Pedagogic Strategies Perceived to Enhance Student Learning in Athletic Training Education

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Article:

Objective: To investigate students' and instructors' educational experiences in Commission on Accreditation of Allied Health Education Programs (CAAHEP)-accredited athletic training education programs and specifically to determine to what extent pedagogic strategies were reflected in students' perceptions of their learning experiences, instructors' perceptions of their teaching, and athletic training course syllabi. *Design and Setting:* Students and instructors currently enrolled in or teaching in 5 university athletic training programs accredited by CAAHEP provided in-depth interviews pertaining to students' educational experiences. Students' educational experiences in CAAHEP-accredited athletic training programs were also examined through current athletic training education course syllabi. *Subjects:* Twenty-one students (9 males, 12 females) and 12 instructors (7 males, 5 females) were interviewed to examine their perceptions of teaching and learning experiences within their program. *Measurements:* Students' and instructors' perceptions of their educational experiences in CAAHEP-accredited athletic training education programs were analyzed qualitatively using the data-analysis software program NUD*IST. Data from all 3 sources (students' interviews, instructors' interviews, course syllabi) were coded into categories within the NUD*IST program and then triangulated to ensure the authenticity of the findings. *Results:* Based on the analysis of students' and instructors' interviews and course syllabi, 3 pedagogic strategies were identified that appeared to facilitate athletic training education in CAAHEP-accredited programs: use of scenarios and case studies, authentic experiences, and a positive educational environment. *Conclusions:* Students and instructors in CAAHEP-accredited athletic training education programs recognize and value specific pedagogic theories of teaching and learning and achievement motivation in students' educational experiences. Specific educational themes identified across athletic training instructors, students, and programs are outlined. All athletic training educators should take an interest in understanding what students and instructors in CAAHEP-accredited athletic training programs view as helpful pedagogic practices within their educational experiences.

Article:

Since its inception in 1950, the National Athletic Trainers' Association (NATA) has striven to enhance athletic trainers' knowledge and skills by improving educational experiences within its education programs. The transition of athletic training education from an internship program to a Commission on Accreditation of Allied Health Education Programs (CAAHEP)-accredited

competency-based program has helped to standardize athletic training education and improve its consistency with professional preparation in other allied health disciplines. Instructors in both clinical and classroom settings are expected to integrate a common body of athletic training competencies across a wide range of student educational experiences.

An essential component of good educational practices found consistently in research on teaching and learning is the integration of achievement motivation constructs into student learning. Biddle's[1] integrative framework of control-related achievement motivation identifies 2 specific pedagogic constructs that are critical for explaining why and how students respond in achievement situations: (1) Self-determination theory distinguishes 2 general classes of motivated behaviors, those that are self-determined (eg, governed by the process of choice and experienced as emanating from the self) and those that are controlled (eg, governed by the process of compliance and experienced as compelled by some interpersonal force)[2]; (2) Self-efficacy motivation theory suggests that academic motivation is enhanced when the teacher helps students make correct judgments about their capabilities to successfully perform a specific task or produce an outcome in a specific situation.[3] Each of these pedagogic constructs has contributed to our understanding of how students learn in various educational contexts and provides the theoretic framework for this study.

The influences of various pedagogic constructs of achievement motivation have not been examined in athletic training education research. To date, educational research efforts in athletic training have largely been limited to investigations of relationships among certain educational variables and student success and failure rates on the NATA Board of Certification (NATABOC) certification examination. Previous research[4–6] suggests that student learning styles, course-based versus internship-based route to certification, and student academic variables are each related to student success or failure on the NATABOC certification examination. Investigators have looked at specific aspects of athletic training education, including assessment of learning styles, inclusion of critical-thinking skills in course syllabi, and clinical teaching roles.[7–9] In each case, specific educational variables (eg, learning styles, clinical teaching skills, critical thinking) were investigated through specific questionnaires or examination of course syllabi or both. Qualitative athletic training education research examining the nature of students' educational experiences within CAAHEP-accredited athletic training programs may provide a more complete picture of pedagogic variables that contribute to student learning. In athletic training education, one group[10] used a critical-incident form and qualitative analysis to examine students' perceptions of clinical supervisors' behaviors. Supervising athletic trainers' behaviors were identified as having a profound effect on the professional development of the athletic training students. The use of qualitative and descriptive research in athletic training education can benefit both students and instructors by providing a more meaningful understanding of educational practices, including effective curriculum development (eg, scope, sequence, coherence) and appropriate instruction (eg, problem-based learning, effective questioning, guided discovery).

