FACILITATING STUDENT SELECTION OF ENTRY-LEVEL
ATHLETIC TRAINING EDUCATION PROGRAMS

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Presented
to the Faculty of
California State University, Chico

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Kinesiology
Athletic Training Education Option

by

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DEDICATION

I would like to dedicate this thesis to my family and friends. Without you all I would not be in the person I am today. You have all helped me through this process in one-way or another and for that I am forever grateful.
ACKNOWLEDGMENTS

Dr. J. Azevedo, Dr. K. Patton, and Mr. S. Barker, thank you for the tremendous amount of work that all of you have put into helping me with this thesis. You have all been crucial to the development and completion of this thesis. It was a total team effort and I could not have completed this thesis in a timely fashion without all of your help. Dr. D. Swanson thank you for all the help you provided with the statistical portion of this thesis.

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ABSTRACT

FACILITATING STUDENT SELECTION OF ENTRY-LEVEL ATHLETIC TRAINING EDUCATION PROGRAMS

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Master of Arts in Kinesiology

Athletic Training Education Option

California State University, Chico

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Athletic training does not currently utilize a ranking system for their educational programs while many other health-care professions do. Previous research investigating the potential for a ranking system in athletic training education is limited. Thus far the only stakeholders to be surveyed are athletic training education program directors and Commission on Accreditation of Athletic Training Education faculty members. The primary purpose of this study was to survey students on the usefulness of a ranking system of athletic training education programs. The secondary purpose was to determine what information should be included in the ranking system.

One thousand athletic training students were randomly selected to complete an online survey designed to determine the usefulness of a ranking system of athletic
training education programs. Of the 1,000 students contacted, 309 (30.9%) completed the survey. Sixty-eight percent of the students were female, and 32% were male.

A Likert-scale was used to determine main outcome measures of all objective questions. Frequency distribution and Chi square tests were used to determine differences between groups. Open-ended questions were also asked investigating perceived advantages, disadvantages, and factors influencing students’ selection of educational program.

Results indicated that students would use a ranking system to help select which athletic training education program to attend. Students would prefer either a numerically based or a combination of numeric and tier-based ranking system that uses only objective data or a combination of subjective and objective data. The most important factor when deciding which program to attend was specific information about clinical sites. The least important factor was the program budget. The best method for ranking athletic training education programs would be a consumer reports style of ranking.
CHAPTER I

INTRODUCTION

Background

Ranking systems are found in a wide variety of health-care professions including physical therapy, occupational therapy, anthropology, the biological sciences, and physical education, but athletic training education programs currently do not have a specific ranking system (Hansen, 2007). Ranking systems in general were developed for many reasons; the primary reason being that government leaders wanted to assess how well schools were preparing students within their respective fields (Blumenstyk, 1988; Dore, 2000; Jennings, 1989). A growing demand for accountability of educational programs by legislators, educators, and administrators has increased the demand for the ranking of higher education programs (Voll, Godwin, & Pitney, 1999). When assessing the potential for ranking athletic training education programs, it is important to include information that many different stakeholders want included in the ranking system. For example, a limitation to previous research has been that only athletic training education program directors have been included in the subject groups. There are many other stakeholders in athletic training including current students, prospective students, parents, employers, school administrators, and many others. Specifically, this study will address the void in current research by investigating the following questions from the point of view of a major stake holder, the students: 1) what are the perceptions of the students
regarding the usefulness of a ranking system when selecting an athletic training education program, and 2) from the perceptive of prospective and current students, what information is valuable in making such a decision?

Brief History of Athletic Training Education

In 1990, the American Medical Association formally recognized athletic training as an allied health-care profession (Delforge & Behnke, 1999). In 1991, the Joint Review Committee on Educational Programs in Athletic Training (JRC-AT) was formed with the task of developing standards and guidelines for accreditation of undergraduate athletic training programs. In 1993-94, the JRC-AT became a committee that operated under the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and the National Athletic Trainer’s Association (NATA) was no longer directly involved with the accreditation process. In 2004, completion of a CAAHEP-accredited program became a requirement for individuals who wanted to become certified, i.e., sit for the Board of Certification, Inc. (BOC) exam to become an athletic trainer (Delforge & Behnke, 1999). In 2006 JRC-AT became an independent committee and the name was changed to the Commission on Accreditation of Athletic Training Education (CAATE) (CAATE, n.d.). The previously mentioned historical events within athletic training education have demonstrated the adaptations that occur in response to factors such as a demand for highly qualified health-care providers.
Statement of Problem and Importance of Study

Several questions arose after examining previous research addressing the possibility of a ranking system for athletic training education programs. Only program directors and CAATE employees were surveyed in previous research (Dore, 2000; Hansen, 2007; Voll et al., 1999). These studies did not continue to develop and maintain a ranking system nor did they ask other stakeholders (e.g., students) if a ranking system might be of use.

As when selecting other educational programs, it is important that prospective students gather as much information that is necessary for them to select the athletic training education program that best fits their needs. Currently there is very little information that students can use to compare various athletic training education programs. In order to receive information about a particular program, students must make personal contact with the athletic training education program faculty or current students of that program. This allows program directors and program staff to limit the information that prospective students receive. If there was a ranking system of some type made available, students would be able to make an independent informed selection of athletic training education program that they see is best for them.

This lack of information led to the hypothesis that 1) It would be helpful to prospective athletic training students if a ranking system of athletic training education programs was in place, 2) Students will want a ranking system including both subjective and objective data, and 3) there will be a wide variety of information students want available when selecting which athletic training education program to attend.
Delimitations

Students 18 years of age or older, from across the nation were randomly selected to participate in this study. Students must be 18 years of age at the time first contact is made with the students. All students must have an active email account registered with the NATA.

Limitations of the Study

The present study sent an electronic survey to 1,000 athletic training students currently registered with the NATA. This sample does not include students who may be interested in the profession of athletic training or students who are not registered with the NATA. The goal of this study is to establish baseline data to determine if students would be interested in a ranking system. It is not the goal of this study to contact all current or prospective athletic training students.

Operational Definitions

Accreditation

Accreditation is the process in which every athletic training education program must demonstrate that they are providing the proper education and clinical experiences to the minimum standards set by the Commission on Accreditation of Athletic Training Education.

Athletic Trainer

An athletic trainer is an individual who has completed a Commission on Accreditation of Athletic Training Education accredited program and passed the Board of
Certification exam and has continued to uphold their certification to the satisfaction of Board of Certification.

**Athletic Training Education Program**

An athletic training education program is defined as any educational program accredited by the Commission on Accreditation of Athletic Training Education in which after completion of the program individuals may sit for the Board of Certification exam to become a Certified Athletic Trainer.

**Ranking System**

A ranking system is defined as any method in which data is collected from all programs of any kind and programs are then rated based on the data collected.

**Stakeholder**

A stakeholder is an individual with a vested interest in the profession and education of athletic trainers. This group includes athletic trainers, potential employers, parents of students, and prospective and current athletic training students.
CHAPTER II

LITERATURE REVIEW

What is an Athletic Trainer?

Athletic trainers are an integral component of the sports medicine team. Athletic trainers work alongside athletes, coaches, physical therapists, and physicians to provide the best medical care possible for athletes of all levels (Anderson, Hall, & Martin, 2005). Certified Athletic Trainers (ATC) have completed a CAATE accredited athletic training education program and passed the BOC exam. ATCs have a wide base of knowledge with a strong foundation in human anatomy, human physiology, psychology, kinesiology, pharmacology, general medicine, and healthcare, prevention and treatment of sports injuries (Anderson et al., 2005). ATCs also serve as the critical link between the athletes and advanced medical professionals.

The BOC has developed six major domains that the ATC must follow, they include: 1) prevention, 2) clinical evaluation, 3) immediate care, 4) treatment, rehabilitation, and recognition, 5) organization and administration, and 6) professional responsibility (Anderson et al., 2005). Injury prevention occurs in many ways. ATCs organize preparticipation physical exams to identify athletes who may have a pre-existing condition that leaves an athlete susceptible to injury. ATCs prevent injuries and illness by developing strength and conditioning programs to promote agility, strength,
flexibility and more, complete regular safety checks of fields and equipment, and follow universal personal safety measures to prevent disease transmission.

The ATC has the responsibility to recognize, evaluate, and provide the immediate care necessary for all sports injuries. ATCs have gained the knowledge necessary to recognize when an injury has occurred and how to evaluate any given injury while attending a CAATE accredited education program. At the completion of the evaluation the ATC will have determined the extent and severity of an injury. The ATC will also be able to determine the immediate care that is most appropriate for any injury they may encounter.

