Journal of Athletic Training 2009;44(4):378–390

www.nata.org/jat

Novice to Expert Practice via Postprofessional Athletic Training Education: A Grounded Theory

Peter J. Neibert, PhD, ATC

Xavier University, Cincinnati, OH

Objective: To discover the theoretic constructs that confirm, disconfirm, or extend the principles and their applications appropriate for National Athletic Trainers' Association (NATA)–accredited postprofessional athletic training education programs.

Design: Interviews at the 2003 NATA Annual Meeting & Clinical Symposia.

Setting: Qualitative study using grounded theory procedures.

Patients and Other Participants: Thirteen interviews were conducted with postprofessional graduates. Participants were purposefully selected based on theoretic sampling and availability.

Data Collection and Analysis: The transcribed interviews were analyzed using open coding, axial coding, and selective coding procedures. Member checks, reflective journaling, and triangulation were used to ensure trustworthiness.

Results: The participants' comments confirmed and extended the current principles of postprofessional athletic training education programs and offered additional suggestions for more effective practical applications.

Conclusions: The emergence of this central category of *novice to expert practice* is a paramount finding. The tightly woven fabric of the 10 processes, when interlaced with one another, provides a strong tapestry supporting novice to expert practice via postprofessional athletic training education. The emergence of this theoretic position pushes postprofessional graduate athletic training education forward to the future for further investigation into the theoretic constructs of novice to expert practice.

Key Words: athletic trainers, education, qualitative research

Key Points

- Each of the principles or processes appropriate for postprofessional athletic training education programs was interrelated and interconnected.
- The core category of *novice to expert practice* was identified.

In recent years, experts in the field of athletic training have completed a comprehensive investigation of the field. Increased attention has been directed toward assessing and improving academic quality in higher education and the educational process for athletic trainers. Most of the attention in the last 10 years has been given to the reform of entry-level professional education. The National Athletic Trainers' Association (NATA) Education Task Force was created to examine athletic training education on the ''macro'' level.[1] Since 1969, the NATA has provided assistance with curriculum development and has been responsible for approving accredited postprofessional athletic training education programs.[2] In recent years, graduates of professional athletic training programs have been encouraged to continue their development by attending an accredited postprofessional athletic training program.[3] Approximately 6% of the graduates of Commission on Accredited Athletic Training Education (CAATE)–accredited programs further their education by matriculating into an NATA-accredited postprofessional athletic training program.[3] Those responsible for advancing educational endeavors for athletic trainers believe that the future of the profession hinges on the pursuing of advanced degrees in the field of athletic training.[3]

In 1997, the Post-Professional Education Council (which was originally called the Graduate Education Committee) was ''charged with evaluating and revising the graduate standards and guidelines.''[2] In 2002, the committee published *Standards and Guidelines for Post-Certification Graduate Athletic Training Education Programs*.[2] In this document, the committee stated, ''Graduate education is characterized by advanced systematic study and experience—advanced in knowledge, understanding, scholarly competence, inquiry, and discovery.''[2] In Section II of this document, the ''Principles and Characteristics of Graduate Education'' were defined as follows[2,4]:

> **Mastery of Subject Matter.** Graduate education facilitates mastery over the content and skills of the discipline at a level appropriate to the degree sought.
> **Critical Thinking.** Graduate education develops and refines critical thinking skills including thorough knowledge of the assumptions of the discipline and understanding of viable assumptions.
> **Theoretical Understanding.** Graduate education provides an understanding of the theoretical bases of the field of study by grounding application and performance in theory.
> **Proficiency in Research and/or Creative Activities.** Graduate education develops proficiencies that advance the knowledge and activities of the discipline. These proficiencies include good writing skills as well as the

Table 1. Interview Protocol

1. Based on your experience as a postprofessional graduate student, what does this statement mean to you? ''Graduate education facilitates mastery over the content and skills of the discipline at a level appropriate to the degree sought.''
2. Based on your experience as a postprofessional graduate student, what does this statement mean to you? ''Graduate education develops and refines critical thinking skills, including a thorough knowledge of the assumptions of the discipline and an understanding of viable alternative assumptions.''
3. Based on your experience as a postprofessional graduate student, what does this statement mean to you? ''Graduate education provides an understanding of the theoretical bases of the field of study by grounding application and performance in theory.''
4. Based on your experience as a postprofessional graduate student, what does this statement mean to you? ''Graduate education develops proficiencies that advance the knowledge and activities of the discipline. These proficiencies include good writing skills as well as the ability to present original insights and creative expressions.''
5. Based on your experience as a postprofessional graduate student, what does this statement mean to you? ''Graduate education instills responsibility to return the special benefits of graduate study to the larger community.''
6. Based on your experience as a postprofessional graduate student, what does this statement mean to you? ''Graduate education provides intellectually and culturally rich encounters within the discipline. Study and inquiry are conducted in a context-sensitive environment.''
7. Based on your experience as a postprofessional graduate student, are there other principles appropriate to postprofessional graduate athletic training programs?

ability to present original insights and creative expressions.

Service Orientation. Graduate education instills responsibility to return the special benefits of graduate study to the larger community.

Diverse Representation of Perspectives. Graduate education provides for intellectually and culturally rich encounters within the discipline. Study and inquiry are conducted in a context sensitive to ethnic and cultural diversity.

Although much attention has been paid to undergraduate educational research and reform, research related to accredited postprofessional graduate programs is lacking. Therefore, in this study I asked the following questions: First, are the principles published by the Post-Professional Education Council the principles postprofessional programs should be addressing? If so, are these the only principles appropriate to postprofessional programs? Thus, the purpose was to discover the essential elements of postprofessional athletic training education programs and the theoretic constructs that define them. The *Standards and Guidelines*[2] were used as a benchmark and comparative tool for the focus of my research. The research was guided by the ''grand tour'' or the following overarching question: What are the theoretic constructs that confirm, disconfirm, or extend the principles,[2] and their applications, appropriate for postprofessional athletic training education programs?

METHODS

For this research, I identified qualitative methods, specifically grounded theory, as appropriate, because they are particularly suited to uncovering the meanings people assign to their experiences.[5] It is an attempt to understand the nature of that particular setting: what it means for participants to be in that setting, what their lives are like, and what the world looks like for them in that particular time.[6] Understanding the meanings the participants assign to their experiences will help me to identify, both individually and collectively, the theoretic constructs that confirm, disconfirm, or extend the principles,[2] and their applications, appropriate for postprofessional graduate athletic training education programs. These meanings could provide more clarity in understanding the essential elements of a postprofessional athletic training program.