Our purpose was to investigate students' educational experiences in CAAHEP-accredited athletic training education programs. Specifically, our focus was to determine to what extent pedagogic strategies were reflected in students' perceptions of their learning experiences in CAAHEP-accredited athletic training programs, instructors' perceptions of their teaching in CAAHEP-accredited programs, and CAAHEP-accredited athletic training course syllabi. Integration of

information from multiple educational sources provides a more in-depth examination of how students learn in CAAHEP-accredited athletic training programs.

METHODS

Subjects

Students: A total of 21 students (9 males, 12 females) currently enrolled in 5 athletic training education programs accredited by CAAHEP participated in the study.[11] The 5 CAAHEP-accredited athletic training programs were Master's I comprehensive institutions as classified by the Carnegie Foundation and represented 3 East Coast states (Pennsylvania, Virginia, and Maryland). Table 1 provides the demographic characteristics of students selected for interviews from each program to examine their perspectives on learning experiences in CAAHEP-accredited athletic training programs. Participants included sophomore- (n = 3), junior- (n = 12), and senior- (n = 6) level athletic training students currently enrolled in an CAAHEP-accredited athletic training program. With regard to the students' ethnicity, 19 students were white and 2 were black.

Table 1: Demographic Characteristics of Student Participants (n = 21)

University*	Males	Females	Clinical Hours †	SD‡	Sopho-mores	Juniors	Seniors
Jackson	1	2	804	154.60	1	1	1
Lakeside	3	6	820	196.65	2	6	1
Westwood	2	1	950	50.00	0	1	2
Timberland	1	2	829	127.50	0	2	1
Manato	2	1	985	201.68	0	2	1

* All university names are pseudonyms.
† Mean clinical hours completed by students
‡ SD indicates standard deviation.

Instructors: A total of 12 instructors (7 men, 5 women) currently teaching in CAAHEP-accredited athletic training education programs were interviewed individually to examine their perceptions of educational experiences within their athletic training courses. Instructors averaged 9.1 years of teaching experience in athletic training education, with a range of 2 to 26 years of teaching experience. All 12 instructors were white.

Design

This study was designed to investigate educational experiences of CAAHEP-accredited athletic training programs from 3 potential data sources: students' interviews, instructors' interviews, and course syllabi.

Students' and Instructors' Interviews: Students currently enrolled in and instructors currently teaching in university athletic training programs accredited by CAAHEP were interviewed during a 1- to 2-day visit by the researcher (J.M.M.). The sample strategy used in this study was criterion sampling, in which each participant (student, instructor, or school) met some predetermined criterion of importance (students or instructors in CAAHEP-accredited athletic training programs).[12] Criterion sampling is identified as an important qualitative component to monitoring program quality through in-depth qualitative analysis.[12] Interview questions were designed to elicit students' and instructors' perceptions of teaching and learning processes with an

emphasis on students' educational experiences. A semistructured format using open-ended questions enabled the researcher to elaborate on students' and instructors' responses and ask follow-up questions.[12] All interviews were tape recorded and transcribed for analysis. The study was approved by the human subjects review committee at each university, and all subjects reviewed and signed a human subject informed consent before participating. All student, instructor, and university names referred to throughout this study are pseudonyms.

Course Syllabi: Each athletic training instructor was asked to provide a copy of course syllabi from athletic training courses he or she had previously taught within the current CAAHEP-accredited program. The course syllabi collected (n = 24) represented 5 subject-matter areas required by CAAHEP to be taught through formal instruction in a structured classroom: care and prevention of athletic injuries (n = 5), therapeutic modalities (n = 6), therapeutic exercise (n = 5), assessment/evaluation of athletic injuries (n = 5), and organization/administration of athletic training (n = 3). The content knowledge within these 5 courses is acknowledged as part of the 12 content areas included in educational competencies for the NATA.[13]

Instrumentation

All data were analyzed qualitatively using constant comparison.[14] The transcribed interviews, syllabi, and documents were entered into the NUD*IST (Nonnumerical, Unstructured, Data, Indexing, Searching, and Theorizing) qualitative data analysis computer program (QSR International, Melbourne, Australia) to facilitate data reduction and analysis. The program allows researchers to analyze unstructured data such as text from interviews and documents (syllabi) to identify and explore complex relationships. Researchers code single transcribed sentences or ideas (text units) from students' or instructors' interviews and organize them into concepts and categories. Each text unit from all interviews and documents is explored to identify more complex relationships and common themes (Table 2).