After determining the extent and the severity of an injury the ATC has the knowledge and skills to treat life-threatening conditions, such as providing cardiopulmonary resuscitation, or activating the emergency action plan and summoning EMS personnel to transport the injured individual to the nearest medical facility. In a nonlife-threatening situation an ATC has the skills to stabilize the condition by removing the athlete from competition, immobilizing the injury, applying protective equipment or an appropriate supportive taping technique. After doing so the ATC will determine if an injury needs to be referred to the appropriate physician.

If an ATC determines they should treat an injury they will develop a treatment plan, rehabilitation plan, and reconditioning plan. Often times these three plans have a large amount of overlap. A treatment plan will focus on treating an injured athlete’s pain, swelling, and to facilitate the healing process. The ATC will determine which modalities, if any, and exercises will help an injured athlete return to participation as quickly and safely as possible. A rehabilitation plan is focused on regaining normal range of motion,
strength and correcting physical movement patterns of an injured athlete. A reconditioning plan will help the athlete regain overall fitness and skills specific to the athlete’s sport. The treatment, rehabilitation, and reconditioning plans have a large amount of overlap and are often executed on the same day. The goal of all three plans is to return the athlete to his or her sport as quickly as possible but at the same time as safely as possible. Another goal of all rehabilitation programs is to return the athlete at the same level of strength and fitness if not better than at the time of injury.

The ATC has the responsibility of keeping accurate medical records of all individuals under their care. This includes health insurance records, treatment records, and records of all medical services provided to the injured individual (counseling, referrals, etc). ATCs are also responsible for keeping records of regular inspection of modalities, facilities, equipment, policies and procedures for drug testing, head injury management, emergency action plan, etc. ATCs also keep a strict inventory of all supplies utilized in the athletic training room while following a strict budget.

An important factor for an ATC to perform well while doing their job is a well-rounded education. They must also show a desire to continue to learn as research continues to develop new treatment plans and alter old treatment plans for various injuries. ATCs need to be well versed in the sports in which they are covering in order to be able to best decide which sport activities an injured athlete may or may not participate in and at what point they are ready to return to their specific sport.
History of Athletic Training Education

Allied healthcare professions have been operating for many years. Athletic training on the other hand is a young allied healthcare profession. Athletic training has experienced many changes over the years since the NATA was founded in 1950. One area that has experienced the greatest amount of change is the education provided to athletic training students and professionals. The two largest forces for the change in education is the growth of the profession and the demand for quality healthcare.

In 1959, the NATA Committee on Gaining Recognition developed the first athletic training curriculum model (Delforge & Behnke, 1999). The goal of this curriculum was to prepare students to earn a secondary-level teaching credential and to provide students the prerequisite classes to apply to physical therapy schools. The NATA recognized the first undergraduate athletic training education programs in 1969. This began the movement towards an approval process for athletic training education programs.

The 1970s were a time of great change to the athletic training curriculum and education. One of the major revisions to the 1959 curriculum was the removal of the courses for fulfillment of the teaching credential. Courses specific to the athletic training profession were retained and further enhanced. To enhance the professional education the NATA Professional Education Committee defined 18 behavioral objectives (Delforge & Behnke, 1999). These behavioral objectives have become competencies in athletic training and are still in use in athletic training education today (Delforge & Behnke, 1999). Along with these changes, the first NATA certification exam was administered.
In the early 1980s, the Professional Education Committee presented another major move in athletic training education with the goal of developing athletic training as an academic major. The NATA Board of Directors approved the new proposal, which required athletic training education programs to offer athletic training as a major by June 1, 1986 (Delforge & Behnke, 1999). Additionally, the proposal was to make athletic training education based on knowledge deemed essential to athletic trainers, that is, evidence-based treatment. For example, this required athletic training education programs to develop classes focused on evaluation and prevention of injuries and illnesses.

In June 1990, the American Medical Association (AMA) formally recognized the profession of athletic training. With this recognition, the NATA reached for accreditation of its education programs by the AMA Committee on Allied Health Education and Accreditation (CAHEA). Instead, in October 1991 the Joint Review Committee on Educational Programs in Athletic Training (JRC-AT) was created and charged with the task of developing the standards and guidelines by which undergraduate athletic training education programs would receive accreditation. The JRC-AT was a committee within the NATA that operated under the supervision of the Commission on Accreditation of Allied Health Education Programs (CAAHEP). In 2004, it became a requirement that students complete an accredited athletic training education program in order to sit for the BOC exam. It was not until 2006 the JRC-AT became an independent committee and changed their name to the Commission on Accreditation of Athletic Training Education (CAATE) (CAATE, 2008).
Commission on Accreditation of Athletic Training Education Accreditation

Commission on Accreditation of Athletic Training Education accreditation is a process that every institution must go through to insure their graduating students will be eligible to sit for the BOC exam. There are two separate processes the applying institution must go through to gain accreditation. The first process is called candidacy. Candidacy is the initial process in which programs are evaluated for appropriate curricula, infrastructure, and personnel. All prospective programs must go through the candidacy process to qualify for accreditation, which may last for up to two years. After completing candidacy the institution moves onto the accreditation process. The accreditation process is a long process that includes several applications, a self-study, and a site-visit.

An institution that is looking to develop a new athletic training program must first apply to CAATE for candidacy. The first step in this process is to complete the candidacy application. Once the application is reviewed by CAATE, the institution has up to two years to develop the athletic training education program. Once the program meets the minimum requirements defined by CAATE, the program can continue the process and proceed to accreditation.

The accreditation process begins when an institution applies for review. The accreditation process is the same for a new program and for a program whose accreditation period is about to expire (CAATE, 2008). To apply for review the institution must first complete the application for accreditation services. At the same time, the institution must complete a self-study. The institution self-study consists of the
main body of the self-study and an appendix with supporting documents. The main body is subdivided into five subsections including an introduction, history of the program, program institutional data, programmatic overview, and self-study documentation. The second section is an appendix to the first section.

The introduction provides information regarding how the self-study was completed and what faculty were involved in writing the self-study. The history section must provide a brief overview of the program at the institution being reviewed. The program institutional data section is a detailed section that contains quantitative and descriptive data from the sponsoring institution specifically as it relates to the athletic training education program. The programmatic overview is the section in which the institution identifies strengths and weaknesses within the program that have been recognized through the self-study process. This section also includes a method that the institution will follow to correct any weaknesses. The final subsection is the self-study documentation. This is a form that is required by CAATE and must be completed by the institution providing all documentation and forms that are requested.

The second section of the self-study is the appendix to the first section. This section includes a table of contents and all other forms and documentations that are requested in the first section. Once these two sections are completed they are bound and sent to CAATE for review.

While the institution is completing the self-study a site-visit team is assembled by CAATE. Once CAATE receives the self-study it is immediately sent to the site-visit team for review. While the site-visit team is reviewing the self-study, the institution and team will arrange a two to three day site-visit. Before the site-visit, the site-visit team will
provide the institution with an initial oral report covering any major concerns the site-
visit team may have. During the site-visit, the site-visit team will meet with the program
director, program staff, institution’s president, and students who are currently attending
the institution as well as students who have graduated from the program. The site-visit
team will also randomly select a small sample of clinical sites that the program utilizes to
visit as well. These clinical sites are locations that students go to in order to gain
experience in various athletic training settings.

Before the site-visit team leaves the institution they will provide a preliminary
report. Soon after the site-visit team leaves the institution, the institution will receive a
full written report. The institution will then have 30 days to respond to the written report
with a rejoinder. The institution will address any concerns that the site-visit team may
have in order to show that the concerns are being managed in an appropriate manner.
After this rejoinder is reviewed by CAATE the program will receive a report regarding
the status of the program. There are five different options CAATE can select. The first is
accreditation. If a program is accredited, then any student who has completed the
program to the satisfaction of the program staff may sit for the BOC exam. CAATE
options two and three are very similar. The second option is probationary accreditation.
Students graduating from a program with probationary accreditation may still sit for the
BOC exam but the program must make changes in order to receive accreditation. The
third option is administrative probationary accreditation. In this case, the program must
make administrative changes in order to receive accreditation. The fourth option is to
withhold initial accreditation. This is for new programs that have not yet met the CAATE
standards for accreditation. The fifth option is to withdraw accreditation. This is for
programs that have been on probation and have not made changes to meet accreditation standards.

CAATE accreditation insures that programs are meeting a minimum standard. While this protects students from receiving a poor education it does not help the students to identify programs that are only just meeting the minimum standards set by CAATE versus those programs that are exceeding the same standards.

