an entry-level athletic training education program. Athletic training education programs prepare unique healthcare providers through extensive training in the prevention, evaluation and diagnoses, immediate care, and treatment and rehabilitation of injuries associated with physical activity and sport participation. Athletic training education programs are required to comply with the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 by providing qualified students with disabilities with reasonable accommodations for didactic and clinical education programs.

It is likely that athletic training education will encounter the same legal and ethical issues experienced by the other healthcare disciplines regarding reasonable accommodations. The purpose of this study is to assess student disability services directors’ perceptions of reasonable accommodations for athletic training students with physical disabilities. Additional data shall be collected from athletic training education program directors regarding their perceptions of reasonable accommodations for athletic training students. Thus, I ask that you complete this survey independently of the athletic training education program director. This data may support future policy development regarding admission and accommodations for athletic training students with physical disabilities.

Please be advised that you will not be identified at any time during this study. No individual or institutional names shall be associated with data collection and no other identifying information shall be available except in aggregated data sets. The surveys will not be tracked. By completing and returning the enclosed survey, you will provide your consent to participate in this study. You are free to decline participation or to withdraw your participation at any time. Results of this research will be available upon request.

This study, Physical Disabilities in Athletic Training Education, has been approved by the Human Subjects Review Board at Kent State University. If you require additional information, please contact me, Katherine Newsham (knewsham@kent.edu; 330-672-1221) or my dissertation advisors, Dr. Stephen Thomas or Dr. Mark Kretovics, at Kent State University College and Graduate School of Education, Health and Human Services (330-672-0654). If you have questions regarding Kent State University’s Institutional Review Board please contact Dr. John L. West, Vice President and Dean, Division of Research and Graduate Studies (330) 672-2851.

Again, I thank you for your time and attention toward this survey. Feel free to contact me at your convenience if you have further questions.

Sincerely,

Katherine Newsham, MA, ATC
APPENDIX G
SUPPLEMENTAL TABLES
### Table G1

**ATEP Agreement With Need for ATS to Interpret, Analyze, and Synthesize Information Quickly, Accurately and Independently**

<table>
<thead>
<tr>
<th>Spearman's rho (2-tailed)</th>
<th>Integrate, Analyze, Synthesize</th>
<th>Special Tests Mobility</th>
<th>Practical Exams Vision</th>
<th>Visual Inspection</th>
<th>Practical Exams Auditory</th>
<th>Interpreter in Clinic Auditory</th>
<th>Physical Exam Motor Skill</th>
<th>Emergency Care Motor Skill</th>
<th>Emergency Care Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrate, Analyze, Synthesize</td>
<td>r&lt;sub&gt;s&lt;/sub&gt; = 1.000</td>
<td>.349(**)</td>
<td>.137</td>
<td>.044</td>
<td>.095</td>
<td>.053</td>
<td>.172( *)</td>
<td>.102</td>
<td>.119</td>
</tr>
<tr>
<td>Sig.</td>
<td>.</td>
<td>.000</td>
<td>.119</td>
<td>.620</td>
<td>.280</td>
<td>.546</td>
<td>.049</td>
<td>.246</td>
<td>.174</td>
</tr>
<tr>
<td>N</td>
<td>132</td>
<td>132</td>
<td>131</td>
<td>130</td>
<td>132</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
</tr>
<tr>
<td>Special Tests Mobility</td>
<td>r&lt;sub&gt;s&lt;/sub&gt; - 1.000</td>
<td>.324(**)</td>
<td>.458(**)</td>
<td>.321(**)</td>
<td>.289(**)</td>
<td>.580(**)</td>
<td>.268(**)</td>
<td>.302(**)</td>
<td>.324(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.002</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>132</td>
<td>131</td>
<td>130</td>
<td>132</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
</tr>
<tr>
<td>Practical Exams Vision</td>
<td>r&lt;sub&gt;s&lt;/sub&gt; - 1.000</td>
<td>.504(**)</td>
<td>.755(**)</td>
<td>.384(**)</td>
<td>.487(**)</td>
<td>.289(**)</td>
<td>.324(**)</td>
<td>.369(**)</td>
<td>.324(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>131</td>
<td>129</td>
<td>131</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Visual Inspection of Patient</td>
<td>r&lt;sub&gt;s&lt;/sub&gt; - 1.000</td>
<td>.527(**)</td>
<td>.415(**)</td>
<td>.550(**)</td>
<td>.382(**)</td>
<td>.369(**)</td>
<td>.324(**)</td>
<td>.369(**)</td>
<td>.369(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>130</td>
<td>130</td>
<td>129</td>
<td>129</td>
<td>129</td>
<td>129</td>
</tr>
<tr>
<td>Practical Exams Auditory</td>
<td>r&lt;sub&gt;s&lt;/sub&gt; - 1.000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>.450(**)</td>
<td>.460(**)</td>
<td>.295(**)</td>
<td>.304(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>132</td>
<td>131</td>
<td>131</td>
<td>131</td>
<td>131</td>
</tr>
<tr>
<td>Interpreter in Clinic Auditory</td>
<td>r&lt;sub&gt;s&lt;/sub&gt; - 1.000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>.486(**)</td>
<td>.199(*)</td>
<td>.254(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.023</td>
<td>.004</td>
<td>.004</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>131</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Physical Exam Motor Skill</td>
<td>r&lt;sub&gt;s&lt;/sub&gt; - 1.000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
<td>.430(**)</td>
<td>.419(**)</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>131</td>
<td>131</td>
<td>131</td>
</tr>
</tbody>
</table>