Table 2: Data-Analysis Overview

Data Source	Data	1st-Level Analysis	2nd-Level Analysis	Common Themes Across Data Sources	Conceptual Themes
Students' interviews	Statements Sentences Thoughts	Specific experiences identified by students	Triangulation across data sources	1. Use of scenarios and case studies as education tools	1. Encourage student autonomy
Instructors' interviews	Statements Sentences Thoughts	Specific experiences identified by instructors	Triangulation across data sources	2. Authentic athletic training experiences	
Course syllabi	Course objectives Assignments Course requirements	Specific pedagogic practices/assign-ments	Triangulation across data sources	3. A positive educational environment	2. Enhance student self-confidence

In this study, the NUD*IST computer program was used to help identify emerging categories and themes across students' and instructors' interviews and each course syllabus. The qualitative data analysis was based on the guidelines of LeCompte and Preissle[15] and included construction of conceptual categories, differentiating and sorting data, and converging on a theme. First-level analysis of data provided an overall description of concrete categories across athletic training educational experiences. During first-level data analysis, each text unit from students' and instructors' interviews was examined and coded into specific categories.[15] First-level categories were characterized by specific educational experiences identified by students and instructors in each CAAHEP-accredited athletic training program. The process continued until all text units were initially coded.

During the second level of constant comparison, initial interview data were compared across students and instructors from each CAAHEP-accredited athletic training program.[15] First-level text units were reanalyzed and coded into more specific categories that reflected common themes of educational experiences consistent throughout each CAAHEP-accredited program. Questions identified by LeCompte and Preissle[15] were used to guide the differentiating and sorting of data. Questions included, “Which things are like each other?” and “Which things go together and which things don't?” A detailed analysis of students' educational experiences in athletic training was determined through second-level analysis after all text units were recoded and compared with course syllabi from each program.

The categories and themes to emerge from the data were reviewed for overlap and recoded if necessary. The decision to stop processing the data was a result of the following criteria outlined by Guba[16]: exhaustion of sources, saturation of categories, and overextension of information. Ultimately, the data were classified into manageable common themes that reflect teaching and learning across all data sources. Trustworthiness of the results was established through triangulation of the multiple data sources (students' interviews, instructors' interviews, course syllabi). Triangulation is a technique used in qualitative research that refers to a researcher's cross-checking information from multiple perspectives to ensure authenticity of the findings.[17] Triangulation of all data sources was used to help present a more complete and accurate analysis of athletic training educational experiences in CAAHEP-accredited programs.

Limitations

The student participants included in this study were a small, purposeful, nonrandom sample that may influence the generalizability of the results. Student participants were selected on the basis of their availability during the interview times selected by the researcher. A few of the athletic training students within the program were off campus at clinical sites, away on trips with athletic teams, or at a practice or game across campus. With regard to those students available for interviews, an effort was made to include students with a wide variety of athletic training experiences (eg, sophomores, juniors, and seniors). The course syllabi collected from each participating instructor did not represent all content areas included in the educational competencies for the NATA.

The design of this study is intended to provide insightful information for athletic training educators. Each program director, clinical supervisor, or athletic training educator should determine how the information provided in this study may be useful and benefit his or her own educational practices.

RESULTS

Based on the analysis of students' and instructors' interviews and course syllabi, 3 pedagogic strategies were identified as essential components of athletic training education in CAAHEP-accredited programs: use of scenarios and case studies, authentic experiences, and a positive educational environment.

Use of Scenarios and Case Studies as Instructional Tools in Experiential Learning

An initial category to emerge from the data was instructors' use of scenarios throughout students' educational experiences. Scenarios were included as strategies or instructional tools by teachers to facilitate comprehension and application of athletic training knowledge and skills. The following quotations represent responses from junior and senior athletic training students concerning how learning takes place in their athletic training education program. Sally, a junior at Jackson University, indicated that learning athletic training content in her classes was often structured around the instructors' use of different scenarios. She noted that

> They [instructors] like to give us real-life scenarios of specific athletic injuries that they have experienced at one time or another. The stories that they [instructors] tell from their own experiences helps us understand. It makes it [class] more interesting when the teacher has a story to go along with it [content/topic].