Participant Selection

After the study was approved by the University of Idaho Human Assurance Committee, the participants were purposely selected by the current program directors of 13 NATA-accredited postprofessional athletic training programs according to the following delimiting criteria: The participant must have been certified by the Board of Certification and must have been working as a professional for 3 years after graduation from a postprofessional program. Because the participants were scattered through the United States, I chose a convenience sample of those participants who were able to attend the NATA Annual Meeting & Clinical Symposia in St Louis, Missouri, in June 2003. This was a departure from the traditional grounded theory methods of continuing to interview participants until the data reached a point of saturation.

The average age of the participants was 31 years, with a range of 27 to 34 years. Volunteers averaged 6 years of experience since graduation from a postprofessional program, with a range of 3 to 9 years. The 13 participants comprised 11 men and 2 women. Nine attended CAATE-accredited athletic training programs, and the remaining 4 attended undergraduate internship programs before matriculating through an accredited postprofessional education program. Each volunteer was sent a letter of consent and was asked to choose a pseudonym to protect his or her anonymity. Once all participants were chosen, I sent a copy of the interview protocol (Table 1) to each one.

Development of Interview Protocol

Section II of the *Standards and Guidelines*[2] provided 6 principles of postprofessional athletic training education. I chose these 6 statements as concepts around which the questioning would be centered. Before the questioning, the participants were not given any background information regarding the *Standards and Guidelines*.[2]

I posed the following question: Based on your experience as a postprofessional student, what does this statement mean to you? I then read the statement corresponding with each of the principles presented in the *Standards and*

Guidelines.[2] Additional follow-up questions were asked as needed. I proceeded to the next question until all 6 principles had been addressed. I concluded the questioning by asking 1 final question of the participant: ''Are there other principles appropriate to postprofessional athletic training programs?'' Once the interview protocol (Table 1) was developed, I presented it for review to a peer with more than 25 years of qualitative research experience. The reviewer evaluated the interview protocol for question clarity and non-leading questions to control for bias questioning.

Pilot Study

Once the 13 volunteers were selected for the study, I chose the 2 who were geographically closest to Idaho to take part in a pilot study. Conducting this pilot study allowed me to see whether the interview questions were appropriate and whether any adjustments needed to be made to the interview protocol.

I conducted these interviews in May 2003 in settings chosen by the participants. The interviews were captured via audio recording. Once the interviews were transcribed, I analyzed the data using grounding theory analytic techniques. I did not make any changes based upon the results generated by the pilot study, and these interviews were included in the data for the entire study.

Data Collection and Analysis

In qualitative design, the research is, by nature, interpretative. The investigator either is or must become a part of the human ecology under examination. Because of the investigator's involvement in the ecology, his or her biases, values, and judgment become entwined in the data being generated. Merriam[6] stated, ''Because the primary instrument in qualitative research is human, all observations and analyses are filtered through one's world view, one's values, and one's perspective,'' and Merriam suggested that the best cure for biases is to be aware that they exist. As the researcher, my insight, knowledge, and sensitivity have been developed through the following experiences. First, as a certified athletic trainer since 1997, I have had the opportunity to work with both athletic trainers who have attended accredited postprofessional programs and those who have pursued graduate education in a related field. My experience has been that those who attended an accredited postprofessional program were more sound clinicians than were those who pursued a related field of graduate study. Second, I attended a postprofessional athletic training program. My experience was mixed; I received advanced education and training, but my program lacked the strong research experiences that one would expect of an accredited postprofessional program. Entering this study, I believed that the *Standards and Guidelines*[2] were quite vague and lacked substance. I also believed that by investigating this topic qualitatively, I could gain more understanding from the experiences of graduates from accredited postprofessional programs.

Interviews were conducted at the NATA Annual Meeting & Clinical Symposia in St Louis, Missouri, in June 2003. Each participant was interviewed in depth using an interview protocol (Table 1), and each interview was audio recorded.

Inductive analysis was used following grounded theory procedures. Grounded theory is a research method whereby the researcher generates an abstract analytical schema of a phenomenon (a theory that explains some action, interaction, or process) using 3 analytic phases: open coding, axial coding (reflective coding), and selective coding.

Open coding is the process of breaking down, examining, comparing, conceptualizing, and categorizing data. After transcribing each interview, I began the process of breaking down the interview. Line by line, I examined and categorized the participant's words. Each category was assigned words that the participant had offered in the interview responses. The entire open coding process yielded 101 open codes. I eventually collapsed the 101 to a mere 10 through the constant-comparative process, relating concepts and categories.

Axial coding is a process by which the data are reassembled in new ways by making connections between and among categories. During the axial coding process, I used 2 tools: the conditional relationship guide and the reflective coding matrix.[7] In order to understand the relational dynamics of the 10 primary categories, I developed a conditional relationship guide for this study (Table 2). I created the guide by asking each of the Scott[7] investigative questions in each of the 10 categories, in a purposeful manner, to discover the relationships among the categories. Beginning with the *Theoretic Understanding* category, the format is designed to ask and answer each relational question about the category named in the far-left column.

- *What* is [category]? (Using the informant's words helps avoid bias.)
- *When* does [the category] occur? (Using ''during …'' helps form the answer.)
- *Where* does [the category] occur? (Using ''in …'' helps form the answer.)
- *Why* does [the category] occur? (Using ''because …'' helps form the answer.)
- *How* does [the category] occur? (Using ''by …'' helps form the answer.)
- *With what consequence* does [the category] occur or is [the category] understood?

As the conditional relationship guide was completed, I was able to move the newly discovered connections to the higher abstraction of the reflective coding matrix[8] (Table 3), where the concepts could be understood in greater detail.

A primary objective of constructing a reflective coding matrix as a relational hierarchy is to contextualize the core category, the central phenomenon to which all other major and minor categories relate. Once a core category is determined, all other categories become subcategories and core category descriptors: the properties, processes, dimensions, contexts, and modes for understanding the consequences. Identification of the reflective coding matrix descriptors begins and is contingent upon the relationships established by the conditional relationship guide.[7]

Ten main categories emerged from the data. I then examined the data and the matrix thus far, identifying the core category as *novice to expert practice*.