Athletic Training Education

Through the years, athletic training education has changed just as education has in any other professional field. Athletic training education used to be internship based. Students would attend formal classes to gain the background knowledge necessary to work at internships that the students would arrange. In 1986 the NATA approved the plan to change from an internship education to a competency-based education. Currently, students must attend a CAATE accredited program and work at a clinical site for a minimum of two years. Once students have completed these requirements they are eligible to sit for the BOC exam.

Students must complete a wide range of course work while attending their selected accredited program. Students must take courses in physiology, biology, chemistry, kinesiology, human anatomy, physics, and psychology. In addition to these core science classes, students must take professional classes in research and statistics, nutrition, therapeutic modalities, orthopedic evaluation, rehabilitation, general medical conditions, and pharmacology.
While students are completing these courses, they must also work at clinical sites that expose them to various settings that athletic trainers may work in. These settings include high schools, universities, professional sports, physical therapy clinics, hospitals, and many other settings. Students are required to accumulate a minimum number of hours per semester as determined by the athletic training education program that they are attending.

It is not until all of these requirements are met that a student may sit for the BOC exam. The BOC exam is a computer-based exam that tests the student’s knowledge and critical thinking skills. Once the student passes the BOC exam and completed all course work they will earn the certified athletic trainer (ATC) credential.

Quality Education Indicators

Before a ranking system can be developed, it is important to determine what research has identified as “quality” education indicators. Currently research is very limited specifically investigating ranking athletic training education programs. At the same time, there are several publications that have identified certain indicators of a credible or quality education program (Turocy, 2002). These indicators are not specific to athletic training education but Seegmiller (2006) has adapted four indicators to athletic training education including: 1) curriculum 2) research done by students 3) faculty and administration and 4) clinical experience.

Undergraduate class curricula focus should be to establish fundamental knowledge, develop problem solving skills and critical thinking skills. If students decide to pursue an advanced degree, the course work should focus on expanding the student’s
fundamental knowledge. Further, undergraduate course work should expose students to research and research methods. The goal of the research completed by students is to simply expose students to the research process, not to make a researcher out of all students (Seegmiller, 2006). The faculty of each educational program is also key in determining the quality of the program. The faculty in each program should have a strong foundation in education and teaching methods and should also be active in current research. Clinical rotations should provide students with a wide variety of experiences in a variety of clinical settings that allows students to gain exposure to possible work settings and practice the skills learned during formal course instruction.

Another indicator to the quality of an athletic training education program is accreditation status of the program. Accreditation ensures that a given educational program adheres to the guidelines of CAATE and provides the environment and information needed to educate its students. For an athletic training education program to become CAATE accredited, the program must demonstrate that the minimum standards for education, clinical rotations, and administrative work are met to CAATE satisfaction. One standard CAATE has established calls for the continuous quality improvement of athletic training education programs. This improvement of programs must contribute to the improvement of healthcare that is provided within the healthcare profession of athletic training (Peer & Rakich, 2000). The CAATE process has made it difficult for programs to become accredited; it may not be an accurate indicator of a program’s overall quality due to the variety within programs who have received accreditation.
What are Ranking Systems?

Ranking systems are a means to define the efficacy of programs within various universities. For example, medical schools are ranked based on the quality of their graduating physicians. Some ranking systems have been based on reputation/prestige or productivity. A reputational ranking is subjective. The benefits to a subjective ranking system is that it often carries more face validity than other forms of ranking because of the perceived quality of the programs involved (Berelson, 1960). One major disadvantage found with subjective ranking systems is the possibility of the halo effect. This may occur when a program that was perceived as a poor program will always be perceived as a poor program even if the program develops into a quality program or visa versa. The more common ranking systems are based on productivity or objective data. The disadvantage of an objective ranking system it that it may not accurately reflect the quality of a new program that has not had a chance to develop.

Ranking in Other Healthcare Professions

The first educational ranking systems were developed due to pressure from political leaders who wanted to assess how well educational programs prepared students within their respective fields (Blumenstyk, 1988; Dore, 2000; Jennings, 1989). In 1910, James McKeen Cartell responded to this political pressure and published the first rankings of higher education institutions in America (Massengale, 1987). Educational ranking systems are utilized in a wide range of healthcare professions including general hospital care, dermatology, orthodontics, medicine, but currently athletic training does
not use an educational ranking system (Hansen, 2007). When developing an athletic training ranking system, the system should adapt ranking systems of other professions.

When investigating the quality of care and treatment provided in hospitals, Willis, Evans, Stoelwinder, and Cameron (2007) developed a ranking system using quality indicators (QIs) as the bases for a hospital’s ranking. Quality indicators are used to “identify variations from best practice, permit comparisons between providers and to identify trends in the quality of care over specific time periods” (Willi et al., 2007, p. 277). Quality indicators are then divided into three groups: structure, process, and outcomes. Each QI includes specific measurements including material resources, what is done by individuals involved in the care of patients, and results of treatment provided to patients, respectively. Overall quality of care is determined by adding all QIs for each hospital. Quality indicators are currently developed for four groups related to the hospital: hospital management, clinicians, purchasers, and patients. One major drawback to this ranking system is that it has been demonstrated that QIs have influenced clinicians’ decisions while providing care to patients in order to improve specific QIs (Willis et al., 2007). On the other hand, QIs allow for people to interpret the results in different ways. This allows stakeholders interested in the ranking system to come to their own conclusions.

When developing a ranking system for undergraduate universities in general US News and World Report magazine created seven criteria it would use to rank the universities. The seven criteria include: 1) undergraduate academic reputation, 2) retention of students, 3) faculty resources, 4) student selectivity, 5) financial resources, 6) alumni donations, and 7) graduation rate of the university (Morse, 2010). These criteria
have been adjusted to be more specific to athletic training education for this current study. The criteria for this study will be examined in the following section.

The professional field of dermatology currently uses a ranking system developed by Wu et al. They utilized only five parameters to rank each program including: 1) total number of publications in previous three years, 2) number of National Institute of Health research grants received, 3) number of Dermatology Foundation grants received, 4) number of faculty lectures given at national conferences, and 5) number of full-time faculty members currently sitting on the editorial boards for the top three peer-reviewed journals in the profession (Wu, Ramirez, Alonso, Berman, & Tyring, 2004). After data collection was completed, the top program in each category was determined. The top 30 overall programs were determined by combining the categorical rankings.

There are two major concerns with this ranking system. First, the parameters are not clearly defined in order to rank each program; for instance parameter number three being the number of Dermatology Foundation grants received. There could be several programs that receive the same number of grants. Unless the total dollar amount received is determined, the number of grants creates a problem for both the categorical rankings and the overall rankings. Second, there is a high possibility of artificial inflation in one of the parameters: specifically parameter number one total number of publications in previous three years. This number can be inflated due to the collaboration of multiple faculty members working on the same publication. Again, this creates problems in both the categorical and overall rankings. The present study will take into consideration the recommendations from previous work and eliminate these concerns by clearly defining all parameters to be included in the possible ranking system.
Another healthcare profession that has developed a ranking system is the dental specialty of orthodontics. This ranking system is not specific to the orthodontic education programs but is specific to overall orthodontic healthcare. A questionnaire was created to analyze patient care and overall healthcare effectiveness. The questionnaire was used to gather demographic data, patient opinions of healthcare management, orthodontic procedures, and cost of treatment. The same survey was completed prior to treatment, during treatment, and after the completion of all orthodontic treatments. For the final rankings, league tables were utilized to compare all of the orthodontists involved in the ranking. A league table is a list of programs generated by ranking the programs based on each program’s achievement. League tables are very useful for comparing the orthodontist included in the study but are not useful for comparisons of all orthodontists (Dunstan, Richmond, Phillips, & Durning, 2008).

The final ranking system investigated was the ranking of doctoral programs in health education. This ranking system included variables such as the number of articles published by faculty, journal editorships by the faculty of various institutions, external research funding, student participation in student clubs, student-faculty ratio, student support offered, and mentoring of doctoral students (Chaney, Eddy, & O’Rouke, 2004). The top program for each variable was assigned a raw score. Each successive program was then assigned an overall raw score after being compared to the top program pertaining to each specific variable. This ranking system is very complex and has several limitations. First, health educators thought that publications and editorships should not be weighted equally. Health educators thought that publications and editorships from more prestigious journals should be given more weight. This would force educators to produce
quality publications rather than a high quantity of publications. Secondly, educators did not see a clear distinction between teaching and editorships in the ranking. Finally, teaching and faculty service to the program were not investigated in this ranking system. Educators felt that this was important because they felt it was more important to serve their students with greater focus rather than focus on publications and editorships. At the same time, the educators did like the concept of a ranking system. A ranking system could be used to compare institutions and provide information to program directors to improve their programs (Chaney et al., 2004).