Lisa indicated that learning in athletic training classes at Timberland University was easier when instructors used scenarios. She explained that she learned best when

> Instructors give us a situation and we have to determine the best way to deal with it. Like they [instructors] tell us that an athlete comes into the training room complaining of pain on the medial side of the knee and we have to figure out how to treat the athlete correctly. They [instructors] do this for all kinds of different situations and for me it is easier than just talking about it.

Most students and instructors considered the use of scenarios an essential component for making education more meaningful. Educational experiences that offer scenarios as a part of learning seem to increase students' motivation to learn as well as increase their ability to integrate athletic training content knowledge. Bobby, a senior athletic training student at Westwood University, and Janet, an instructor at Jackson University, both discussed the practical application of instructional task-based athletic training scenarios. Bobby indicated that in his program, teachers use scenarios in class as a part of student preparation for clinical rotations. In response to a question concerning student education, Bobby said,

> The scenarios that our teachers use in our classes help prepare us for when we have a team on our own. It is good for me. When someone is screaming on the field, it [will not] be that big of a deal if you have talked about that type of situation before.

From an instructor's perspective, Janet indicated,

> I like to take advantage of hands-on stuff and try to bring in as many real-life situations and tell them a lot of my own experiences or the experiences that my colleagues have

> had. So I try to give them scenarios and I ask them what they would do in a specific situation related to an athletic injury. I want to know how they are going to handle the situation.

Athletic training scenarios were also described by Ken, a junior at Lakeside University, as an effective tool for enhancing motivation. When asked what types of things are done in classes to help motivate students to learn, Ken replied,

> The most motivating thing is the handouts of situations, the practical scenarios we get in class. We decide what we think we should do in these situations and can bring that information to class. That motivates me because I know we are going to get into a discussion. Discussions are much more motivating than listening to lectures and opinions. Scenarios are much more helpful.

Another instructional tool frequently described by students and instructors in CAAHEP-accredited athletic training programs was application of more advanced scenarios or case studies. Case studies were integrated into class assignments and required knowledge application of real-life events and actual injuries within athletic training programs. These assignments were consistently identified throughout CAAHEP-accredited athletic training course syllabi and appeared to be more meaningful to students. For example, an evaluation and assessment course at Lakeside University required integration of authentic athletic training experiences. In this class, students were required to complete a case study in which the student and partner select a varsity athlete who has sustained a unique and significant injury (ie, missed more than one practice or game). Each student was required to research the injury and present the case to the class.

A second example of an assignment that integrated authentic athletic training experiences was from a therapeutic modalities course at Timberland University. In this class, students selected an individual who had suffered an acute injury or was receiving ongoing treatment for a chronic condition due to a sport-related injury. Students were required to present both in writing and orally an overview of the use of therapeutic modalities in this case study along with progress and evaluation measures.

Students and instructors from each of the 5 programs indicated that assignments were more meaningful to students when they included a real-life individual or scenario. Other authentic assignments described by instructors in these programs included student mock interviews, designing a training room, and researching a specific topic in athletic training and presenting it. Conversely, these assignments were perceived by students and instructors as having more meaning and application to real athletic training situations.

Examples of instructor facilitation of teaching scenarios for athletic training students were also identified within 2 instructors' assignments from a therapeutic modalities class at Jackson University. The assignment required students to select appropriate modalities and settings for a given clinical scenario and provide sound rationale for the selection. Students were also given a situation in which they were in charge of a clinic and needed to purchase a modality. Students were required to “determine the needs of the clinic, financial ability, etc, and research available

products that meet all the needs." The assignments required students to integrate their knowledge of therapeutic modalities and make appropriate decisions for specific situations in athletic training.

It is evident from the data that experiential learning in the form of instructional scenarios and case studies is an overriding theme and important focus for instructors, students, and course syllabi within these 5 programs. Instructors at each of these universities used scenarios and case studies that were viewed by students as interesting, meaningful, motivating, and helpful in facilitating the learning process.

Authentic Athletic Training Experiences

A second category to emerge from the data was the value of authentic experiences within the 5 athletic training curricula. Students commented on the importance of creating multiple opportunities for them to apply knowledge and skills in a variety of authentic experiences. Data from these programs suggested that observational and hands-on opportunities in students' clinical rotations provided authentic learning experiences that enhanced student education.

Athletic training educational experiences in the programs provided varying levels of authenticity. For example, experiences that were more structured and limited to classrooms and associated laboratories appeared more meaningful than lectures but less authentic than those experiences associated with real-life athletic training situations. Students' interactions with patients with real injuries and rehabilitations were perceived as most helpful.