Table 2. Conditional Relationship Guide

Category	What?	When?	Where?	Why?	How?	With What Consequence?
Theoretic understanding	Deeper understanding, theoretic basis, application grounded in theory	In-class discussions, classrooms or laboratories, clinical rotations	Classroom discussion groups, practical laboratories, clinical rotations	Make good clinical decisions, connect the dots together, ground clinical practice	Practical application in clinical rotations, critical thinking	Application grounded in theory
Critical thinking	Think outside the box, independent thinkers, justified thought process, questioning practice, not taking things at face value, developing personal opinions, higher-order thinking, putting your stamp on it	Discussion of case studies, clinical decisions, conducting research, challenging situations, group projects	Classroom, clinical rotations, research process, peer interactions, application of theory, mastery of skill	Make good clinical decisions, gain mastery of subject matter, a deeper understanding, develops clinicians versus technicians, improves quality of care, creates professionals, fosters advancement of profession, connects current with past knowledge, develops original thoughts and ideas	Challenging their own assumptions, continually challenging clinical assumptions, working through scenarios and case studies, grounding application in theory, doing original research, writing	Choice of action
Diverse representation of perspectives	Diverse classmates and instructors, diverse ideas	In-class discussions, clinical rotations	Classroom, clinical rotations	Foster theoretic debate, myriad of knowledge	Expanded higher-order thinking	Grounding practice
Proficiency in research	Developing scholarship, present original ideas, writing skills, creative expression	Clinical decision making, graduate education research experience, presentation of original ideas	Formal research projects, critical thinking, clinical rotations, national and state conferences, interpersonal communication	Desire good clinical decisions, facilitate mastery of subject matter, improve communication	Presenting original insights, developing scholarship	Advances knowledge of discipline, deepens understanding
Service orientation	Serve the needs of others, sharing of ideas with larger community, advancing profession	Everyday professional life	State and national committees, clinical sites, National Athletic Trainers' Association conferences, communities	Being human, advances the profession	Getting involved	Professional commitment
Mastery of subject matter	Command of information, more depth and breadth, more experience	Clinical rotations, clinical decision making	In-class scenarios and case studies, clinical rotation settings, research	Clinical decision making/ critical thinking facilitates experiential knowledge	Refining critical thinking and therefore developing mastery, incorporating different disciplines	Precision in thought and action
Professionalism	Building respect for oneself and the profession	Interpersonal communication, writing, presentation of ideas, clinical interactions	Personal, professional life	Necessary for advancement of person and profession	Representing oneself as an allied health professional	Respect of community, patients, peers, and other professionals
Low-pressure, low-consequence environment	Safe learning environment	Allowed to make mistakes	Clinical environment	Encouraged and allowed by faculty	Creating a true learning atmosphere	Foster learning, growth, and experience
Practical career application	Job seeking, contracts, salaries, benefits, work hours, time	While in school	Job seeking and negotiating	Prepares them for the real working world	Understanding contracts, negotiating adequate pay for services	Professional awareness
Specialization	Each program has its own niche, experts in all the areas, special certifications	Graduate didactic curriculum	Finding a job	Develops experts in the field	Professional need, finding niche	Developing experts

Table 3. Reflective Coding Matrix

Core Category			Novice to Expert Practice		
Properties	Clinical application grounded	Choice of action	Advance knowledge of the discipline and deepen understanding	Myriad knowledge	Professional commitment
Process	Building theoretic understanding	Fostering critical thinking	Gaining proficiency in research	Diverse representation of perspectives	Developing service orientation
Dimensions	Deeper understanding, theoretic basis, connects the dots	Thinking outside the box, independent thinkers, justified thought process, questioning practice, putting your stamp on it, connecting current knowledge with past	Developing scholarship, creative expression, presenting and developing original ideas	Diverse classmates and faculty, diverse ways of doing things, diverse ideas	Serving on committees, sharing of ideas with larger community, advancing the profession
Context	Critical thinking	Challenging situations	Presenting, researching, and writing	Academic and clinical environment	Everyday professional life
Strategies for understanding	Connecting theory with clinical practice	Sound clinical decision making	Experience	Exposure	Giving back
Properties	Precision in thought and action	Respect of community, peers, and other professionals	Foster learning growth and experience	Professional awareness	Development of experts
Process	Obtaining mastery of subject matter	Building professionalism	Low-pressure, low-consequence environment	Practical career application	Specialization
Dimensions	Command of information, more depth and breadth, more experience, incorporating different disciplines	Building respect for oneself and from others, interpersonal skills, representing oneself as an allied health professional	Safe learning environment, allowed to make mistakes, allowed to be creative, encouraged and fostered by faculty	Job seeking, employment contracts, salary negotiation, time management skills	Special certifications, programs have their own niche
Context	Clinical decision making	Interaction with public, peers, and other medical professionals	Academic or clinical environment	Graduate academic instruction	Individual institutions
Strategies for understanding	Mastery through refined thought and application	Necessary for advancement of the profession	Creating a true learning atmosphere	Real working world preparation	Advances the profession, defines profession

The last phase of the analytic process is selective coding, which takes place when the researcher integrates all the interpretive work done over the course of the research. This is called *writing the story line*,[9] in which the researcher must first ask, ''What seems to be going on here?''[10] At this level, grounded theory tools guided me iteratively toward a commitment to a specific story line that explained the theoretic constructs that confirmed and extended the principles and their applications appropriate to accredited postprofessional athletic training education programs. The relationships of the story line were validated with the data and in the field with each participant. Finally, patterns emerged that provided specificity for conditions and the validation of relationships that grounded a theoretic position.

Establishing Trustworthiness

To establish and ensure the trustworthiness of the data, the following 4 activities were used: peer review, triangulation, member checks, and a reflective journal. The interview transcripts, coding sheets, and interpretations were presented to a peer with more than 25 years of qualitative research experience. After reviewing the data and findings, the peer determined that the process was conducted in an appropriate and systematic manner. Thus, intercoder reliability was achieved. Trustworthiness was established through the process of triangulation, whereby data were collected and compared with other data. During the coding process, I constantly compared the categories that emerged with the actual data (interviewees' own words) to establish credibility in the coding process. Once the story line was complete, it was sent to each participant via e-mail for verification. Through these member checks, all participants verified that the story line accurately reflected their individual experiences and meanings.

My daily reflective journal was valuable during the analysis and writing process. Lincoln and Guba[10] explained that a reflexive journal is ''a kind of diary in which the investigator on a daily basis or as needed, records a variety of information about self and method,'' and they suggested including the following items in the journal: (1) the daily schedule and logistics of the study, (2) a personal diary that provides the opportunity for catharsis and reflection upon what is happening in terms of one's own values and interests, and (3) a methodologic log in which decisions and accompanying rationales are recorded. In thinking critically about what the participants were saying, my ideas were captured. I had many epiphanies, which made the research rewarding and exciting. One such example is the emergence of the core category. As I began to construct the reflective coding matrix, I alternated between the inductive and deductive modes. As I continued to ask ''What seems to be going on here?''[7] and ''What is really happening?''[7] the core category emerged through this process of reflection.