Ranking in Athletic Training Education

Athletic training is the only allied health profession that does not utilize a ranking system to identify the top athletic training education programs from the bottom athletic training education programs. While other allied healthcare professions use ranking systems, athletic training education programs do not have a ranking system of any kind. As the athletic training profession continues to grow, the demand for quality healthcare and healthcare providers, and competition on the job market also continues to grow. This demand for quality healthcare providers has placed a demand for accountability of higher education programs, including athletic training education programs, by politicians, educators, and administrators. These same groups have popularized ranking systems as a means of comparing educational programs.

The few studies that have attempted to develop a ranking system for athletic training education programs have utilized a combination of subjective and objective data (Hansen, 2007). Program directors and CAATE faculty have been surveyed to determine
what should be included in a ranking system specific to athletic training. This is where current research ends. None of the researchers have attempted to maintain a ranking system. Previous research is also very limited in subject groups. The only subjects that have been contacted regarding a possible ranking system are program directors and CAATE faculty. There are many more stakeholders that are interested in this topic including prospective and current athletic training students.

The primary questions in this study are: Would students use the information provided in a ranking system when deciding which athletic training education program to attend, and, if so, what information would students like the ranking system to provide? No two education programs are the same. All athletic training education programs teach the same fundamental courses, but each program teaches them differently. A ranking system will provide objective information to students and parents. Using this information, students can select the program that best suits their needs (Berelson, 1960).
CHAPTER III

METHODOLOGY

Methods

A prior study contacted athletic training education program directors regarding a possible ranking system for accredited undergraduate athletic training education programs (Abe, Duong, Gresik, & Quijano, 2009). Due to the overwhelmingly positive response of program directors the current research focused on another major stakeholder in athletic training education to investigate; the students. In this survey the primary question is: Would a ranking of athletic training education programs be helpful to students when deciding which athletic training education program to attend? The survey also investigated possible advantages and disadvantages of creating a ranking system, what components should be included in the ranking system and the most and least important factors students considered when making their final selection.

Subjects

One thousand athletic training students from across the nation were randomly selected by the NATA to participate in this survey. The inclusion criteria for the study were, 1) the subjects must be registered as students with the NATA and 2) students must have a valid email address registered with the NATA. Subjects were excluded from the survey if they were not 18 years of age at the time they received the initial contact email.
The NATA facilitated all direct contact with the participants. Students were contacted via email in March 2010 and a follow up email was sent April 2010.

The Survey

The survey was open for students to complete at their leisure starting in March 2010. The survey remained open until the end of April 2010. The study investigated several groups regarding agreeing or disagreeing with the creation of a ranking system for athletic training education programs. These groups included male vs. female, graduate students vs. undergraduate students, and those who will remain in the athletic training profession vs. those who will not remain in the athletic training profession.

The survey was developed and distributed utilizing SurveyMonkey©, a service web site dedicated to distributing surveys to various groups. A panel of graduate students, educators, certified athletic trainers, and program directors participated in the creation of the survey. The survey contained five key questions regarding the opinion of each student concerning the ranking system proposal. The five key questions were: 1) Would a ranking of athletic training education programs be helpful when selecting a program to attend? 2) What was the most important factor you considered when selecting which athletic training education program to attend? 3) What was the least important factor you considered when selecting which athletic training education program to attend? 4) What are possible advantages to the development of a ranking system? and 5) What are possible disadvantages to the development of a ranking system?

The remaining survey questions varied based on the student’s response to the first question regarding the helpfulness of a ranking system in athletic training education.
The survey was altered for students who did not agree that a ranking system would be helpful when making their final selection of athletic training education program. The survey did not allow these students to answer the questions related to the specific aspects of the possible ranking system. At the same time, these students did respond to the four open response questions previously stated. For the students who agreed that a ranking system would be helpful, the survey continued with a series of questions to help determine the format and content of the ranking system. This first question specifically related to the ranking system addressed the type of ranking system that should be used to rank athletic training education programs: 1) a numeric based system (program X is ranked #1, program Y is ranked #2, etc.), 2) a tier based system (programs X, Y, and Z are in tier 1, programs A, B, and C are in tier 2, etc), or a combination of a numeric based and tier based system (program X is ranked #1 in tier 1, program Y is ranked #1 in tier 2).

The next major question asked whether the ranking system should be based entirely on subjective data, entirely on objective data, or a combination of both objective and subjective data.

Questions regarding the content of the objective section of the ranking system were further divided into three sections: students, faculty, and the overall program. The questions in the first section focused on student performance such as: cumulative grade point average (GPA), number of students performing professional presentations, number of students receiving academic awards, number of clinical hours obtained by students at affiliated sites, presence of a student athletic training club, and continuing education/job placement of recent graduates. There is a positive correlation between students GPA’s with the passing rate of the BOC exam (Middlemas, Manning, Gazillo, & Young, 2001).
Student involvement, both within the profession (through the NATA and professional conferences) and on campus, are essential to a student’s success. Student involvement in state and national conventions, student scholarship recipients, and membership in the NATA have also been identified as key aspects of a quality athletic training education program (Hansen, 2007).

Clinical rotations utilized by athletic training education programs are designed to allow students to expand the knowledge they gain in the classroom by applying it firsthand. To be eligible to sit for the BOC exam students must acquire a minimum of 800 hours at a variety of clinical rotations. Previous research has shown that students who acquire approximately 400 additional hours are better prepared for the BOC exam. At the same time, hours above the 1200 have no impact on the results of the BOC exam for students (Turocy, 2000). It is the goal of all athletic training education programs to prepare students to sit for the BOC exam, to assure that students pass the BOC exam, and to certify its students enabling them to pursue the career of their choice in various allied healthcare fields (Erickson & Martin, 2000). This makes the first time pass rate of the BOC exam crucial for evaluating the quality of an athletic training education program.

The second section of objective data asked questions about the athletic training education program faculty members including: credentials of faculty members, number of faculty in the program, number of publications, service to the profession and professional awards. Previous research investigating factors of quality graduate athletic training education identified two key factors specific to faculty members, sufficient number of qualified faculty members, and the credentials of these members (Seegmiller, 2006). An additional study investigating faculty influences on students found that
programs employing faculty with higher credentials (e.g., Ph.D.) had higher passing rates on the BOC exam for first time examinees (Williams & Hadfield, 2003).

The third and final section of the survey included questions about the overall program including allotted budget, number of affiliated clinical sites used by the program, and approved clinical instructor (ACI) to student ratio. Institutional support of the program has been determined to be mildly important to the quality of an educational program (Bennett, 2001). Not only is the number of affiliated sites crucial but also the variety of affiliated sites is important (Hansen, 2007). It is imperative for students to have exposure to a wide variety of settings to prepare them for future careers as certified athletic trainers, especially as the field of athletic training continues to grow and expand into new arenas (Hansen, 2007). A low faculty to student ratio has been suggested as an important factor to quality education (Kahn & Blonde, 1999). This enables students to receive a more personalized education allowing for greatest success. Approved clinical instructors are commonplace in athletic training programs and are seen as educators in the workplace. This prompted the question about ACI to student ratio in this current survey (Kahn & Blonde, 1999).

All objective questions were answered using a four point Likert scale. Possible responses were strongly agree, agree, disagree, or strongly disagree. Open-ended questions were included in the survey to allow students to mention possible advantages and disadvantages to the development of a ranking system for athletic training education programs. Students were also provided the opportunity to identify which components were the most important to consider and least important to consider when selection which athletic training education program to attend.
Data Analysis

The above responses were coded with numerical values (4 through 1 respectively). Using SPSS statistical software, a two-sided Binomial sign test at a $p < 0.05$ alpha level was used to determine if students would find a ranking system useful when making their final decision as to which athletic training education program to attend. Chi-square analysis at a $p < 0.05$ alpha level was used to determine statistical significance when determining which type of ranking system the students want and what type of data the students want included in the ranking system. Several groups were compared including students remaining in the athletic training profession versus those who are not pursuing athletic training as a profession, males versus female and undergraduate students versus graduate students. Responses to each open-ended question were carefully read and categorized into common themes. After all responses were placed into themes, the themes were reread in order to make sure no overlap occurred between themes. Themes that were determined to be too closely related and could not be clearly defined as two different themes were grouped together and redefined to make a single theme. This process was repeated until each theme was clearly defined and no two themes overlapped.
CHAPTER IV

RESULTS AND DISCUSSION

Results

Three hundred thirty-five students completed the survey. The responses of 26 students were not included in the study because of incomplete surveys, thus a total of 309 complete surveys were evaluated which corresponds to a response rate of 30.9%. Of the 309 students, most students were from District 3 Mid-Atlantic region (District of Columbia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia, 38, 12.3%) of the NATA, followed by District 2 Eastern region B (Delaware, New Jersey, New York, and Pennsylvania, 35, 11.3%), District 1 Eastern region A (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont, 35, 11.3%), and District 10 Northwest region (Alaska, Idaho, Montana, Oregon, and Washington, 32, 10.4%) (Figure 1). The four most preferred career path was athletic training (267, 82.2%), followed by physical therapy (31, 10%), physician’s assistant (12, 3.9%), and physician (11, 3.2%) (Figure 2). The four most common academic standings of students who completed the survey were graduate students (103, 33.3%), followed by fourth year undergraduate students (86, 27.8%), 3rd year undergraduate students (50, 16.2%) and 5th year undergraduate students (28, 9.1%) (Figure 3). Finally, 210 of the students were female (68%) and 99 were male (32%).
Figure 1. All responses regarding in which district of the National Athletic Trainers’ Association do students live.