Hands-On Learning in Athletic Training Education: Most participants agreed that practical, hands-on components of athletic training education provided a more authentic learning experience than classroom lectures. Two juniors and one senior discussed why hands-on learning experiences were an important component of their athletic training educational experiences. Bob, a junior at Manato University, indicated that hands-on learning is the best way to learn athletic training content. He said,

> Our program is designed to try and give as much hands-on experience and as much interaction as possible. There is so much to learn and you have to continually be exposed to it and see it to learn. The classes that I do most poorly in are the ones that are strictly lecture with no hands-on experience.

When asked what it is about hands-on experience that makes it such a good component of athletic training education, Jill, a junior at Timberland University, indicated,

> I learn by doing. When you get to practice things that you learn in classes, it helps it to make sense. You [students] learn to feel what it is like to be the athlete by practicing on each other in the lab classes. I just learn more by getting in there and doing it.

Providing authentic experiences was also described by Webb, a senior at Jackson University, as a part of classroom structure, saying,

> When you are talking about range of motion [in class], then we actually do it. The teachers discuss range of motion and goniometric measurements and then we do it. It helps make the stuff we are learning more related to actual athletic training situations. Once I use a goniometer enough in class, then I feel more comfortable using it in the training room.

The athletic training experiences described above are each integrated into classroom and laboratory structures in which students are able to work with peers and practice specific athletic training skills. Students from each of the programs indicated that providing opportunities to apply knowledge and skills in classrooms and associated laboratories was an important aspect of their education.

Observational Experiences in Athletic Training Education: In addition to hands-on learning, students and instructors also spoke of the importance of observational learning in structured educational practices. Patty, a junior at Lakeside University, explained why observational learning experiences are important to her for learning the content. Patty's explanation exemplified the view of many athletic training students when she said, “I can read it and read it, but I need to see it. I am definitely a visual learner.” Including observational learning as a part of students' educational experiences in athletic training was also supported by Nichole, a junior at Lakeside University. She indicated, “A lot of people complain about the hours you spend in this major, but it is all beneficial. The hours make you better because you are able to see more.” Larry, an instructor at Timberland University, described similar benefits of observational learning by indicating that

> Students do a lot of hours in our program and that is by design. I think the more hours our students get, the better. The more chance they [students] get to see different things in the training room, the better. There is a big difference between talking about it and actually seeing it.

Both students and instructors indicated that hands-on learning and observational learning were important components of students' educational experiences in their programs. Although each provided authentic learning experiences for students, more authentic experiences were described through experiences outside the confines of class and associated laboratories.

Authentic Experiences of Treating Real Athletic Injuries: Students and instructors suggested that athletic training experiences associated with clinical rotations were more meaningful than structured experiences within the classrooms and associated laboratories because knowledge and skills are applied to real athletes. Students' comments reflected high levels of excitement and engagement in learning when participating in a variety of clinical rotations.

Clinical rotations within the 5 CAAHEP-accredited athletic training programs included educational experiences at high schools, sports medicine or physical therapy clinics, and collegiate training rooms and specific sport assignments in university athletics. Both students and instructors indicated that a variety of experiences enhanced their understanding and ability to apply the content knowledge associated with educational competencies and clinical proficiencies. When asked to describe his education at Manato University, Fred, a senior student,

said, “I think the education I had here was realistic. It had some real-world experiences.” Instructors at each university also felt that realistic and diverse clinical experiences were an important component of athletic training student education. Anthony, an instructor of 3 years at Manato University, explained how his program addressed student educational experiences by saying,

> I think the focus changes when they [students] realize that they are not taking therapeutic exercise because it is required but rather they take it because they need to know the material. We [instructors] try to get them [students] to understand that if they don't know this material, it is not that they [students] just didn't pass the class, but rather in the real world when they are treating athletes, they will be deficient.

Students explained that experiences in a variety of clinical settings were more meaningful because of their association to real-life athletic training. Students and instructors in each of the programs suggested that this type of authenticity could not be duplicated in a structured classroom and laboratory environment.

Interview data from students and instructors indicated, however, that not each clinical setting provided the same quality of learning experiences. Students and instructors spoke of having both good and bad clinical experiences throughout their programs. The following quotations represent students' and instructors' perceptions of the effectiveness of clinical experiences in their athletic training programs to address real-life situations. Jeff, an instructor at Westwood, offered his perspective on the educational experiences in his program by indicating,

> It is our goal to give every student a quality educational experience. We try to give students a chance to work in a variety of clinical settings including collegiate athletics and high schools. Students get two semesters on campus and two semesters of clinical experience off campus. It is a much better experience for students when they are the main person and given more responsibility.