RESULTS

The concepts identified during the open coding were organized into 10 categories that spoke to the essential elements of an accredited postprofessional athletic training education program. The core category, *novice to expert practice*, emerged along with its theoretic constructs. The story line that follows is interlaced and interconnected with all 13 of the participants' voices. As stated previously, pseudonyms were assigned to the participants to protect their anonymity. The interlacings of the story are connected via the reflective coding matrix (Table 3), moving left to right and beginning with *theoretic understanding*. Moving across the matrix, I will interlace and connect the processes with the previous processes, the connections becoming more and more strongly interlaced through the final process of s*pecialization*. Each process of the story is displayed below as a subsection. (I have replaced the participants' uses of ''graduate'' with ''accredited postprofessional'' to improve clarity and alignment with the type of program completed.)

Theoretic Understanding Fostered Through Critical Thinking

The participants identified *theoretic understanding* as an essential element to postprofessional athletic training education. They agreed that accredited postprofessional education helps the student to better understand the science behind what they do as professionals. Maverick stated, ''Theoretical understanding has to be there; this is what I would deem as part of graduate education. But [it's important] to know … the science behind it, why you'd use it, when you should use it, is it applicable, … proven to be useful or not.'' This theoretic understanding was fostered through critical thinking. Ted described a ''deeper understanding'':

> It helps to give you a deeper understanding by seeing it in a different way, present[ed]… by different texts and different professors. Being able to critically pull apart ideas and put them back together cognitively. This critical thought process gives a deep understanding of the theory and how it grounds your practice.

This deeper understanding provided a theoretic basis for practice. Bob expanded on this idea of connecting theory with practice: ''To me, it … backs up the fact that you need to have some theory behind what you are doing. You can't … go out and do something just for the sake of doing it and [then try to] connect the dots together … [from] theory … [to] clinical practice.''

Critical Thinking During Challenging Situations

Participants shared how they gained theoretic understanding through critical thinking as students of accredited postprofessional programs, developing the skill of critical thinking in the classroom and ''hammering it down'' in the clinical experiences. Bob illustrated this concept:

> Academically, … you get those viable alternative assumptions, the differential diagnosis, those kinds of things. You get introduced to those and work through some of those in an academic setting, and then you apply them clinically … you are really critically thinking clinically, you have to…. So all the critical thinking skills are perhaps developed academically … they are really hammered down clinically.

Steve explained that critical thinking is a process developed from experience. Critical thinking, as defined

by the Foundation of Critical Thinking,[11] is, "the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action." As we gain this valuable experience in the classroom and then test it clinically, we improve upon this process, which depends heavily upon exposure and experience. Steve stated:

> I really think critical thinking is not something that you can develop overnight. It is something that takes time. Accredited postprofessional education can facilitate that [with] … colleagues and peers throughout the education program and us[e] … past experiences to develop those critical thinking skills.

Raul's perception of his experiences links the concepts of theoretic understanding and critical thinking to the ability of the clinician to make sound decisions. Challenging clinical situations tied with theoretic understanding and critical thinking afforded him the ability to make sound clinical decisions. Raul explained:

> You need to pigeonhole all application and performance in theory in our business. You must always ask why this or that occurs. Now why do women tear their ACL [anterior cruciate ligament]; are they more susceptible than males? Well, I [might] theorize … Q-angles, … valgus stress, … estrogen levels, women are menstruating, they have higher estrogen levels, so are they more susceptible. Okay, well what am I going to do about that?

Chuck described the linking of theoretic understanding with critical thinking:

> If you have an understanding of the theory, then you can formulate the critical thinking part of it. …from there, [you can] break it down and … understand the different applications of that theory…. in theory this works, [but] how well does it work in practice? … you have to be able critically to understand those things.

Chuck continued by explaining that being able to critically think through the theory helps to ground clinical practice, thereby justifying clinical decision making:

> You have to understand the theory, healing times and procedures and … that side of it. You have to understand the theory, so you can put it together and come out with an applicable program … this could happen, how [would] I react … you have to have an understanding and [the] knowledge to be able to put it all together.

Gaining Proficiency in Research

The participants felt that research experience was necessary because it fosters critical thinking. Mike discussed this idea of questioning practice and critically thinking about clinical decisions:

> I think that … research experience is the thing that fosters critical thinking, … further investigation into a specific area, and starts to lay the ground work, … [so that you] come up with a question and then answer it. That … approach fosters critical thinking and … [asking], "what am I doing? Is it right?"

Along with theoretic understanding and the ability to think critically, gaining proficiency in research afforded the participants the opportunity to present original ideas and develop writing skills. Steve stated that undergraduate education is the time for learning skills and developing; in graduate education, we begin to question practice and present some of our own ideas and start to advance the profession:

> I really think that this is another key issue with graduate education, … that it does go above and beyond undergraduate education. Where maybe the focus of undergrad "is" the learning [and] the development and proficiency of certain skills and knowledge, graduate education should continue with that but … also expand … and get into different topics, whether it's research, … developing writing skills, developing grant writing skills, developing scholarship skills that a person may need … [to] further … education, or even going on to the work force and advancing the profession.

Jim's experience with this process mirrored Steve's. As we gain proficiency in research, we are able to advance the knowledge of the discipline. Jim stated, "Your ability to have your own thoughts, not using someone else's thoughts … The ability to do research, the ability to advance a thought … and carry it out, write about it, publish it, is what advances the profession."Pursuing scholarship, expressing oneself creatively, and developing original ideas were paramount in this process. The participants agreed that this process deepened their understanding and helped to advance the profession, which in turn gave them richer experiences. As Chuck noted, "Without … advancing in knowledge, then the profession can't advance. So as long as the profession is gaining knowledge and working on its own theories and research, that can add to the greater knowledge of the medical community."

Bob shared the same sentiment when he stated, "To be able to … pass that knowledge on, to share that with other people, so that we can keep educating each other, as a group, get stronger in what we do and advance the profession." Michelle concluded by saying, "Research and creativity activities are key, I think, for success in our field."