(table continues)
Table G1 (continued)

**ATEP Agreement With Need for ATS to Interpret, Analyze, and Synthesize Information Quickly, Accurately and Independently**

<table>
<thead>
<tr>
<th>Spearman's rho (2-tailed)</th>
<th>Integrate, Analyze, Synthesize</th>
<th>Special Tests Mobility</th>
<th>Practical Exams Vision</th>
<th>Visual Inspection</th>
<th>Practical Exams Auditory</th>
<th>Interpreter in Clinic Auditory</th>
<th>Physical Exam Motor Skill</th>
<th>Emergency Care Motor Skill</th>
<th>Emergency Care Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Care Motor Skill</td>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.846(***).000</td>
</tr>
<tr>
<td>Emergency Care Health</td>
<td>$r_s$</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Sig.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>.</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>131</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).  * Correlation is significant at the 0.05 level (2-tailed).
Table G2

ATEP Agreement With Need for ATS to Perform Evaluations Independently and Intermediary Index

<table>
<thead>
<tr>
<th>Independent Evaluation</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>1.57</td>
<td>70</td>
<td>.314</td>
</tr>
<tr>
<td>Agree</td>
<td>1.59</td>
<td>36</td>
<td>.315</td>
</tr>
<tr>
<td>Slightly Agree</td>
<td>1.27</td>
<td>16</td>
<td>.239</td>
</tr>
<tr>
<td>Slightly Disagree</td>
<td>1.17</td>
<td>8</td>
<td>.188</td>
</tr>
<tr>
<td>Disagree</td>
<td>1.00</td>
<td>2</td>
<td>.000</td>
</tr>
<tr>
<td>Total</td>
<td>1.50</td>
<td>132</td>
<td>.330</td>
</tr>
</tbody>
</table>
Table G3

*ATEP Agreement With Need for ATS to Interpret, Analyze, and Synthesize Information*  

*Quickly, Accurately and Independently*

<table>
<thead>
<tr>
<th>Interpret, Analyze, Synthesize Indep</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>1.54</td>
<td>70</td>
<td>.319</td>
</tr>
<tr>
<td>Agree</td>
<td>1.51</td>
<td>50</td>
<td>.331</td>
</tr>
<tr>
<td>Slightly Agree</td>
<td>1.33</td>
<td>10</td>
<td>.359</td>
</tr>
<tr>
<td>Slightly Disagree</td>
<td>1.00</td>
<td>1</td>
<td>.</td>
</tr>
<tr>
<td>Disagree</td>
<td>1.37</td>
<td>1</td>
<td>.</td>
</tr>
<tr>
<td>Total</td>
<td>1.50</td>
<td>132</td>
<td>.330</td>
</tr>
</tbody>
</table>
REFERENCES


Bartlett v. New York State Board of Law Examiners, 156 F.3d 921 (1st Cir. 1998).


Doe v. Harvard University, 5 NDLR ¶ 367 (1st Cir.1994).

Doe v. Univ. of Maryland Medical Sys. Corp., 50 F.3d 1261 (4th Cir. 1995).

EEOC v. Sara Lee Corp. 237 F.3d 349; (4th Cir. 2001).


Grimard v. Carlston 567 F.2d 1171 (1st Cir. 1978).


Kling v County of Los Angeles, 633 F.2d 876 (9th Cir.1980).


Murphy v U.P.S. 946 F. Supp. 872; (5th Dist. 1996).

Nathanson v. Medical College of Pennsylvania 926 F. 2nd 1368 (3rd Cir. 1991).


Rossamando v. Board of Regents of University of Nebraska, 2 F. Supplement 2d 1223 (D. Nebraska, 1998).


Rothman v. Emory University, 123 F.3d 446, 451 (7th Cir. 1997).


United States v Board of Trustees for University of Alabama, 908 F.2d 740 (11th Cir. 1990).


Wynne v. Tufts University School of Medicine, 932 F.2d 19 (1st Cir. 1991) en bank, 976 F.2d 791 (1st Cir. 1992).
Zukle v. Regents of the University of California, 166 F.3d 1041 (9th Cir. 1999).