The primary research question was to establish if students would find a ranking system helpful when making their final decision as to which athletic training education program to attend. Students significantly \((p < 0.001)\) favored the idea of using a ranking system to assist in making their final decision of which program to attend. Outcomes regarding ranking athletic training programs were evaluated by (or according
Figure 2. Preferred career path for all students after the completion of an athletic training education program.

When investigating if there was a preference between these groups there was no statistical significance found. That is everyone regardless sex, career path and academic standing favored a ranking system for athletic training education programs.

The secondary research question was to determine if a ranking system would be helpful when making the final selection of an athletic training education program, how should the rankings be quantified? There was a significant difference ($p < 0.001$) for each style of ranking (numeric, tier, and a combination of both). Students were in favor of all styles of ranking (Figure 4). In order to determine which style of ranking was preferred the most, the number of students who agreed was combined with the number of students...
who strongly agreed to each ranking system. It was determined that students would prefer either a numeric-based ranking or a combination of numeric- and tier-based ranking (265 & 249, respectively). (See Figure 5.) When specifically looking at the difference between the sexes, females preferred a tier-based ranking system significantly more ($p < 0.001$) than males. Students who preferred to remain in athletic training significantly ($p < 0.001$) favored a combination ranking system versus those who wanted to pursue another career path.

Figure 3. The current academic standing for all students who participated to the survey.

There are three different options regarding what type of data is to be included in the ranking system: 1) subjective data, 2) objective data, and 3) a combination of subjective and objective data. There was a significant difference favoring all types of data to be included within the ranking system individually ($p < 0.001$). (See Figure 6.) After combining the students who agreed and strongly agreed within each type of data, students
prefer either objective data only (292) or a combination of subjective and objective data (279). (See Figure 7.) More specifically Chi-square analysis found females significantly favored the use of only objective data more than males ($p = .034$). No significant difference was found between any other groups being compared.

Objective data components were divided into three sections: student, faculty, and overall program. By looking at the average response and its’ standard deviation to each component, students identified five components that should be included in the ranking system (Table 1). Students also identified 21 components that were determined to be inconclusive (Table 2). These components were determined to be inconclusive

Figure 4. Responses to what style of ranking would be best for athletic training education programs.
Figure 5. In order to determine which style of ranking was preferred the most, the number of strongly agree responses were combined with the number of agree responses. From this it was determined that either a numeric-based system or a combination-based system was preferred.

because the mean score plus or minus one standard deviation caused the score to change from agree to disagree or visa versa. For example, if a component’s mean score was 3.5 with a standard deviation of 0.52, the component would be inconclusive because after subtracting one standard deviation from the mean the component switches from agree (3) to disagree (2).

Not only did students identify components to be included in a possible ranking system; they also identified the most and least important components to consider when deciding which athletic training education program to attend (Table 3 and Table 4 respectively). Students identified several advantages and disadvantages to the development of a ranking system of athletic training education programs (Table 5 and
Figure 6. Responses pertaining to what type of data to include in the ranking system.

Table 6 respectively). The total number of advantages and disadvantages is greater than 309 in both Table 5 and Table 6 because some students provided multiple advantages and disadvantages.

Discussion

Most ranking systems are based on reputation/prestige and/or productivity of a program or institution. This type of ranking system has great face validity but it is also very limited. One major problem with these styles of ranking systems is that it does not allow new programs to develop and receive an accurate ranking during the development stage. Another major problem with reputation based ranking systems is the halo effect. This occurs when good programs continue to be well ranked even if their program is not as strong as it used to be or if another program becomes better.
Figure 7. In order to determine what type of data the ranking should include, the number of strongly agree responses were combined with the number of agree responses. From this it was determined that either objective data only or a combination of subjective and objective data were preferred.

Students consistently responded that a ranking system would help them to decide which athletic training education program to attend; however, they also stated many advantages and disadvantages to a ranking system (Tables 5 and 6 respectively). Fifty-two percent (161) of the students indicated a ranking system would make it easier to make an informed and final decision as to which program to attend. Many students found it difficult to make informed decisions as to which program to attend because there is simply not a lot of information available to them regarding the strengths of each individual athletic training education program. At the same time, many students did not know what information is available to them. This point is illustrated by the fact that the
Table 1

*Subjective Data Components That Students Want Included in the Ranking System*

<table>
<thead>
<tr>
<th>Component</th>
<th>Number of Responses</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>First time pass rate of BOC exam</td>
<td>250</td>
<td>3.74</td>
<td>0.464</td>
<td>0.029</td>
</tr>
<tr>
<td>Number of years of experience of faculty members</td>
<td>250</td>
<td>3.66</td>
<td>0.515</td>
<td>0.033</td>
</tr>
<tr>
<td>Number of affiliated sites used by program</td>
<td>249</td>
<td>3.74</td>
<td>0.458</td>
<td>0.029</td>
</tr>
<tr>
<td>Student to faculty ratio</td>
<td>249</td>
<td>3.65</td>
<td>0.512</td>
<td>0.032</td>
</tr>
<tr>
<td>Approved clinical instructor to student ratio</td>
<td>248</td>
<td>3.67</td>
<td>0.487</td>
<td>0.031</td>
</tr>
</tbody>
</table>

10th most important factor when deciding which program to attend was whether or not a program was accredited. Any institutions claim to offer athletic training as a major but do not have accredited athletic training education programs. A student must attend an accredited program to take the BOC exam to become a certified athletic trainer. Students are currently being misguided and by the lack of information about athletic training education and athletic training education programs. However, students did not know about the CAATE webpage, which has a complete list of all accredited programs.

Twenty-five percent (78) of students stated a ranking system would make it easier to compare programs. Currently there is no source of information that compares programs or provides information that will allow students to compare programs for
Table 2

Subjective Data Components Found to Be Inconclusive by Students

<table>
<thead>
<tr>
<th>Component</th>
<th>Number of responses</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of clinical hours required to complete program</td>
<td>249</td>
<td>3.25</td>
<td>0.681</td>
<td>0.043</td>
</tr>
<tr>
<td>Minimum GPA standards of the program</td>
<td>248</td>
<td>3.41</td>
<td>0.576</td>
<td>0.064</td>
</tr>
<tr>
<td>If there is a student club supported</td>
<td>248</td>
<td>3.04</td>
<td>0.675</td>
<td>0.043</td>
</tr>
<tr>
<td>The percentage of students entering athletic training profession</td>
<td>249</td>
<td>3.57</td>
<td>0.606</td>
<td>0.038</td>
</tr>
<tr>
<td>The percentage of students earning jobs in the allied health field</td>
<td>249</td>
<td>3.59</td>
<td>0.603</td>
<td>0.038</td>
</tr>
<tr>
<td>Highest credential of each faculty member</td>
<td>249</td>
<td>3.43</td>
<td>0.613</td>
<td>0.039</td>
</tr>
<tr>
<td>The number of full time faculty members</td>
<td>249</td>
<td>3.45</td>
<td>0.588</td>
<td>0.037</td>
</tr>
<tr>
<td>Variety and number of awards earned by faculty</td>
<td>247</td>
<td>3.05</td>
<td>0.697</td>
<td>0.044</td>
</tr>
<tr>
<td>The amount of designated lab space</td>
<td>248</td>
<td>3.51</td>
<td>0.562</td>
<td>0.036</td>
</tr>
<tr>
<td>The number of students assigned to an approved clinical instructor</td>
<td>249</td>
<td>3.35</td>
<td>0.63</td>
<td>0.04</td>
</tr>
<tr>
<td>The number of clinical hours required per semester</td>
<td>249</td>
<td>3.49</td>
<td>0.673</td>
<td>0.043</td>
</tr>
<tr>
<td>Percentage of students that are NATA members</td>
<td>246</td>
<td>2.71</td>
<td>0.73</td>
<td>0.047</td>
</tr>
</tbody>
</table>
Table 2 (Continued)