Diverse Representation of Perspectives in the Learning Environment

Each participant agreed that a diverse representation of classmate and faculty perspectives in the academic and clinical learning environment provided a myriad of knowledge and experiences. Bob shared this sentiment when he talked about being exposed to diverse ideas: "A diverse set of ideas and a diverse way of doing things…. Getting into some of the alternative medicines, those kinds of things…. Being able to gather a lot of knowledge and

just look at a lot of different ways of doing things.'' Chuck agreed, but his comments emphasized the issue of diversity among his fellow classmates, which fostered a theoretic debate about practice:

> Diverse, not only in ethnic background [but also] diverse in geographic location across the United States. … I don't think we had any foreign students but [the program was] just culturally diverse like that. That brought in different … coverage experiences, different techniques, different things that we had learned. [We had] some heated debate about theory and practicality. Intellectually, it was definitely an eye opener to see the way it is done in Southern California versus the way it was done in Chicago; … to have all that come together out in Arizona was unique, to say the least. It caused some heated discussions; we all learned something from it.

Interestingly, Mike's perception of his experience highlighted another element of diversity when he talked about learning in a context-sensitive environment. He cited being taught pharmacology by a physician and then shadowing the physician in his practice with the focus on the use of pharmacologic agents:

> Our pharmacology course was half the time in classroom, half your time you were shadowing the physician, learning about the application of pharmacology from the clinician's point of view. This context helped us understand the concepts more fully that were taught in class.

Maverick explained that his professor went out of his way to challenge the students by presenting diverse ideas and trying to help the students to see different ways of doing things. He stated that this helps the student to grow and expand higher-order thinking skills.

> I think he [my professor] went out of his way a lot of times to present original ideas and to really try to get those creative juices flowing … [to] challenge … us and try to [encourage us to] expand upon ideas with our own minds … I think it is important for people that are engaged in this process … this higher order of thinking, so to speak, … to associate yourself with people with other views, people of different backgrounds, … [who] have other experiences than you.

Yankee shared the same sentiment about having a diverse faculty with diverse experiences. He added:

> When I was there, we had a very, very diverse faculty, number one, which was great. They had all kinds of different experiences from working as a PT [physical therapist] in a PT [physical therapy] clinic … [to] college athletic trainers. They were very diverse, so their teaching was very diverse, which was good. Their experiences that they shared with us were diverse.

Jim expanded upon the concept of diversity in perspectives when he described how his program did a great job of integrating different disciplines into the graduate curriculum. Jim explained:

> In grad school, it was great for us because … we had a number of programs there: we had PA [physician assistant], we had OT [occupational therapy], we had PT, and we had multiple programs. So we had many classes that were intertwined, … [and] we had many that were on our own. [For example,] we had people come over and present … pathological disease from the PA program, the abdomen. We had some of the OT professors come over and talk about the intrinsics of the hand and hand injuries and things like that. We were able to intermingle … instead of saying ''…we are athletic trainers, and this how we do things, and they are PTs, and this is how they do things.'' I think the ability to share and absorb from other disciplines is important.

Service Orientation in Everyday Professional Life

Each participant believed service orientation to be important and essential to students of accredited postprofessional programs. Being exposed to this concept at the graduate level fostered within students the need to ''give back to the larger community.'' The concept of using our talents as clinicians to serve the needs of others was central to this concept. Raul noted: ''This is great and maybe this doesn't speak to the profession so much as it speaks to just being a decent human being. We are all here to help each other, and especially in athletic training, we are such a service-oriented career, you are basically there to serve the needs of others.''

Bob described a similar sentiment, that service orientation found its relevance in his everyday professional life:

> Service in my mind is doing something, taking your skills, talents, whatever, and doing something to better another group, organization. … In athletic training, I would probably say that our service is taking our skills, [our] talents as health care professionals, and providing those services for the athletes we work with.

Chuck's perception emphasizes a different aspect of service orientation, that this orientation to service is exhibited through service on committees and sharing of ideas with the larger community: ''Part of that (service orientation) is giving back to the profession … to make sure that the Education Foundation is sponsored, … the NATA functions are staffed … they give back, not only with finances, but with time and effort.''

This service orientation advances the profession and fosters a professional commitment and a desire to give back professionally. Chuck explained, ''Again, people coming out of accredited postprofessional schools tend to be … well, they should be the leaders of the profession; they should be the people up front. They give back in that way.'' Raul said that putting the profession first enables us to address the greater good: ''You are there for the greater good, and you are just a cog in the wheel. If you put yourself ahead of the profession, then you are doing the profession a disservice.''

Mastery of Subject Matter Through Clinical Decision Making

Mastery of subject matter was facilitated through the clinical decision-making process. Chuck stated that grad-

uate education helped him to have a command of the knowledge of the discipline. This afforded him the ability to critically apply decision-making skills and assess whether or not his decisions resulted in the desired effect:

> But now you have command of that information. Given a situation in real life, take [the] information that's given and formulate an answer, differential diagnosis, point of care, any of those different types of things that an athletic trainer would need to function … At the graduate level is where you are able to put it all together and begin to reach the … mastery of those things.

Jim explained that mastery is the ability to gain a wide variety of knowledge and use in the field: "I think it's important as a postprofessional student … to have a wide variety of knowledge. You can master it, you can adapt it, and you can use it in the field." He described this knowledge as knowledge in greater depth or detail. Jim continued:

> I see it in lot more fine detail, I suppose, than you would … at the undergraduate level. There are probably some more doors that are opened to you at the graduate level as far as surgeries, etcetera … [you are] more advanced and] developing a greater understanding than that … [gained during] undergraduate education.

Bob agreed but added that as we gain this knowledge in the classroom, we start "hammering" this knowledge down in the clinical environment, and then we begin to obtain mastery:

> …The subject matter in our profession is more clinically based, hands on, kind of real-world application. You don't really get that in the classroom setting. You … get the concepts and the ideas in the classroom, but … the mastery of it, in my mind, was really kind of hammered down clinically.

Yankee's experience mirrored Bob's when he explained that clinical experience is essential to mastery of subject matter. He stated that you master the skills by applying them in the clinical environment: "I think graduate education is designed to give you more expertise and mastery over those skills. This is accomplished through the application of knowledge through critical decision making; you master by doing it." Bob also noted that being "thrown into the fire" with a safety net of other staff helps assist in this process of mastery:

> You were just kind of thrown into the fire. You are the primary athletic training provider for a sport, in my position. You … had a safety net, but you were on your own, you kind of do your thing, you sink or swim basically. "Go to it, make it happen," and … you master by doing it. That's kind of how you did it, just sink or swim.