Jamie, an athletic training student at Lakeside University, and Alice, an athletic training student at Manato University, discussed how clinical experiences in athletic training influenced their level of confidence. When asked how confident she was in her abilities, Jamie indicated that her sport assignment was an influential factor for self-confidence. She suggested that

> A lot depends on the sport that you work with. I worked with swimming and you just don't get a chance to see that many things. Then I went to football and I saw a lot of different things. I mean you can have all the book knowledge in the world, but until you see it for real, you really don't understand it.

Alice attributed her level of confidence to her internship experiences. In response to a question pertaining to student self-confidence, Alice responded,

> It [my confidence] is getting better. Part of our learning experience here is getting the chance to experience things at different athletic training settings. You get a chance to work at either a high school or a clinic as well as with the sports teams here. You can

> apply whatever you learn at one setting to another. It is all the same stuff, but it is just at another setting.

Clinical rotations seem to provide an extension of the classroom and laboratories to enhance the application of knowledge and skills in a real athletic training situation. Specific clinical rotations were viewed by students and instructors as authentic learning environments. Environments that provided students with autonomy, diversity, and a clear link to the athletic training classes seem to be viewed as most effective.

The benefits of including authentic experiences in student education were identified through students' and teachers' perceptions of teaching and learning and assignments from courses within the athletic training curriculum. Evidence from students' and instructors' interviews and course syllabi suggested that instructors in these 5 programs enhanced students' educational experiences by integrating varying degrees of authentic athletic training experiences into the curriculum. Instructors incorporated authentic experiences by examining and discussing real athletic injuries, using therapeutic modalities as instructional tools, and creating student assignments that were meaningful.

A Nice Place to Learn: Creating a Positive Educational Environment Within Athletic Training Education

A third and final category to emerge from the data was creating a positive educational environment within the programs. Creating a learning environment that fostered adaptive student behaviors, such as confidence in one's abilities, increased motivation to learn, and persistence, appeared to enhance student learning. With regard to students' educational experiences in the programs, both students and teachers identified a variety of factors related to a positive educational environment. These included establishing positive instructor-student and peer relationships.

Positive relationships between instructors and students within athletic training programs appeared to develop slowly over time and in conjunction with student progression through the athletic training curriculum. Data suggested that these relationships were enhanced by a sense of trust and responsibility between instructors and students.

Instructor-Student Relationships: Students commonly described their educational experiences in athletic training as continually applying the knowledge they have learned in a variety of relevant situations. Often students' levels of confidence in these situations were influenced by the relationship they established with their instructors. Tammy, a junior at Lakeside University, indicated that her confidence in athletic training skills and knowledge was enhanced when instructors exhibited trust in her. She explained,

> We [students] get to do everything by ourselves, which makes you realize that you know this stuff. It is not like you have someone [certified athletic trainer/instructor] there all the time; they are just there in case you need them. We get to work by ourselves a lot. I think it helps that we get to travel [with a sports team] by ourselves. So that builds our confidence when they have confidence in us.

Patty explained why her confidence level had increased throughout her educational experiences at Lakeside University. She said,

> In the training room they [staff athletic trainers] will give you more responsibilities and trust you to work the rehab without standing over your shoulder. I got to have a team almost to myself in the fall and that showed that they [staff athletic trainers] had a lot of confidence in me. He [my instructor] told me that with anyone else, he might be worried, but with me he said he was not so worried and that I could handle it. So that was nice. It pretty much reassured me that they were confident in me.

Joanie, a sophomore at Jackson University, indicated that her relationship with her instructors was helpful in learning the material. When asked what was done to help her learn, she indicated that a positive relationship with her instructors was helpful. She also said,

> I think we have good instructors. They [my instructors] are really concerned that we understand the material. They [my instructors] are in this profession because they love what they do and they want us to be successful. Like when he [instructor] is teaching us, he has more than one way to explain a concept. He [instructor] has more than one way to explain it so all students can understand.