<table>
<thead>
<tr>
<th>Component</th>
<th>Number of responses</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of students involved in the athletic training student club</td>
<td>248</td>
<td>2.79</td>
<td>0.741</td>
<td>0.047</td>
</tr>
<tr>
<td>The number of students attending athletic training symposiums</td>
<td>247</td>
<td>2.77</td>
<td>0.753</td>
<td>0.048</td>
</tr>
<tr>
<td>The number of students presenting at athletic training symposiums</td>
<td>247</td>
<td>2.88</td>
<td>0.711</td>
<td>0.045</td>
</tr>
<tr>
<td>The number of publications completed by faculty members</td>
<td>249</td>
<td>2.87</td>
<td>0.684</td>
<td>0.043</td>
</tr>
<tr>
<td>The number of professional committees served by faculty members</td>
<td>247</td>
<td>2.92</td>
<td>0.667</td>
<td>0.042</td>
</tr>
<tr>
<td>The program’s budget</td>
<td>249</td>
<td>2.83</td>
<td>0.75</td>
<td>0.048</td>
</tr>
<tr>
<td>Benefits offered to approved clinical instructors</td>
<td>248</td>
<td>2.52</td>
<td>0.81</td>
<td>0.051</td>
</tr>
<tr>
<td>Number and variety of scholarships or awards earned by students</td>
<td>245</td>
<td>2.95</td>
<td>0.708</td>
<td>0.045</td>
</tr>
<tr>
<td>The number of office hours offered by faculty members</td>
<td>247</td>
<td>2.8</td>
<td>0.742</td>
<td>0.047</td>
</tr>
</tbody>
</table>

themselves. At the same time the two most common disadvantages students mentioned are: 1) it is too hard to create an accurate ranking system that will also “show everything” (62, 20%), and 2) a ranking system can mislead students and mislabel programs (36, 11.6%). While students want some source of information available to help them make
Table 3

*The 10 Most Common Factors Students Felt Were the Most Important to Consider When Deciding Which Athletic Training Education Program to Attend*

<table>
<thead>
<tr>
<th>Most important aspect to consider</th>
<th>Number of responses</th>
<th>Percentage of students who identified factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Clinical Sites (variety, level of competition, location, ability to work hands-on)</td>
<td>60</td>
<td>19%</td>
</tr>
<tr>
<td>2. First time pass rate of BOC exam</td>
<td>51</td>
<td>16%</td>
</tr>
<tr>
<td>3. Program’s reputation*</td>
<td>32</td>
<td>10%</td>
</tr>
<tr>
<td>4. Location</td>
<td>23</td>
<td>7.4%</td>
</tr>
<tr>
<td>5. Quality of program and education*</td>
<td>22</td>
<td>7.1%</td>
</tr>
<tr>
<td>6. How the student felt about program after a visit</td>
<td>21</td>
<td>6.7%</td>
</tr>
<tr>
<td>7. Student to faculty ratio</td>
<td>18</td>
<td>5.8%</td>
</tr>
<tr>
<td>8. Reputation of the faculty*</td>
<td>17</td>
<td>5.5%</td>
</tr>
<tr>
<td>9. Cost of the program and/or tuition</td>
<td>16</td>
<td>5.1%</td>
</tr>
<tr>
<td>9. Job placement of resent graduates of the program</td>
<td>16</td>
<td>5.1%</td>
</tr>
<tr>
<td>10. Accreditation (if held by the institution, and if so how long accreditation has been held)</td>
<td>15</td>
<td>4.8%</td>
</tr>
<tr>
<td>Total</td>
<td>291</td>
<td></td>
</tr>
</tbody>
</table>

* = Students did not identify how they would measure these factors.

their final selection, they also realize that it will be very difficult and should only be used as a tool to help make their final selection.
Table 4

The 10 Most Common Factors Students Felt Were the Least Important to Consider When Deciding Which Athletic Training Education Program to Attend

<table>
<thead>
<tr>
<th>Least important aspect to consider</th>
<th>Number of responses</th>
<th>Percentage of students who identified factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Program’s budget</td>
<td>39</td>
<td>12.6%</td>
</tr>
<tr>
<td>2. Location of program</td>
<td>27</td>
<td>8.7%</td>
</tr>
<tr>
<td>3. No aspect is the least important</td>
<td>24</td>
<td>7.7%</td>
</tr>
<tr>
<td>4. Faculty and approved clinical instructor salary or pay</td>
<td>20</td>
<td>6.4%</td>
</tr>
<tr>
<td>5. Number of hours required either total or per semester</td>
<td>18</td>
<td>5.8%</td>
</tr>
<tr>
<td>6. Number of faculty publications or presentations</td>
<td>12</td>
<td>3.8%</td>
</tr>
<tr>
<td>6. Honors or awards received by faculty</td>
<td>12</td>
<td>3.8%</td>
</tr>
<tr>
<td>6. Physical size of lab space and institution</td>
<td>12</td>
<td>3.8%</td>
</tr>
<tr>
<td>9. Credentials of faculty</td>
<td>10</td>
<td>3.2%</td>
</tr>
<tr>
<td>10. If there is a student club</td>
<td>9</td>
<td>2.9%</td>
</tr>
<tr>
<td>10. Number of clinical sites and variety of sports covered</td>
<td>9</td>
<td>2.9%</td>
</tr>
<tr>
<td>Total</td>
<td>192</td>
<td></td>
</tr>
</tbody>
</table>

Students also suggested the creation of a ranking system would increase competition between athletic training education programs for better rankings and better students (50, 16%). Increasing competition between programs would help drive each
Table 5

*Advantages to the Development of a Ranking System for Athletic Training Education Programs As Identified by Students*

<table>
<thead>
<tr>
<th>A ranking system would…</th>
<th>Number of Responses</th>
<th>Percentage of students who identified theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Make it easier to make an informed decision and final decision of which athletic training education program to attend</td>
<td>161</td>
<td>52.1%</td>
</tr>
<tr>
<td>2. Make it easier to compare programs</td>
<td>78</td>
<td>25.2%</td>
</tr>
<tr>
<td>3. Increase competition between programs for a better ranking and for the better students</td>
<td>50</td>
<td>16.1%</td>
</tr>
<tr>
<td>4. Improve athletic training education because the best program would “set the standard”</td>
<td>24</td>
<td>7.7%</td>
</tr>
<tr>
<td>5. Help promote the better programs</td>
<td>16</td>
<td>5.1%</td>
</tr>
<tr>
<td>6. Help differentiate the elite programs for the moderate programs</td>
<td>9</td>
<td>2.9%</td>
</tr>
<tr>
<td>7. There is no advantage</td>
<td>5</td>
<td>1.6%</td>
</tr>
<tr>
<td>8. Make better certified athletic trainers</td>
<td>4</td>
<td>1.2%</td>
</tr>
<tr>
<td>9. Help employers identify good prospects and help students get better jobs</td>
<td>3</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>359</strong></td>
<td></td>
</tr>
</tbody>
</table>

program to be the best it could in order to receive the highest ranking and therefore attract more students to each program. According to one respondent, one advantage to a ranking
Table 6

Disadvantages to the Development of a Ranking System for Athletic Training Education Programs As Identified by Students

<table>
<thead>
<tr>
<th>The disadvantage to a ranking system is…</th>
<th>Number of Responses</th>
<th>Percentage of students who identified theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It would be too hard to do accurately</td>
<td>62</td>
<td>20%</td>
</tr>
<tr>
<td>2. It would mislead students that the “top” programs are the best for everyone and mislabel programs</td>
<td>36</td>
<td>11.6%</td>
</tr>
<tr>
<td>3. It would not be fair to new programs and limit the growth of new/small programs</td>
<td>33</td>
<td>10.6%</td>
</tr>
<tr>
<td>4. It could cause students to over look low ranked programs</td>
<td>31</td>
<td>10%</td>
</tr>
<tr>
<td>5. It could cause a decrease in enrollment for some programs</td>
<td>30</td>
<td>9.7%</td>
</tr>
<tr>
<td>6. It would be biased</td>
<td>25</td>
<td>8%</td>
</tr>
<tr>
<td>7. There is no disadvantage</td>
<td>22</td>
<td>7.1%</td>
</tr>
<tr>
<td>8. It could create competition between programs and between students to get into the top programs</td>
<td>21</td>
<td>6.7%</td>
</tr>
<tr>
<td>9. It could cause low ranked programs to be cut</td>
<td>19</td>
<td>6.1%</td>
</tr>
<tr>
<td>10. It could create judgment of students from a particular program from employers</td>
<td>13</td>
<td>4.2%</td>
</tr>
<tr>
<td>11. It could cause programs to focus on the rankings rather than the students</td>
<td>9</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Total: 320
system is that it could: 1) “start competition amongst programs and 2) potentially better the undergraduate education” (Anonymous survey response). A ranking system may increase competition between programs but a ranking system could also help improve athletic training education by setting a standard (24, 7.7%). Program directors will be able to look and see where other programs are succeeding and try to mimic what the top programs are doing in order to make the education they provide better. “The ranking system will encourage instructors and other members of the ATEP to work harder to educate and advance their own careers” (Anonymous survey response).