Jim believed that incorporating different disciplines helped in the process of mastery of subject matter via the expansion of knowledge and thoughts:

> I think the graduate level just definitely takes it a step farther. I think they give you more options. They expand your knowledge. You have more access to … a variety of different disciplines … so it would give you a wider base to draw from … it really expanded your knowledge, expanded your thought process, which helps in the mastery of concepts and skills.

Chuck carried this idea forward, discussing mastery of subject matter obtained through refined thought and application that is grounded in theory:

> … If you have an understanding of the theory, then you can formulate the critical thinking part of it. … from there, you can break it down and you can understand the different applications of that theory if you … know how to think about it. … In theory, this works, [but] how well does it work in practice? You have to be able critically understand those things. As you understand the theory and are able to put it into a critical thinking process, you can begin to master it.

Professionalism During Interaction

Michelle found professionalism in the interaction with peers, the public, and other medical professionals to be the foundation in building respect for oneself and the profession:

> But I think pride and professionalism [are] especially [important] now, because we have changed from an internship "good old boy" situation … we were always allied health professionals, but we are starting to be recognized by the greater population and people are becoming aware of us. … I think … [it's a] process of trying to change that attitude of we are not just water boys, we are not just water girls, we are not just carrying a fanny bag full of tape; [instead,] we are professionals, allied heath professionals, and we can bill for our services. … In order to have a change, everybody is going to have to be on the same page … [in recognizing us as] allied health professionals, [and] we need to act in line with that.

Interpersonal skills that are taught in the classroom and mirrored in the clinical environment were seen as essential in the process of interaction. Chuck stated that the ability to communicate with physicians during clinical practice, coupled with learning to be proficient in doing research and sharing with the larger medical community, helps in this process:

> So it is important that … graduate student[s] be … proficient at these things, and if they are going to communicate with other athletic trainers [or medical professionals], then their writing needs to be in line. … It is important that graduate students do … [quality] research to add to that knowledge, so the profession … [receives] respect. … New students can learn about new things and keep current with the current medical community that we are part of.

Learning in a Low-Pressure, Low-Consequence Environment

The participants described a low-pressure, low-consequence learning environment, both clinically and academically, as an essential element for the education of the accredited postprofessional. This environment allowed the student to feel safe and to manipulate knowledge and practice skills. Bob shared his experience of being able to make mistakes and learn from them, developing the confidence to meet the challenges he would face professionally on his own:

> I think that being able to kind of talk about it in a low-pressure, no-consequences environment and … freely make mistakes with no real consequences was helpful. …Once you get into the heart of the matter, you … [must] critically think kind of quickly, so being able to … [experience] those mistakes somewhere else or work through a problem, … you are [now] a little more comfortable and you can just hammer it home in a real-world setting. …

Maverick added that this low-pressure, low-consequence environment allowed him to make mistakes, be creative, and feel safe: "I wanted to have opportunities to take what I had already learned in undergraduate [school] and practice it more in what I thought would be a safe, … controlled environment before … go[ing] out and do[ing] a 'real … working job.'" This fostered learning, growth, and experience, creating a true learning atmosphere.

Practical Career Applications

The participants discussed practical career applications presented during academic instruction as being essential; topics such as job-seeking skills, employment contracts, and salary negotiation were paramount. These skills help prepare the clinician for the real working world. However, the participants stated that their programs lacked these components. As Chuck said:

> Another one is job searching and finding … information about what you are looking at when you are talking about contracts, when you are talking about salaries … it would be nice to know then and not have to learn this stuff trial by fire. … I feel like those are things that would be beneficial to the graduate student.

Bob stated, "I think right at the beginning, … somebody [should have] sat us down and said, 'this is what is going to happen, this is what to expect, this is what you are going to have to deal with. So start now thinking about how you are going to handle something like that.'"

Opportunities for Specialization

Last but not least, the participants felt that specialization was crucial to the profession and that each program should have it own niche or special certification. Matt noted:

> I feel that a graduate program should speak to the basics of graduate education … [and include] a core area that all programs should address. [However,] they should [also] have their specialty area, whether it be biomechanics, athletic training education, exercise physiology, proprioception, [or] physical medicine. … I think that would be a great thing, a great area that graduate education could move to. Have [not] only the core graduating area but [also] have some specialized areas off from that part of the master's program.

Maverick shared a similar sentiment regarding advanced tracks or special certifications:

> The direction that we might want to go in the profession is advanced track, specialties, or special certifications, where certain graduate education programs would train them to be educators. … other graduate educational programs … would help you to master more … skills for clinical athletic trainer[s] or … [be] geared at just the university setting.

Mike agreed with Maverick and Matt when he explained that programs should have their own specialties: "Now it is not good if everyone is interested in the same thing, but … program[s] should have their own niche[s] or their own availability of resources." Mike tied the previous comments together when he addressed the idea of experts developing specialization in the field and defining specific areas within the athletic training profession:

> I would like the idea of specialization, because I think the only way our profession is going to improve is if we start to have experts in all the areas and … [then] start to train students and facilitate learning in all the areas to … [elevate] the profession…, as opposed to everyone running to one area or … trying to … [be] the jack of all trades and the master of none.

DISCUSSION

The aim of this investigation was to gain insight regarding the essential elements of accredited postprofessional athletic training education. Paramount to this investigation was the discovery of the theoretic constructs that confirm, disconfirm, or extend the principles[2] of accredited postprofessional education and their applications. The data indicate that the participants in this study have confirmed and extended the principles[2] and their applications. Furthermore, each of these principles is woven together to progress the clinician's practice from novice to expert.

Theoretic Understanding Fostered by Critical Thinking: Grounding Practice

The participants identified theoretic understanding as an essential element to graduate athletic training education. This theoretic understanding was fostered through critical thinking. Being able to critically think through the theoretic knowledge resulted in a "deeper understanding."[12] This deeper understanding provided a theoretic basis for practice. This sentiment was shared by the Post-Professional Education Council, which stated that post-professional athletic training education provides the environment for understanding and then solidifies this

understanding through performance in the field.[12] Pratt[13] explained, ''Learners need time to link ideas both within and between subjects, and for learners in the professions, to link theory and practice.'' An emphasis on theory and practice is evident in educational curricula for nursing, which indicate that nurses should understand the ''why'' and ''what for'' surrounding clinical practice in order to critically analyze and ground their practice.[14] The participants in my study described critical thinking skills as ''developed and refined academically'' and ''hammered down clinically.'' Challenging clinical situations tied with theoretic understanding and critical thinking enabled the participants to make sound clinical decisions.