When considering the number of interactions between students and instructors throughout athletic training educational experiences, it is not surprising that establishing a strong relationship between students and instructors and creating a family-type atmosphere was deemed very important by both students and instructors. Sally, a student from Jackson University, and Bob, a student from Manato University, both explained how a family-type atmosphere was beneficial in their program. Sally described her learning environment as a positive one as she spoke about the instructor-student relationship at Jackson University. She indicated that teachers from Jackson

> create an environment that is easy to learn in. The instructors here treat us more like peers in the profession instead of like teacher-student. It makes me feel good. When one of my teachers sees me, it is a first-name basis and that makes me feel more comfortable interacting with them and it builds a certain rapport with instructors and the students that I don't think you get at other programs.

When asked what makes athletic training education at Manato University so special, Bob indicated that it has to do with the instructors and creating a positive learning environment. Bob said, “We have a diverse staff with different personalities and backgrounds and I appreciate that and I like it.” He also stated that all members of the program, including the program director, graduate assistants, athletic trainers, and students, work together as a “cohesive unit” to make the program successful. Janice, an instructor at Lakeland University, identified personal relationships between students and instructors as a useful strategy for influencing student motivation. She said,

> It is easier for me to motivate our athletic training students because I know them [students] and I am around them [students] a lot. I know their personalities and I know

> when they are getting stressed out or when they need to laugh or be ridden a little bit or given a hard time about something.

Peer Relationships: In addition to positive instructor-student relationships, students and instructors mentioned the importance of creating positive relationships among students within the program. Students and instructors identified positive peer relationships as an important component in athletic training education programs for enhancing student learning. When asked to describe his interactions with students, Larry at Timberland suggested that establishing a good relationship with his students was an important part of his job. He said,

> When I see students in their clinical rotations, [it] gives me the chance to interact with them on a more informal basis and more of a one-on-one basis. I think it is important to know the students and know what they want. I take a lot of pride in getting my students into graduate school and getting them jobs and getting them to pass the certification exam.

Steve, a sophomore at Lakeside University, explained his relationship with other students from an underclassman's perspective. He indicated that “the most experience that you get in the training room is working with upper-level students and just going over everything. It helps to be able to ask a buddy how to do a Lachman's test when you are a freshman.” Bobby, a senior student, suggested that the structure of the program at Westwood University contributed to establishing positive student relationships. He said,

> Our sports are assigned so that you get to work with an upper-level student. That experience helped me to realize that I knew more than I thought I did. When I was a lower-level student, I worked with a student [upper level] that would often times check with others when she didn't know something. I learned a lot from working with her and watching how she reacted to certain situations.

Yvonne, a senior at Lakeside University, explained that when she was responsible for peer teaching younger students, the entire process enhanced her own knowledge and understanding. She suggested that a mentor program was a good idea because

> Students would come and ask me a question about something that I had not seen since my sophomore year, and I would have to go back and review it. That is good for me because I am preparing for the NATABOC certification exam in a few months, so I get to review those special tests and everything else.

The students from each program suggested that creating positive relationships is not always structured directly into the curriculum but rather expected as a part of a quality athletic training program. Fred provided an upperclassman's perspective on peer relationships at Manato University. He suggested that “it is our duty to help the younger people because I learned a lot from the seniors ahead of me.” Sally described working relationships between upper- and lower-level students as an expected component of her education as well as something that makes the program at Jackson University special. She indicated that

> The upperclassmen that worked here all remember what helped them out when they were going through the same thing [clinical rotations], and they are willing to share their knowledge. That is one thing that I really love about this program is that I have not really run into people with a selfish attitude.

The influence of positive peer and instructor relationships in athletic training education was identified by both students and instructors as an important component of educational experiences in the programs. Increasing the level of student autonomy in clinical experiences was described by students and instructors as an effective practice for enhancing student confidence in their abilities. Students and instructors described trust in terms of its association with the level of responsibility given to students. For example, instructors' trust in students was associated with the level of clinical responsibilities experienced by each student. When students were given increased independence in their clinical settings, students described the educational experiences as having a positive influence on their self-confidence.

DISCUSSION

Three categories (use of scenarios, authentic experiences, a positive educational environment) emerged from the data as helpful tools for athletic training educators, clinical supervisors, and program directors. Students and instructors identified meaningful educational practices that assist students in understanding and applying concepts in athletic training. These 3 useful educational tools presented in the previous section appear to reflect a few broad conceptual themes (self-determination theory and self-efficacy theory) that seem to organize and facilitate athletic training education in this study. Each conceptual theme may provide insight and understanding for athletic training educators seeking more effective ways to educate students. When integrated into an effective curriculum, each theme contributes to a learning process in which student autonomy and confidence become essential vehicles through which students learn.