Five percent (16) of students feel that a ranking system will help the top programs to be recognized for their accomplishments and successes. While the top programs maybe recognized for their accomplishments students saw that this may also hinder the lower and/or new programs in several ways.

First, 10.6% (33) of students indicated that a ranking system might not be fair to new programs. Not only would it not be fair to these programs but it may also hinder the growth of new programs. One anonymous respondent said “the better students will choose to go to the higher tier programs making it harder on the lower tier programs to better themselves while looking at achievement of students.” This maybe an accurate assessment however, any ranking system that may be developed could be adjusted in order to allow new programs to grow and develop.

Second, 10% (31) of students indicated a ranking system would cause students to over look the lower-ranked programs. “Some disadvantages of a ranking system would include the trickle down effect, where less prestigious and lower-ranked programs would have a more difficult time attracting the top AT students” (Anonymous respondent).
Similarly, students stated that a ranking system would cause a decrease in enrollment in some programs (9.7%, 30). “[T]he programs near the bottom will have more trouble filling rosters which will make it difficult for the program to develop” (Anonymous respondent).

Students have identified many advantages to the development of a ranking system of athletic training education programs. At the same time, students have identified many corresponding disadvantages for these same advantages. If a ranking system is properly developed it will balance these advantages and disadvantages to create a fair ranking system. Any ranking system that is developed should also closely consider what a variety of stakeholders consider to be important components of what is being ranked, in this case athletic training education programs.

Students identified many important components they investigated when deciding which athletic training education program to attend (Table 3). Nineteen percent (60) of the students investigated the variety, level (i.e., professional, Division 1/2/3, or community college), location and if the clinical sites allowed students to be hands-on as the most important factor to deciding which program to attend. Students wanted to have the possibility of working at a wide variety of clinical sites at various levels of competition and work hands-on at these clinical sites. Sixteen percent (51) of the students investigated the program’s first time pass rate of the BOC exam as the most important factor to identifying the best program to attend. The goal of every athletic training student is to pass the BOC exam so a high pass rate of a given program was very important. Ten percent (32) of the students thought the reputation of a program is the most important to consider when deciding which program to attend. While students said this was important
they did not identify how they would determine the reputation of a program. Seven percent (23) of the students said that the location of the program was the most important factor when deciding which program they were going to attend. Finally, the fifth most common factor identified as the most important factor to investigate when deciding which program to attend was the quality of the program. Students mentioned both the quality of the education and quality of the program but again did not identify how they would judge this factor. Students identified many factors they felt to be the most important to consider when determining which athletic training education program to attend they also identified many of the least important factors to consider (Table 4).

Students identified the least important when determining which athletic training education program to attend to be the program budget (12.6%, 39). Second, 8.7% (27) of students felt that the location of the program was the least important factor to consider. While some students thought it was important to consider the location due to tuition and proximity to family, many did not care where the program was located they simply wanted to attend the “best” program. Seven percent (24) of the students felt that all factors were important to consider and that no factor was the least important when deciding which program to attend. Six percent (20) of students felt that faculty and approved clinical instructor salary or pay was the least important factor when deciding which program to attend. This could be because students feel that while they may not get paid the most they could still be the best faculty or approved clinical instructors to enhance their education. This may happen when investigating small or new programs that do not have the financial support to provide large salary for faculty or approved clinical instructors. Many students (5.8%, 18) felt the number of required hours was the least
important factor to consider. Many athletic training students want to spend as much time as they can working and acquiring skills because during this time when they are work the students get to put into practice what they learned in the classroom.

Students provided a great amount of information that should all be taken into consideration when developing a ranking system of athletic training education programs. As predicted, students thought that a ranking system of some kind would be useful when deciding which athletic training program to attend. Students mention a variety of reasons, factors, advantages and disadvantages, which suggests that students want as much information as they can get to help them make their final decision.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Currently there is no form of subjective or objective information about all athletic training education programs available to students to assist them in making their final selection of which athletic training education program to attend. While there are many stakeholders (for example, current/prospective students, parents, program directors, administrators) in this profession, only program directors and CAATE faculty have been included in previous research regarding a possible ranking system. Further, previous research (Abe et al., 2009) has not developed a ranking system but has investigated what should be included in the ranking system.

The current research was designed to gain the perspective of another stakeholder, prospective and current students. One thousand students with an active email address registered with the NATA were randomly selected to participate in the survey. The NATA sent the original contact email in March 2010 and a follow up email was also sent in April 2010. Students were allowed to complete the online survey at their convenience using SurveyMonkey© until the end of April 2010. Graduate students, educators, certified athletic trainers, and program directors assisted in the development and testing of the survey.

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Students significantly \((p < 0.001)\) favored having a ranking system of some kind to help them make a decision as to which athletic training education program to attend. Furthermore, Chi-square analysis found a significant difference when investigating which style of ranking system students preferred; subjective \((p < 0.001)\), objective \((p < 0.001)\), and a combination of the two \((p < 0.001)\). After looking at how many students agreed or strongly agreed to each style of ranking it was determined that students would prefer either a numeric based ranking system (265) or a combination of numeric and tier based ranking system (249). When investigating what type of data to include in the ranking system, Chi-square analysis again found a significant difference favoring each type of data; subjective data \((p < 0.001)\), objective data \((p < 0.001)\), and a combination of subjective and objective data \((p < 0.001)\). Again after combining the number of students who either strongly agreed or agreed to favoring each data type, students would prefer either a ranking system with only objective date (292) or a ranking system with a combination of subjective and objective data (279).

Students also identified several advantages and disadvantages to the development of a ranking system. The top five advantages to a ranking system were; 1) it would make it easier to make an informed decision as to which program to attend (52%, 161), 2) it would make it easier to compare programs (25.2%, 78), 3) it would increase the competition between programs for better rankings and better students, 4) it would improve athletic training education by “setting the standard” (7.7%, 24), and 5) it would help promote the top programs (5.1%, 16). The top five disadvantages to a ranking system were; 1) it would be too hard to create an accurate ranking system because a ranking system doesn’t show all components of a program (20%, 62), 2) it would mislead
students by saying that these are the best programs for everyone and it would mislabel programs as bad or lowly ranked (11.6%, 36), 3) it would not be fair to new programs and limit the growth of new/poor programs (10.6%, 33), 4) it would cause students to overlook lower ranked programs (10%, 31), and 5) it would decrease the enrollment in some programs (8%, 25). Not only did students identify advantages and disadvantages to a ranking system, they also identified the most and least important factors to them when deciding which athletic training education program to attend.

The five components that students commonly identified as the most important are; 1) clinical sites, including variety, level of competition, location and chance to be hands-on (19.4%, 60), 2) first time pass rate of BOC exam (16.5%, 51), 3) program reputation (10.3%, 32), 4) location of the program (7.4%, 23), and 5) the quality of the education and of the program (7.1%, 22). The five components that students most commonly identified as the least important to consider are; 1) program budget (12.6%, 39), 2) location of the program (8.7%, 27), 3) no component is least important (7.7%, 24), 4) faculty and approved clinical instructor salary or pay (6.4%, 20), and 5) the number of hours programs required students to collect (5.8%, 18).

One weakness of this study is that only 1000 students were contacted. While there are many more prospective and current athletic training students, the goal of this study was only to establish baseline data. Another weakness is that the format of the survey did not facilitate the specific identification of what style of ranking the students wanted or what type of data the students wanted included in the ranking system.
Conclusions

While it is clear that students would like some form of information available to them when making their final selection of athletic training education program, it is unclear what they specifically want included in the ranking system. Athletic training students and program directors have also mentioned advantages and disadvantages to a ranking system. Program directors and students both seemed to favor the idea of a ranking system but after close reading of the disadvantages of a ranking system the majority fear that the system would be unfair or biased in some fashion.