Critical thinking is a process that is developed from experience, both in the classroom and clinically. Schraw[15] divided acquiring knowledge into 3 processes: learning by seeing and doing, learning in groups in which collaboration can take place, and learning through an individual process of reflection and critical analysis. This ability to gain theoretic understanding cannot occur without the ability to think critically, which allows for independent thinking and the connecting of current knowledge with the past.[11] In the *Standards and Guidelines*,[2] the Post-Professional Education Council asserted that graduate education was able to develop and refine critical thinking skills, which foster knowledge of the discipline and expand its boundaries. This process justifies clinical decision making and, therefore, grounds clinical practice.

Research Experience Fosters Critical Thinking

The participants in this study felt that research experience was necessary because of its ability to foster critical thinking.[12] Along with theoretic understanding and the ability to think critically, gaining proficiency in research gave them the opportunity to present original ideas and develop writing skills.[12] Thus, this proficiency helps to advance the knowledge of the discipline.[13] Pursuing scholarship, expressing themselves creatively, and developing original ideas were paramount in this process. The participants agreed that this deepened their understanding and helped to advance the profession, which in turn gave them greater experience. Proficiency in research also is relevant to the greater umbrella of health and human performance. Baumgartner and Strong[16] affirmed that research is paramount to practicing professionals. It tests ideas and requires critical thinking. It is essential to building and sustaining new skills and prompts the mind to further question previously unexplored areas. This sentiment was also shared by the Post-Professional Education Council,[2] which determined that research experience must be designed with the goals of deepening the students' theoretic understanding and expanding and encouraging critical thinking along with the mechanics of writing and speaking. Research experience is an essential element in the process of developing the expert practitioner through critical reflection; questioning assumptions leads to more grounded practice.

Exposure to a Diverse Representation of Perspectives

The participants agreed that a diverse representation of classmate and faculty perspectives in the academic and clinical learning environment provided a myriad of knowledge and experience. Diverse ideas were presented via lectures, discussion groups, and different ways of doing things. The Post-Professional Education Council[2] stated that accredited postprofessional athletic training education provides an environment for the student to have a variety of encounters that are rich in intellectual and cultural stimulation. Knowledge and inquiry take place within its contextual environment. Other researchers echo this sentiment. Granott[17] noted that ''Participants construct their knowledge not only on the basis of their own activity and understanding, but also of the activity and understanding of others in the ensemble, and of the activity context.'' Individual knowledge is important in understanding but is not enough alone; this knowledge must be coupled with that of others who are involved in the learning community. Therefore, the learners' knowledge is expanded and expounded upon through this direct experience with others. These experiences help the learner to refine thought and develop a greater understanding.

Developing an Orientation to Service

The participants in this study believed service orientation to be essential to the postprofessional athletic training education student because of its relevance in everyday professional life through service on committees, sharing of ideas with the larger community, and advancing the profession.[12] Orientation to service fosters a professional commitment and a desire to give back professionally. This idea was shared by the Post-Professional Education Council[2] when it stated that graduate education reinforces the duty to provide this expanded knowledge to the greater community. The seeds of this type of professionalism need to be planted and cultivated during the graduate education years so that the precious fruit of orientation to service is born out in the lives of our young professionals.

Obtaining Mastery of Subject Matter Through Refined Thought and Grounded Practice in a Positive Learning Environment

The participants believed mastery of the subject matter to be essential to good clinical decision making. One must have a command of the information, increased depth and breadth of knowledge, and experience. The nursing education literature shares a similar sentiment with regard to using in-depth knowledge to guide clinical decision making.[14] Incorporating different disciplines helps in this process. Mastery of subject matter is obtained through refined thought and application that are grounded in theory. Pratt[13] believed that success in learning and eventual mastery must include an environment in which the learner is actively involved, is able to collaborate with others, and learns in the context of the environment. Coupled with mastery must be the opportunity to master these skills in a low-pressure, low-consequence learning environment that affords the participants the ability to excel. This environment allows them to make mistakes, to be creative, and to feel safe. Learning, growth, and experience are fostered, creating a truly educational atmosphere. Dirkx and Prenger[18] stated, ''To mentor their students effectively, teachers need to aim for the right blend of support and challenge for each learner. … Challenge always takes place within a context of support.'' The

support of a mentor or educator allows the student to slowly master clinical skills, providing a scaffold for the development of a greater depth and breadth of knowledge.

Developing Professionalism Through Specialization, Practical Career Application, and Interaction With Larger Community

The participants in this study described professionalism in their interactions with peers, the public, and other medical professionals as the foundation to building respect for oneself. Interpersonal skills were seen to be essential in the process of interaction. This professionalism is connected, as previously stated, to research proficiency. Baumgartner and Strong[16] described the learning process as adding to the professional's skill base to further future discovery of theory and allow the exploration of new ideology.

This professionalism and acquisition of respect are necessary for the advancement of the profession. To improve professional awareness in the working world, practical career applications (eg, job-seeking skills, the nuts and bolts of employment contracts, and salary negotiation) should be presented during academic instruction. This practical career application is discussed in the education literature also: Torff and Sternberg[19] stated that hands-on, ''real''-world experience is crucial to the developing professional. Specialization is one way this can be fostered. Participants thought that each program should have it own niche or special certification, allowing certain practitioners to become experts in the field and better defining specific areas of the athletic training profession. Since the collection of these data, the NATA Post-Professional Education Council has begun to address this issue. Newly developed postprofessional programs, such as residency training programs, are beginning to fill this void,[3,20] and the Post-Professional Education Council[2] encouraged the implementation of diverse programs with unique specialized practice areas. Dirkx and Prenger[18] stated that context-based instructing is a framework that allows the learning to be personal and based on the individual experiences of the learner. It is adaptable, which creates richness and personally meaningful applications. This idea of developing the professional through specialized areas of practice helps to broaden our scope as professionals.