Encourage Student Autonomy

Experiential learning in athletic training offers students a chance to become actively involved in their learning experiences. The clinical experiences described by students and instructors as most authentic and meaningful were those that provided students with increased autonomy and control. A major component of self-determination theory is active student involvement, which has a long history in the achievement motivation literature.[18–20] Research on self-determination has suggested that promoting an educational environment with a greater sense of choice, more self-initiated behavior, and greater responsibility has been identified as an important developmental goal for enhancing student outcomes such as creativity, cognitive flexibility, and self-esteem.[21–24] Deci et al[2] offered specific pedagogic strategies for enhancing students' self-determination and their sense of autonomy. The strategies outlined by Deci et al[2] (offering choices, minimizing controls, acknowledging feelings, and making information readily available) are reflected in the responses from athletic training students and instructors.

Students and instructors indicated that athletic training laboratories and practical situations in which students become involved created a better learning environment than traditional classroom lectures. Students and instructors both indicated that a combination of lectures associated with some type of experiential learning was more authentic and meaningful. A traditional classroom environment characterized by teacher-directed lecture provides students with little responsibility

and autonomy in their learning. It appears that effective instructors in these athletic training programs created instructional tasks and environments that incorporate student control. For example, the use of scenarios in athletic training education provided students with the opportunity to be a part of the decision-making process in particular learning tasks. Challenging scenarios requiring active participation and collaboration with others to solve a complex problem are consistent with a task-involved goal perspective. All athletic training educators should make an effort to provide educational opportunities that encourage student choice and autonomy.

Enhance Student Confidence

Students from all 5 programs spoke extensively regarding experiences in their education that influenced their level of confidence and motivation to learn. Student confidence was an issue addressed throughout students' educational experiences in the programs. Increased levels of student confidence were associated with student autonomy, authenticity, and positive relationships. Research on self-efficacy theory suggests that educators are able to create instructional tasks that foster self-efficacy by building on students' prior knowledge and arranging for students to see peers successfully perform certain tasks.[3,25] Bandura[3] also indicated that the level of a student's self-efficacy influences the choice of activities, effort, and persistence. It was evident from this study that students felt more confident and motivated to learn when they were provided with experiential learning and were able to observe their peers performing specific skills and tasks.

Pedagogic practices that incorporate self-efficacy theory seemed to be reflected in the perceptions of athletic training students and instructors. For example, athletic training students spoke positively about instructors who provided ample practice time to learn skills and authentic situations to integrate their knowledge. Students also indicated that instructors who exhibited trust in them and provided them with increased independence enhanced their self-confidence. The trust and independence provided to students by their clinical supervisors were most often associated with their level of involvement with a sports team. Our findings suggest that students' confidence can be enhanced when instructors design teaching practices that build upon their prior knowledge in a meaningful way, foster student autonomy and decision making, and encourage positive peer and instructor relationships. Simply possessing certain skills does not ensure that students will be motivated or able to apply them in a practical situation. The ability of an instructor to be able to identify pedagogic strategies that seem to enhance student self-confidence and motivation is an invaluable tool for enhancing the educational experiences of athletic training students.

RECOMMENDATIONS

We hope this research study provides useful pedagogic tools and encourages athletic training educators to examine how learning is fostered within their own classrooms, clinical experiences, and programs. Reform efforts in other practitioner-based disciplines (ie, medical education) have already provided research that examines the relationship between students' educational experiences and effective teaching and learning practices.[26–29] We recommend that all athletic training educators reflect on their current pedagogic practices and examine what students and instructors at other CAAHEP-accredited programs view as helpful. The pedagogic practices identified in this study are consistent with sound theories of achievement motivation identified in the literature and, therefore, offer athletic training educators an opportunity to critique and

possibly enhance their own athletic training education program. We hope this study will initiate both reflection and future discourse on educational experiences in CAAHEP-accredited athletic training programs.

We also hope this paper serves to generate discussion about qualitative inquiry and its usefulness in athletic training education. Qualitative inquiry in athletic training research is seldom used; however, the development of the body of knowledge within athletic training education warrants the use of alternative methods of analysis to answer many questions.[30] Research in athletic training can be enhanced by including analysis of students' and instructors' thoughts and perceptions that often cannot be identified on a survey or questionnaire as well as from an in-depth interview. Pitney and Parker[30] outlined the possibilities of qualitative inquiry for athletic training research and identified how such methods can benefit the athletic training profession.

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