Due to these concerns, a ranking system of athletic training education programs is not advised. Instead, a consumer report should be developed to assist students in making their final selection of which athletic training program to attend. In the case of a consumer report, all programs can provide the same data that would be included in a ranking system but would allow the students and other stakeholders to interpret the data however they wish to do so. Rather than the program receiving a ranking determined by the ranking system, an individual source could collect all the data and complete a report. For example, each school could report their first time pass rate of the BOC exam, approved clinical instructor to student ratio, a component for study abroad opportunities could be created and programs providing this opportunity would receive a check mark. Subjective data could also be entered, such as entries from alumni mentioning what they liked and did not like about the program.

The benefits to this would be that there is no interpretation or bias from an outside source. All stakeholders would have the data and consider the components that
they feel are important. This may also remove the fear of a ranking system from both program directors and students.

Recommendations for Future Research

The only stakeholders that have been investigated are program directors, CAATE faculty and now students. There are still many stakeholders that have not been surveyed. When determining which style of ranking (numeric, tier, combination, or consumer report) it would be best to make subjects rank each option versus each other rather than agree or disagree with each. For example, one could prefer, in order, numeric ranking, tier ranking, a consumer report and finally a combination ranking. The same is true when determining what type of data should be included in the ranking system. If this is done Chi-square analysis could be used to determine specifically which style of ranking and what type of data is preferred.

A ranking system may be helpful; however, a consumer report of all athletic training programs would allow all stakeholders to interpret the information for themselves and remove any bias from a ranking system. Students would like as much information as possible available to them when deciding which athletic training education program to attend. A ranking system would provided them with a list in some form to show them which programs may be the best, but a consumer report would give students the information and allow them to determine which program is best for them.
REFERENCES


Middlemas, D., Manning, J., Gazillo, L., & Young, J. (2001). Predicting performance on the National Athletic Trainers’ Association Board of certification exam from grade point average and number of clinical hours. *Journal of Athletic Training, 36*(2), 136-140.


First Email sent to students March 2010:

Dear Fellow Athletic Training Student:

I am a master’s degree candidate at California State University in Chico, requesting your help to complete part of my degree requirements. Please follow the link at the end of this letter to an online survey titled: Facilitating Student Selection of Entry-level Athletic Training Education Programs.

This student survey is not approved or endorsed by NATA. It is being sent to you because of NATA’s commitment to athletic training education and research.

The questionnaire consists of four (4) demographic questions, four (4) open response questions and five (5) Likert Scale (1-very uncomfortable to 4 very comfortable) questions, which will take about five to seven minutes to complete.

One thousand randomly selected NATA student members in the nation with a listed email address are being asked to submit this questionnaire, but you have the right to choose not to participate. The study has been approved by the Institutional Review Board at California State University, Chico.

This is a completely anonymous questionnaire and upon submission, neither your name nor email address will be attached to your answers. Your information will be kept strictly confidential.

As a fellow athletic trainer, your knowledge and opinions regarding this topic makes your input invaluable. Please take a few minutes to fill out the anonymous questionnaire you will find by clicking on this link and submit it by April 30, 2010: [http://www.surveymonkey.com/s/PYBP9CS](http://www.surveymonkey.com/s/PYBP9CS)

Thank you for your time and consideration.

Sincerely,
Matt Quijano, ATC
Mquijano2@mail.csuchico.edu
1442 Sheridan Ave #4
Chico, Ca 95926
Follow Up Email sent out April 1, 2010:

Dear Fellow Athletic Training Student:

This is a reminder email regarding my research survey. The survey consists of four (4) demographic questions, two (2) open response questions and five (5) Likert Scale (1-very uncomfortable to 5 very comfortable) questions, which will take about five to seven minutes to complete.

This is a completely anonymous questionnaire and upon submission, neither your name nor email address will be attached to your answers. Your information will be kept strictly confidential.

You have been randomly selected to participate in this survey. If you have already completed the survey thank you for doing so. If you have not completed, I ask that you please take a few minutes to do so. The survey will remain open until April 30, 2010. The link to the survey is provided for your convenience.

http://www.surveymonkey.com/s/PYBP9CS

Thank you for your time and consideration.

Sincerely,
Matt Quijano, ATC
Mquijano2@mail.csuchico.edu
1442 Sheridan Ave #4
Chico, Ca 95926
APPENDIX B
FACILITATING STUDENT SELECTION
OF ENTRY-LEVEL ATHLETIC
TRAINING EDUCATION
PROGRAMS SURVEY

Informed Consent

My name is Matt Quijano. I am a graduate assistant athletic trainer at California State University, Chico earning a Masters degree in Kinesiology. I am researching student selection of entry-level athletic training education programs and would like you to volunteer to take a 10-minute anonymous survey. There is no penalty if you choose not to participate or if you don’t answer all the questions. There are no risks or specific benefits for participating in this study. You must be 18 year or older to participate in this survey.

If you have any questions concerning your participation in this study you can email me at mquijano2@mail.csuchico.edu.

Thank you!

Continue
I do not agree

1. In which district of the National Athletic Trainer’s Association (NATA) do you live?
   a. D. 1
   b. D. 2
   c. D. 3
   d. D. 4
   e. D. 5
   f. D. 6
   g. D. 7
   h. D. 8
   i. D. 9
   j. D. 10

2. What is your gender?
   a. Male
   b. Female

3. Which of the following best represents your academic standing?
   a. High school freshman
   b. High school sophomore
   c. High school junior
   d. High school senior
e. 1st year undergraduate student  
f. 2nd year undergraduate student  
g. 3rd year undergraduate student  
h. 4th year undergraduate student  
i. 5th year undergraduate student  
j. 6th + year undergraduate student  
k. Graduate student  

4. After completing an accredited athletic training education program, what is your preferred primary career path?  
a. Athletic trainer  
b. Physical therapist  
c. Physician assistant  
d. Personal trainer  
e. Doctor  
f. Other  

5. If a ranking system to indicate overall quality of accredited undergraduate athletic training education programs was available to you when deciding which school to attend, would you have used it to assist in making your final decision?  
a. Yes  
b. No  

6. If a ranking system was available, I think a…  

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numeric-based ranking system is most useful (e.g., school x is ranked #1, school Y is ranked #2, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tier-based ranking system is most useful (e.g., school X is in Tier 1 without a specific ranking in tier 1, school Y is in Tier 2 without a specific ranking in tier 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combination of Numeric-based and Tier-based ranking system is most useful (school X is ranked #1 in Tier 1, school Y is ranked #1 in Tier 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. If a ranking system was available it should include…

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective data (opinion of athletic training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>education program directors, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective data (Board of Certification exam</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pass rate, Approved Clinical Instructor to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student ration, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A combination of Subjective and Objective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>data to develop a single ranking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Previous athletic training research has identified 3 possible categories of objective data. One category is STUDENTS. If a ranking system was available which of the following should be included.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board of Certification exam 1&lt;sup&gt;st&lt;/sup&gt; time pass rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students earning national or regional athletic training scholarships or awards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of clinical hours acquired during entire degree program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum GPA required for students to stay in the program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of students that are NATA members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the program support an athletic training student club?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of students that are members of an athletic training student club</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of graduates earning jobs in allied health fields</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students attending regional or national athletic training meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students presenting at regional or national athletic training meetings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9. Previous athletic training research has identified 3 possible categories of objective data. One category is FACULTY. If a ranking system was available which of the following should be included.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest credential of faculty members (e.g., PhD, MS, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of office hours offered by faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of full-time faculty members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of publications by faculty in the past 5 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of professional committees served by faculty members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of awards (e.g., teaching, research, service, etc.) earned by faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of experience as a full time athletic trainer and/or instructor of all faculty members</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. Previous athletic training research has identified 3 possible categories of objective data. One category is **OVERALL PROGRAM.** If a ranking system was available which of the following should be included.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program budget</td>
<td></td>
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<tr>
<td>Dedicated athletic training lab space</td>
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<tr>
<td>Total number of affiliated sites utilized by the program (high school, college, professional, physical therapy clinic, etc.)</td>
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<tr>
<td>Faculty-student ratio</td>
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<tr>
<td>Approved clinical instructor to student ratio</td>
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<tr>
<td>Pay or other benefits offered to Approved clinical instructors</td>
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<tr>
<td>Number of students assigned to approved clinical instructors at affiliated sites</td>
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<tr>
<td>Required clinical hours</td>
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</tbody>
</table>

11. Please describe the MOST IMPORTANT factor to you when deciding which athletic training education program to attend.

12. Please describe the LEAST IMPORTANT factor to you when deciding which athletic training education program to attend.

13. What are possible **ADVANTAGES** to the development of a ranking system for athletic training education programs?

14. What are possible **DISADVANTAGES** to the development of a ranking system for athletic training education programs?