Postprofessional Education Similarities of Other Allied Health Professions

Trends in other allied health professions reflect attempts to improve the quality of graduate education through accreditation requirements. The American Association of Colleges of Nursing[21] has identified the following common elements of graduate nursing study: expanding and advancing knowledge, developing theory and knowledge of processes, developing analytical and leadership strategies, progressive and guided student scholarship and research experiences, immersion experiences that foster the student's development as a practitioner, and professional socialization. The American Physical Therapy Association's Commission of Accreditation in Physical Therapy Education[22] evaluates postprofessional programs based on the development of the following attributes: professional duty, compassion and caring, communication and cultural competence, social responsibility, clinical reasoning, and evidence-based practice. The American Board of Internal Medicine[23] evaluates programs on the following criteria: clinical judgment, medical knowledge, clinical skills, humanistic qualities, professionalism, medical care, continuing scholarship, and moral and ethical behavior. In other graduate medical education literature,[24] the concept of reflective practitioners who use scientific evidence to guide clinical practice is essential for quality care. The Accreditation Council on Graduate Medical Education[24] evaluates programs based on 6 domain areas, among which can be found the following elements: interpersonal and professional communication skills, practice-based learning, engagement in scholarly activities, theoretic medical knowledge, professionalism, and systems-based practice.

CONCLUSIONS

At the beginning of this study, I posed the ''grand tour'' question: What are the theoretic constructs that confirm, disconfirm, or extend the principles, and their applications, appropriate for accredited postprofessional athletic training education programs? The participants confirmed and extended these principles and their applications. I found that each of these principles or processes is interrelated and interconnected, leading to the core category of *novice to expert practice*. The emergence of this central category of *novice to expert practice* is a paramount finding in this research. According to these research findings, accredited postprofessional athletic training education is essential in developing expert practice within the field of athletic training.

If we are to continue to achieve the principles of accredited postprofessional athletic training education, we must strive to expand this theoretic position and search more deeply within the theoretic constructs of this position. My feeling is that further investigation into the interrelatedness and interconnectedness of these principles and how they contribute to the development of expert practice is paramount. Also important is investigating areas of specialization within the athletic training profession. Furthermore, because the concepts are interconnected, can we enhance postprofessional clinical experiences to foster mastery of subject matter, theoretic understanding, critical thinking, and research proficiency?

REFERENCES

1. National Athletic Trainers' Association. NATA Board action summary. *NATA News*. September 1994:15.
2. National Athletic Trainers' Association Education Council. *Standards and Guidelines for Post-Certification Graduate Athletic Training Education Programs*. Published May 2002. http://www.nataec.org/LinkClick.aspx?fileticket=VF2HZV5TQ9E%3D&tabid=97&mid=503. Accessed April 4, 2008.
3. National Athletic Trainers' Association. Education continues to evolve: post-professional work expands. *NATA News*. January 2006:14–19.
4. Strauss A, Corbin J. *Basics of Qualitative Research*. Newbury Park, CA: Sage Publications; 1990:19.
5. Brigham Young University. Principles and characteristics of graduate education. Brigham Young University Web site. http://www.byu.edu/gradstudies/images/resources/brochure.pdf. Accessed March 16, 2009.
6. Merriam SB. *Case Study Research in Education*. San Francisco, CA: Jossey-Bass; 1988:19–39.
7. Scott KW. Relating the categories in grounded theory analysis: using a conditional relationship guide and reflective coding matrix. *Qual Rep*. 2004;9:113–126.

8. McCaslin ML. *Leadership in Rural Communities: A Grounded Theory Study* [dissertation]. Lincoln: University of Nebraska, Lincoln; 1993.
9. Strauss AL, Corbin JM. *Basics of Qualitative Research.* 2nd ed. Newbury Park, CA: Sage Publications; 1998:120–121.
10. Lincoln YS, Guba EG. *Naturalistic Inquiry*. Beverly Hills, CA: Sage Publications; 1985:314–327.
11. Foundation for Critical Thinking. Defining critical thinking. http://www.criticalthinking.org/aboutct/define_critical_thinking.cfm. Accessed April 7, 2008.
12. Knight KL, Ingersoll CD. Developing scholarship in athletic training. *J Athl Train*. 1998;33(3):271–274.
13. Pratt DD. *Five Perspectives on Teaching in Adult and Higher Education*. Malabar, FL: Krieger Publishing Co; 1998:120.
14. Hardcastle JE. "Back to the bedside": graduate level education in critical care. *Nurse Educ Pract*. 2008;8(1):46–53.
15. Schraw G. On development of adult metacognition. In: Smith MC, Pourchot T, eds. *Adult Learning and Development: Perspectives From Educational Psychology*. Mahwah, NJ: Lawrence Erlbaum Assoc; 1998:101.
16. Baumgartner TA, Strong CH. *Conducting and Reading Research in Health and Human Performance*. Dubuque, IA: Wm C Brown Communications Inc; 1994:5–6.
17. Granott N. We learn, therefore we develop: learning versus development—or developing learning? In: Smith MC, Pourchot T, eds. *Adult Learning and Development: Perspectives From Educational Psychology*. Mahwah, NJ: Lawrence Erlbaum Assoc; 1998:28.
18. Dirkx JM, Prenger SM. *Planning & Implementing Instruction for Adults: A Theme-Based Approach*. San Francisco, CA: Jossey-Bass Publishers; 1997:35.
19. Torff B, Sternberg RJ. Changing mind, changing world: practical intelligence and tacit knowledge in adult learning. In: Smith MC, Pourchot T, eds. *Adult Learning and Development: Perspectives From Educational Psychology*. Mahwah, NJ: Lawrence Erlbaum Assoc; 1998:117.
20. Seegmiller JG. Perceptions of quality for graduate athletic training education. *J Athl Train*. 2006;41(4):415–421.
21. American Association of Colleges of Nursing. Indicators of quality in research-focused doctoral programs in nursing. *J Prof Nurs*. 2002;18(5):289–294.
22. American Physical Therapy Association. *A Normative Model of Physical Therapist Professional Education: Version 2004*. Alexandria, VA: American Physical Therapy Association; 2004:11–14.
23. American Board of Internal Medicine. *Guidelines on Evaluation of Competence and Other Information: A Resource for Subspecialty Program Directors*. Philadelphia, PA: American Board of Internal Medicine; 1998:1–5.
24. Davis JD, Ringsted C. Accreditation of undergraduate and graduate medical education: how do the standards contribute to quality? *Adv Health Sci Educ Theory Pract*. 2006;11(3):305–313.
25. Joyner BD. An historical review of graduate medical education and a protocol of Accreditation Council for Graduate Medical Education Compliance. *J Urol*. 2004;172(1):34–39.

Peter J. Neibert, PhD, ATC, provided conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article.

Address correspondence to Peter J. Neibert, PhD, ATC, Xavier University, 3800 Victory Parkway, Cincinnati, OH 45207. Address e-mail to neibertp@xavier.edu.